

ICRP

Lessons from ICRP Activities in Fukushima

Remediation – Rehabilitation – Recovery

International Experts' Meeting on Radiation Protection after the Fukushima
Daiichi Accident: Promoting Confidence and Understanding
Vienna, February 2014

Christopher Clement, ICRP Scientific Secretary

Jacques Lochard, ICRP Vice-Chair

Re...

Remediation

- “the action of ... reversing ... environmental damage” (OED)

Rehabilitation

- “return (something, especially a building or environmental feature) to its former condition” (OED)
- “long-term actions that may need to be implemented in the case of ... contamination of large inhabited areas” (P111)

Recovery

- “a return to a normal state of health, mind, or strength” (OED)
- “the action or process of regaining possession or control of something stolen or lost” (OED)

ICRP Task Group 84

- On initial lessons of Fukushima Daiichi
- Chair: (former) ICRP Vice-Chair Abel González
- Initial lessons:
 - Relevant to the System of Radiological Protection
 - Related to efforts carried out to protect people against exposure during and after the Fukushima Daiichi accident
- Final summary report released November 2012
 - 18 issues identified
 - 11 recommendations to ICRP
- Details published by the TG membership in JRP



TG 84 Recommendations: Technical

Radiation Risk

- Properly interpret radiation risk coefficients and potential health effects
- Understand limitations of epidemiological studies for attributing radiation effects following low exposures
- Properly interpret potential hazard from the intake of radionuclides into the body

Quantities & Units

- Resolve confusion on protection quantities and units

TG 84 Recommendations: Policy (1/2)

Protection Levels

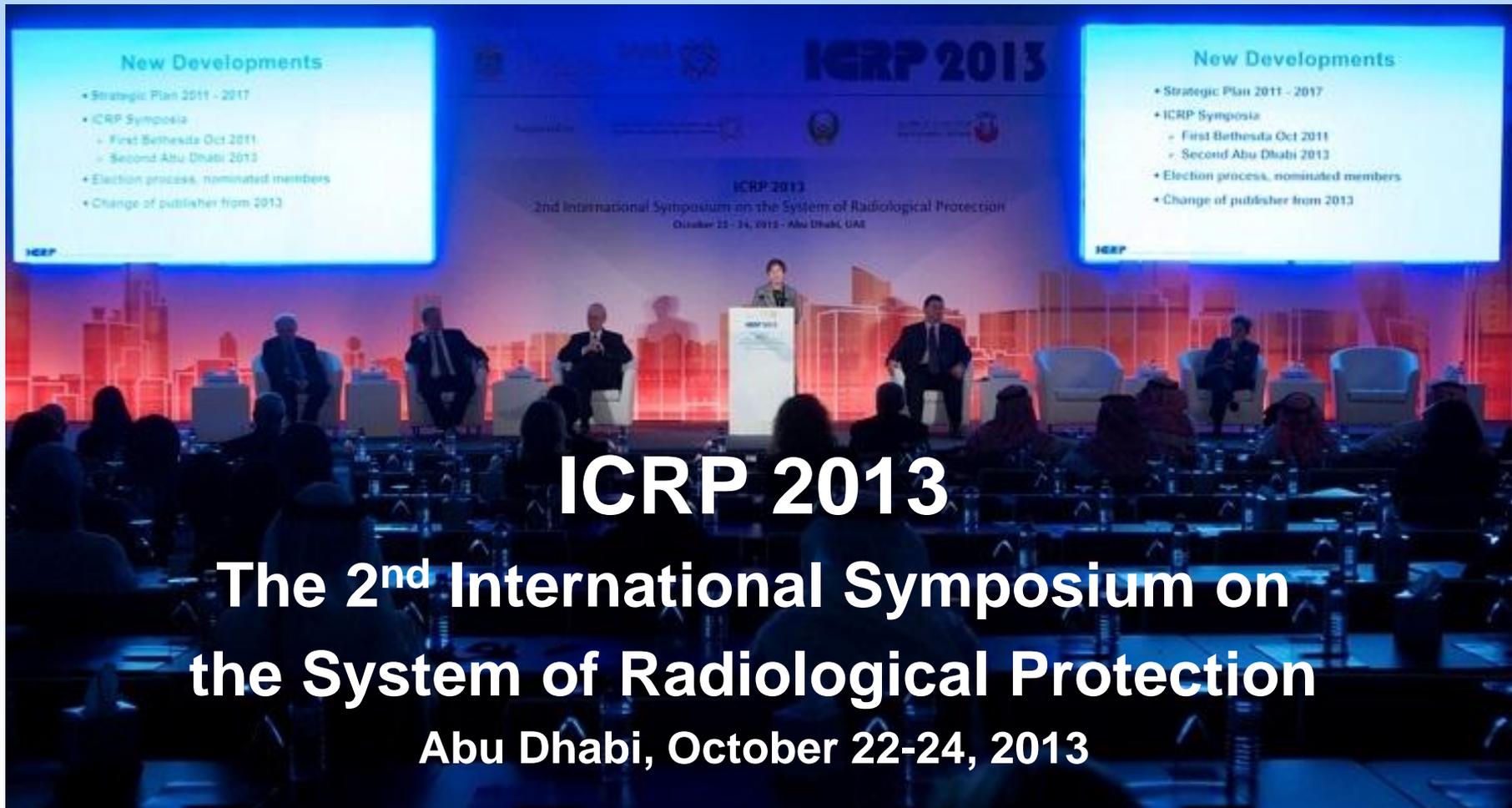
- Make consistent and understandable recommendations on public protection levels including for infants, children and pregnant women
- Define tolerable contamination levels for consumer products, rubble and residues
- Protect rescuers and volunteers with an ad hoc system

TG 84 Recommendations: Policy (2/2)

Other Considerations

- Seek strategies for mitigating serious psychological consequences arising from radiological accidents
- Update recommendations on public monitoring policy
- Make available clear recommendations on crisis management and medical care and on recovery and rehabilitation
- Address failures in fostering information sharing on radiological protection policy after an accident

ICRP 2013



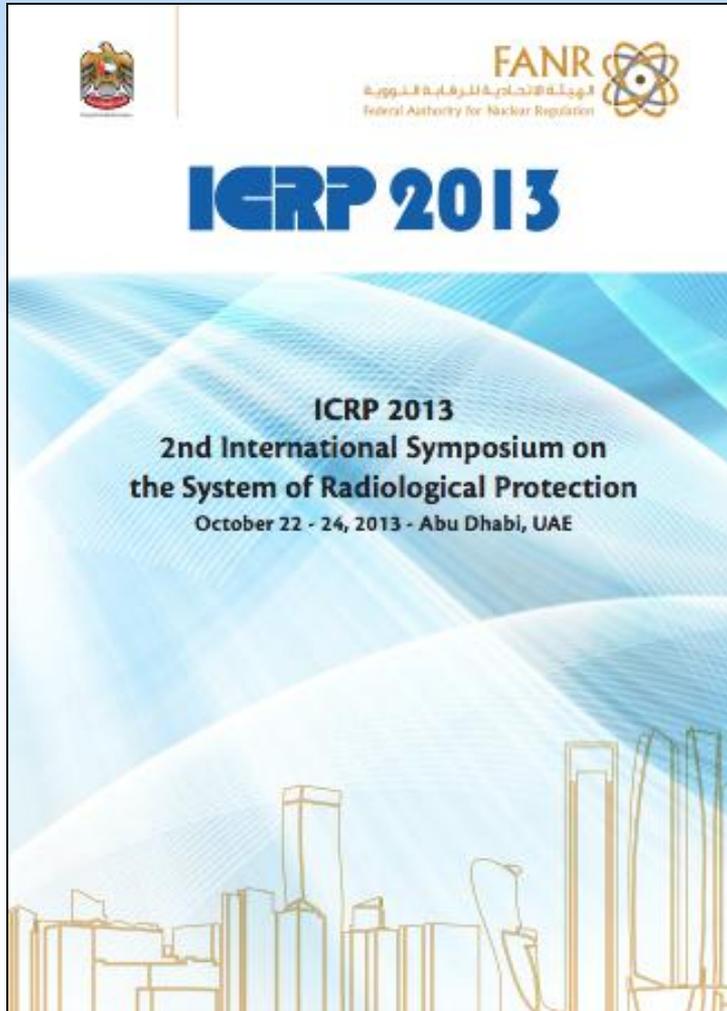
ICRP 2013

The 2nd International Symposium on the System of Radiological Protection

Abu Dhabi, October 22-24, 2013



ICRP 2013



Hosted in Abu Dhabi by the UAE Federal Authority for Nuclear Regulation

- Overview of the work of ICRP
- Tissue reactions: the road from science to protection
- **Advances in recovery preparedness and response following Fukushima**
- NORM issues in the real world
- What do we need from ICRP in medicine?
- The ICRP approach to environmental radiation protection: issues and application

Advances in Recovery Preparedness and Response Following Fukushima

Co-Chairs: Ryugo Hayano (University of Tokyo, Japan) and Jacques Lochard (ICRP Vice-Chair)

Ryugo Hayano (University of Tokyo, Japan)

Tsutomu Sato (Ministry of the Environment, Japan)

Michiaki Kai (ICRP C4, Oita University of Nursing and Health Sciences, Japan)

Anne Nisbet (ICRP C4, Public Health England, UK)

Jean-Christophe Niel (Nuclear Safety Authority, France)

Some Lessons from Fukushima (1/2)

- Internal and external exposures are lower than initially feared
- Large distribution of individual exposures: looking at the average is insufficient
- Essential to measure internal and external doses for each individual
- Important to find the people in the tail of the distribution and to explore with them protective actions to reduce their doses

Some Lessons from Fukushima (2/2)

- The ICRP system seems to work but there are implementation problems e.g. reference levels
- Failure in community involvement for conducting better rehabilitation
- Ethics are essential to go beyond scientific uncertainties and to properly address all aspects of the situation e.g. dignity

Recent progress outside Japan on planning for recovery was also presented:

- New NCRP guidance on decision making for long term recovery
- French policy for managing long term territories after a nuclear accident: the CODIRPA recommendations

ICRP Fukushima Dialogue Initiative

Joint Initiative

ICRP -- Date City -- Fukushima Prefecture -- Radiation Safety Forum, Japan -- Association for Futures Creation of Tamura & Children, Ethos in Fukushima -- Fukushima Medical University -- Research Institute for Soil Science and Agrochemistry of National Academy of Science of Belarus -- Belarusian branch of Russian-Belarusian Information Centre on the Problems of the Consequences of the Catastrophe at Chernobyl Nuclear Power Plant -- Committee of Radiation Protection and Public Health/OECD-NEA -- Institute of Radiation Protection and Nuclear Safety, France -- Norwegian Radiation Protection Authority, Norway -- Nuclear Safety Authority, France

- **Sharing** ICRP recommendations directly with communities
- **Learning** for ICRP to improve future recommendations
- **Transferring** experience from communities affected by Chernobyl
- **Facilitating** discussions between local stakeholders

ICRP Fukushima Dialogue Initiative

7 Main Dialogue Meetings in Fukushima City, Date City and Iwaki City



Smaller Dialogue Meetings: 4 in Suetsugi and 2 in Hippo



etc...

Main Dialogue Meetings

- 1) Rehabilitation after the Fukushima Accident: Lessons from Chernobyl and ICRP Recommendations (Nov 2011, Fukushima City)
- 2) Accomplishments in Date City, and obstacles to and opportunities for further improvement (Feb 2012, Date City)
- 3) Foodstuff: Examining the challenges (Jul 2012, Date City)
- 4) Education of children (Nov 2012, Date City)
- 5) To return or not, to stay or leave (Mar 2013, Date City)
- 6) Focus on Iitate (Jul 2013, Fukushima City)
- 7) Self-help actions in Iwaki and Hamadōri (Nov 2013, Iwaki City)

Format

- Invited participants (e.g. residents, NPOs, experts, teachers, officials)
- Invited speakers (e.g. Japanese, French, Belarussian, Norwegian)
- Observers (local and international)
- ICRP members as facilitators
- Use of common language and dialogue techniques
- Open to media
- Sponsored by: Date City, FMU, ASN, IRSN, NRPA, CRPPH/NEA

Styles of Dialogue (1/2)

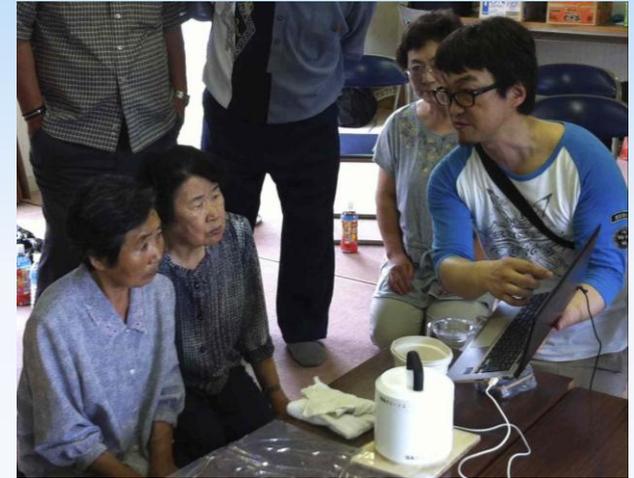
Roundtable meetings

- Presentations
- Structured discussion



Styles of Dialogue (2/2)

- Demonstration of food monitoring
- Cultural demonstration
- Site visits
- etc.



Features

- Adhesion to ICRP **Publication 111** guidance
- Transmission of **post-Chernobyl experience**
- Development of **radiation protection culture**
- **Co-expertise approach**
- Several **styles of dialogue**
- Focus on **practical issues**
- Emergence of a **narrative** by residents
- Diffusion through **social media**: Web + Twitter

1st DIALOGUE MEETING: November 2011, Fukushima City

Rehabilitation of Living Conditions after the Fukushima Accident: Lessons from Chernobyl and ICRP Recommendations



- Re-establish communities with safe living conditions and quality food products



- Maintain solidarity with other communities

- Develop radiation protection culture to allow inhabitants to make informed actions to reduce radiological exposure



- Co-operate to improve living conditions, engaging local and national stakeholders



2nd DIALOGUE MEETING: February 2012, Date City

To understand what has been accomplished so far in Date City, and discuss obstacles and ways to further improve living conditions



- Importance of dignity and solidarity



- Need more detailed radiological characterisation



- Develop a mechanism to support projects proposed by local communities and residents to improve living conditions



- Actions should reflect community priorities, be based on local knowledge, and support their current and future interests



3rd DIALOGUE MEETING: July 2012, Date City

Foodstuff: examining challenges faced by producers, consumers, and everyone in-between



- Discrimination, especially of those of pre-marital age
- Preservation of the traditional and popular activity of gathering wild vegetables (sansai 山菜) was identified as culturally important
- Continue strategies for farmers to control radiological quality
- Continue monitoring individual exposures, and providing information to help people to make their own judgments

4th DIALOGUE MEETING: November 2012, Date City Education of children



- Stressed importance of disseminating radiation protection culture among teachers, parents, and children



- Radiation protection culture goes beyond science: it involves ethical and cultural considerations. Education about radiation protection culture is learning to act in everyday life



- Radiation protection culture is inseparable from radiation monitoring



- Educational materials should be developed with local stakeholders

5th DIALOGUE MEETING: March 2013, Date City

To return or not, to stay or leave



- Inhabitants must make their own decision; but for some there is no choice other than to return due to economic constraints
- Decisions to stay/return rely not only on remediation, but also e.g.: ties with the area, quality of life, availability of information, access to services, future socio-economic development
- Participants stressed importance of setting clear goals and radiological criteria
- Objectives and effectiveness of the remediation programme should be revisited with all relevant stakeholders
- Co-expertise should be supported: development of common evaluation by evacuees, residents, experts and authorities
- Local initiatives to improve conditions should be supported including strengthening infrastructure for sustainable social and economic activities

6th DIALOGUE MEETING: July 2013, Fukushima City Focus on litate



- Need places for dialogue to facilitate exchange of information



- Need equipment for villagers to allow them to make their own measurements



- Establish a framework of cooperation between villagers, researchers, and experts to develop projects at the service of the population



- Define priorities for the decontamination actions in litate, and consider all possible other actions for effectively reducing exposures

7th DIALOGUE MEETING: November 2013, Iwaki City Self-help Actions in Iwaki and Hamadōri - Working Together



- The first devoted to testimonies about how people and communities have mobilized with the support of experts
- Shows that recommendations from previous dialogues can be implemented in practice and are effective
 - Importance of individual monitoring and self-help
 - Exchange of experience in places of dialogue
 - Role of expertise serving the needs of people and communities



General Observations from the Dialogues (Related to Remediation)

- Success depends on the combination of actions by authorities actions by affected people and communities (self-help actions)
- Local communities should be engaged in developing improvement projects and in assessing progress
- Expertise and support should be at the service of local citizens
- Individual monitoring (internal and external) and self-measurement of land and foodstuff are essential, and require outside support
- Radiation protection culture is at least as important as remediation to improve safety and a feeling of security

4 Key Points

#1: The ICRP System of Protection

Overall the system of radiological protection works well, however:

- Must be explained more clearly, and simplifications to system itself should be considered
- Elaboration on protection of rescuers and volunteers
- Clarity on protection of children etc.
- Clarity on the ethical basis will be an improvement
- Should psycho/social/economic considerations be dealt with more explicitly?
- Other incremental improvements

4 Key Points

#2: Actions by Authorities & Self-Help

Success depends on actions by authorities complimented by self-help actions

- Direct involvement of the population is feasible and necessary
- Local communities should be engaged in developing improvement projects and in assessing progress
- Expertise and support should be at the service of local citizens
- To be effective and sustainable, remediation must be complemented by social and economic development

4 Key Points

#3: Focus on Individuals

Focus on individuals

- Individual monitoring (internal and external) and self-measurement of land and foodstuff are key to success
 - Require external support
- Radiological success of remediation / recovery efforts should be measured by improvement in individual doses
 - Not only average doses to groups or area monitoring
- Focus on individuals as soon as possible to:
 - Optimise remediation success
 - Speed overall recovery

4 Key Points

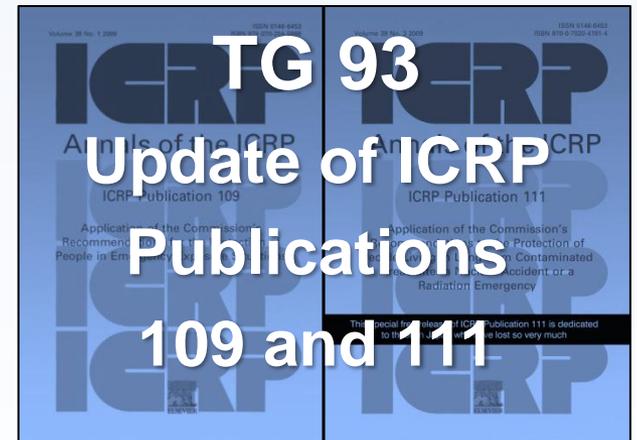
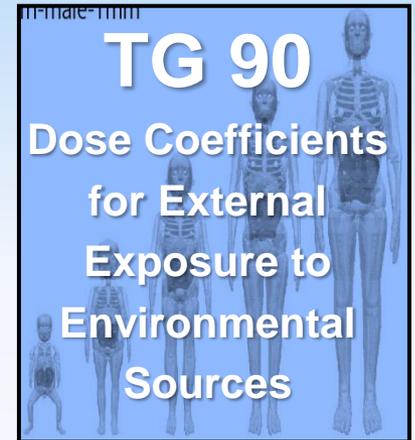
#4: Radiation Protection Culture

Enhancing radiation protection culture is just as important as remediation for recovery

- Radiation protection culture: knowledge and skills enabling each citizen to make choices and behave wisely in a contaminated environment
- Doses are driven at least as much by individual behaviour as by radionuclide levels in the environment
- Understanding and control enhance confidence
- Places of dialogue to exchange experience must be developed at the local and national levels

Looking Forward

- All ICRP Committees are addressing issues raised by TG84
- TG90 on Environmental Dose Coefficients
- TG93 on Update of P109 & P111
- TG94 on Ethics of RP
- Continuation of the ICRP Dialogue Initiative





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