Stakeholder Engagement and Q&A Activities
Reflection on Fukushima Accident

Central Research Institute of Electric Power Industry

Haruyuki OGINO

IRPA13
16 May, 2012
## Reflection on Fukushima

<table>
<thead>
<tr>
<th>Emergency Exposure Situation</th>
<th>Existing Exposure Situation</th>
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<tbody>
<tr>
<td>Misdirection of evacuation caused higher dose (Namie-town)</td>
<td>In general, stakeholders were not appropriately engaged in decision making process, such as</td>
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<tr>
<td>➢ To avoid social panic, computed-based prediction (SPEEDI) was decided not to disclose</td>
<td>➢ Usage restriction of shoolyard (20 mSv/y for small children)</td>
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<tr>
<td>Situation of administration of stable iodine has not been grasped</td>
<td>➢ Designation of deliberate evacuation area (20 mSv/y for all inhabitants including elderly)</td>
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<tr>
<td>➢ Untransparent decision making process and complex system for instruction (official records are unavailable)</td>
<td>➢ Target dose in environmental remediation (1 mSv/y)</td>
</tr>
<tr>
<td>Evacuation lasted over months</td>
<td>➢ New food restriction (1 mSv/y)</td>
</tr>
<tr>
<td>➢ “Relocation” was not included in decision making of “Emergency Preparedness and Response”</td>
<td>➢ avertable dose is 0.008 mSv/y</td>
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</tbody>
</table>
“Issues Associated with Radiation Protection after Fukushima Daiichi Nuclear Power Plant Disaster”– Responses of and Recommendations from JHPS –”

Available in English at JHPS website, [http://www.jhps.or.jp/en/](http://www.jhps.or.jp/en/)

- Issue 1: Strategies for reducing anxiety and doubts of the general public regarding radiation risk

Fukushima Symposium
16 June 2011,
Univ. of Tokyo, Japan

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JHPS Q&A Website

Available at http://radi-info.com/
Poster presentation (P12.64) by T. Kono etc.

◆ Establishment
- 25 March 2011: Voluntarily opened by retired experts (20 members)
- 24 August 2011: New official committee in Japan-HPS (53 members)
- Involvement of young researchers and University students

◆ Achievement
- 1,525 Q&A (As of 7 May 2012)
- >3,000,000 page access
- >5,000 Twitter Followers

◆ Publication of booklet
- Now under preparation
JHPS Q&A Procedure

1. Respect and carefully respond all questions
   - Do not ignore a question even if it seems quite similar
   - Publish questioners’ original sentences on website

2. State objective facts in plain language
   - Calculate doses in each questioner’s exposure situation
   - Compare with scientific data
     • Natural background radiation
     • Epidemiological studies (e.g., A-bomb survivors, HNBR)

3. Modestly add personal opinion of respondent
   - Provide a basis for a commensurate response with risks
   - Assist questioner to make the final judgment (Do not force)

4. Do not defile the dignity of JHPS
   - Do not annoy other JHPS members
Social Response

◆ Positive

➢ They are honest to all questions and reliable
➢ Each answer is provided by plain language, based on plenty of knowledge and expertise
➢ Quantitative answers sound reasonable, not just saying “Don’t worry”

◆ Negative

➢ All opinions saying “Don’t worry” stir up more anxiety
➢ Dose calculations are not reliable because the government might hide information
➢ Which is true? Different opinions about risks of exposure to low-dose radiation are provided by other experts in mass media
Summary

- Engage with Society by JHPS Q&A website
- Provide questioners objective information with personal opinion in plain language
- Receive positive social reactions

- Most important thing “Confidence”
  - The public has the feeling that they are not being lied
- Continuous challenge – FY2012
Additional slides
## Characteristics

<table>
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<tr>
<th></th>
<th>Emergency Exposure Situation</th>
<th>Existing Exposure Situation</th>
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<tbody>
<tr>
<td><strong>First concern</strong></td>
<td>Urgent action to prevent deterministic effects</td>
<td>Long-term action to reduce risk of stochastic effects</td>
</tr>
<tr>
<td><strong>Time frame</strong></td>
<td>hours, days (weeks)</td>
<td>months, years (decades)</td>
</tr>
<tr>
<td><strong>Countermeasure</strong></td>
<td>• Evacuation and sheltering</td>
<td>• Amended restriction on foodstuffs</td>
</tr>
<tr>
<td></td>
<td>• Administration of stable iodine</td>
<td>• Environmental remediation</td>
</tr>
<tr>
<td></td>
<td>• Personal decontamination</td>
<td>• Waste management</td>
</tr>
<tr>
<td></td>
<td>• Provisional restriction on foodstuffs</td>
<td>• Radiation measurement</td>
</tr>
<tr>
<td></td>
<td>• Deliberate evacuation, etc.</td>
<td>• Health surveillance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Dose reconstruction, etc.</td>
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</tbody>
</table>
### Answer to “Who make decisions and how?”

<table>
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<th>Questions</th>
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</table>
| Who make decision? | Central government | • Local and central government  
• Inhabitants |
| and how? | • Run “Comprehensive Emergency Preparedness and Response”  
• Systematic instruction (practical training)  
• Credible records (post-accident verification) | • Initiate “Decision Making Process”  
• Stakeholder involvement (Transparency) |
Answer to “Who are stakeholders?”

◆ Description in IRPA Guiding Principles

The process should include all the relevant stakeholders, extending representation beyond the obvious candidates to all those perceived to have a share in or an impact associated with the risks of the endeavor under consideration (in Principle 3 of IRPA Guidance)

◆ Stakeholders who should have been involved

- “PTA, headmaster, Mayor, etc.” for usage restriction of schoolyard
- “Inhabitants, town headperson, Mayor, etc.” for designation of deliberate evacuation area and for environmental remediation
- “Consumer vs producer” for restriction of foodstuffs
  - People in “Affected vs Non-affected Area”
  - Nationwide solidarity
Example-Question

I live in Kashiwa city (30 km north of central Tokyo) with 1 year-old child. We were afraid of earthquake and staying indoors since 11 March, so went outside to play at the park everyday. My child often ate the sand at the playground. After several weeks later, it was found that it was heavily contaminated. Whenever I see his face, I fear the cancer and always blame myself. I have been sleepless from the anxiety these days. Is he safe or not? What should I do?
Thank you for posting the question and I sympathize the uneasiness.

The maximum dose rate in the city was 4.11 µSv/h according to report of Ministry of Environment.

Using the external dose conversion factor [IAEA-TECDOC-1162], the maximum activity concentration of the sand is about 15 Bq/g.

Assuming your child ate a tablespoon cup of sand (15 g), the effective dose is about 3.5 µSv using internal dose conversion coefficient [ICRP-Pub72].
(2: State objective facts in plain language)

UNSCERAR 2000 reports shows that world average of natural background radiation is about 2.4 mSv/y (2,400 µSv/y).

Japanese epidemiological studies of A-bomb survivors in Hiroshima and Nagasaki prove that there is no statistical increase below 100 mSv (100,000 µSv) in acute dose.

In addition, recent epidemiological studies in high natural background radiation area (HNRA) show that there is no statistical increase below 600 mSv (600,000 µSv) in chronic dose.
(3: Modestly add personal opinion of respondent)

I personally think that you don’t need to worry about the health effects. Instead, I worry about the psychological influence, which may indirectly affect your child. Keeping usual public health can really benefit your daily life in the future.

I hope that this answer could be helpful for your life and your child could grow up healthy.

If you have any questions, please contact again, and I am willing to respond. Thank you.
IRPA Guiding Principles

Radiological protection professionals should endeavor to:

1. Identify opportunities for engagement and ensure the level of engagement is proportionate to the nature of the radiation protection issues and their context.
2. Initiate the process as early as possible, and develop a sustainable implementation plan.
3. Enable an open, inclusive and transparent stakeholder engagement process.
4. Seek out and involve relevant stakeholder and experts.
5. Ensure that the roles and responsibilities of all participants, and the rules for cooperation are clearly defined.
6. Collectively develop objectives for the stakeholder engagement process, based on a shared understanding of issues and boundaries.
7. Develop a culture which values a shared language and understanding, and favors collective learning.
8. Respect and value the expression of different perspectives.
9. Ensure a regular feedback mechanism is in place to inform current and future stakeholder engagement processes.
10. Apply the IRPA Code of Ethics in their actions within these processes to the best of their knowledge.
Trend of Questions

◆ March 2011
  ➢ Health effect of internal exposure in daily life
  ➢ Need of emergency evacuation

◆ April-June 2011
  ➢ Health effect by seasonal activities

◆ July-September 2011
  ➢ Low dose health effect (external and internal exposure)

◆ October-December 2011
  ➢ Health surveillance (pediatric thyroid, bioassay)

◆ January-March 2012
  ➢ Difference in experts’ understandings
  ➢ Basic attitude of JHPS

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Three Pillars of Sustainable Rehabilitation

◆ Radiation Monitoring System
  ➢ Airborne, carborne, local survey

◆ Health Surveillance Strategy
  ➢ 2M inhabitants in Fukushima prefecture
    ■ Prevention of development of disease
    ■ Reassurance of potential health impacts

◆ Transmission of Practical Knowledge
  ➢ Control of radiological situation
    ■ Dissemination of monitoring results through education system
Radiation Monitoring

Airborne

Carborne

Local survey
Health Surveillance

◆ Dose reconstruction based on behavior survey
  - Recovered answers: 431,720 (21.1 % of 2M ships)
  - Preceding survey: 9,747 people (Kawamata, Namie, Iitate)

Fig. External dose distribution from March 11 to July 11 of 2011

<table>
<thead>
<tr>
<th>External dose [mSv]</th>
<th>Number of people</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1 mSv</td>
<td>5,636 (57.8 %)</td>
</tr>
<tr>
<td>&lt; 10 mSv</td>
<td>9,676 (99.3 %)</td>
</tr>
<tr>
<td>&gt; 10 mSv</td>
<td>71 (0.73 %)</td>
</tr>
<tr>
<td>(Max. 23.0 mSv)</td>
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(Modified from Fukushima prefecture website, http://www.pref.fukushima.jp/imu/kenkoukanri/240220gaiyo.pdf)
Personal Dosimetric Survey

North (40-60 km)

NW (50-70km)

(Modified from Soma and Fukushima city website)
Numbers of Questions Posed

Cited from the Poster Presentation (P12.64) in IRPA13
T. Kono, H. Ogino, H. Hayakawa, H. Shimo, M. Taniguchi and N. Ban