ICRP111 and the reality of Fukushima
- from a clinician's viewpoint -

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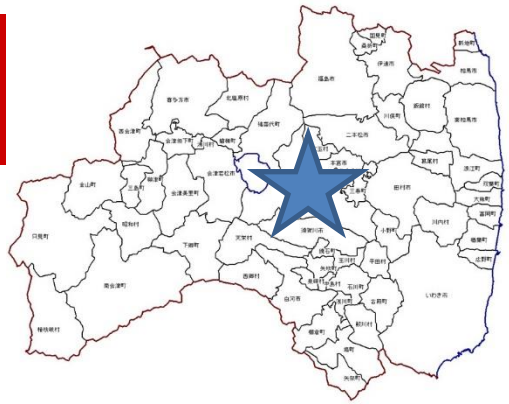
My Background



- I was born and raised in Koriyama.
- I live together with wife and twins born in September 2011.
- My background is “Diagnostic Radiologist”.
- I am a clinician.

- I am not…
  - a researcher.
  - professional of radiation protection.

My work since March 2011

1. To explain WBC results, external dose, etc. to residents.

   Consultation-advice on lifestyles.

2. To implement protection measures in collaboration w/ public health professionals (esp. indirect effects).

Two-branches: Explanation and Implementation

- Individual dose (internal & external) has to be explained to each resident the authority. Individuals and authoritiesshould be informed that the dose is process dependent.
  - For individuals, the dose data should be explained based on his/her everyday life behavior in the affected area.
  - For authorities, the dose data should be shown for its distribution w/ the ratio of outliers in the population.
- Identify the physical outcome of RP measures, and work with the directly responsible bodies to improve the situation.
  - Share the information with the regional public health professionals, target the high risk group to appropriate the approach and measures.
  - Through such collaboration, enhance holistic approach in the measures targeting individuals.

A clinician's dilemma

- Measurement value must be understood by the patient, and be used for improvement, etc.
- Experts need to be aware of the distribution of the values of the entire population when explaining to individuals.

BUT

- No shared knowledge on radiation or among patients or experts.
- Indirect health effect resulting from protective measures (ex. evacuation) were severe; cannot be ignored for public health.

Gap between ICRP 111 and the reality of Fukushima

Is "optimization" implementable?

Overview of the Gap

ICRP 111 and reality in Fukushima

1. Role of “Explainer” not defined in ICRP 111

2. Optimization Process did not function as prescribed

3. ALARA vs ALAP

Implementing Protection Strategies - ICRP 111

Strategies to be implemented by authorities:

- Clean-up of buildings, remediation of soil and vegetation, etc.
- Set up infrastructure to support the implementation of all protection strategies, including self-help strategies implemented by the affected population.（ex. Provide monitoring equipment, etc.）

Provide support
Facilitate

NOT DEFINED IN ICRP 111

Accurate explanation and information sharing through “Explainer” or “Facilitator”

Strategies to be implemented by the affected population:

- Monitoring ambient dose rates in living places and contamination of foodstuffs
- Evaluating external and internal exposure
- Adapting way of life accordingly to reduce their exposure

‘Optimization’ Process - ICRP 111

参考レベルを用いた防護の最適化

The use of reference levels and the step-by-step optimization process.

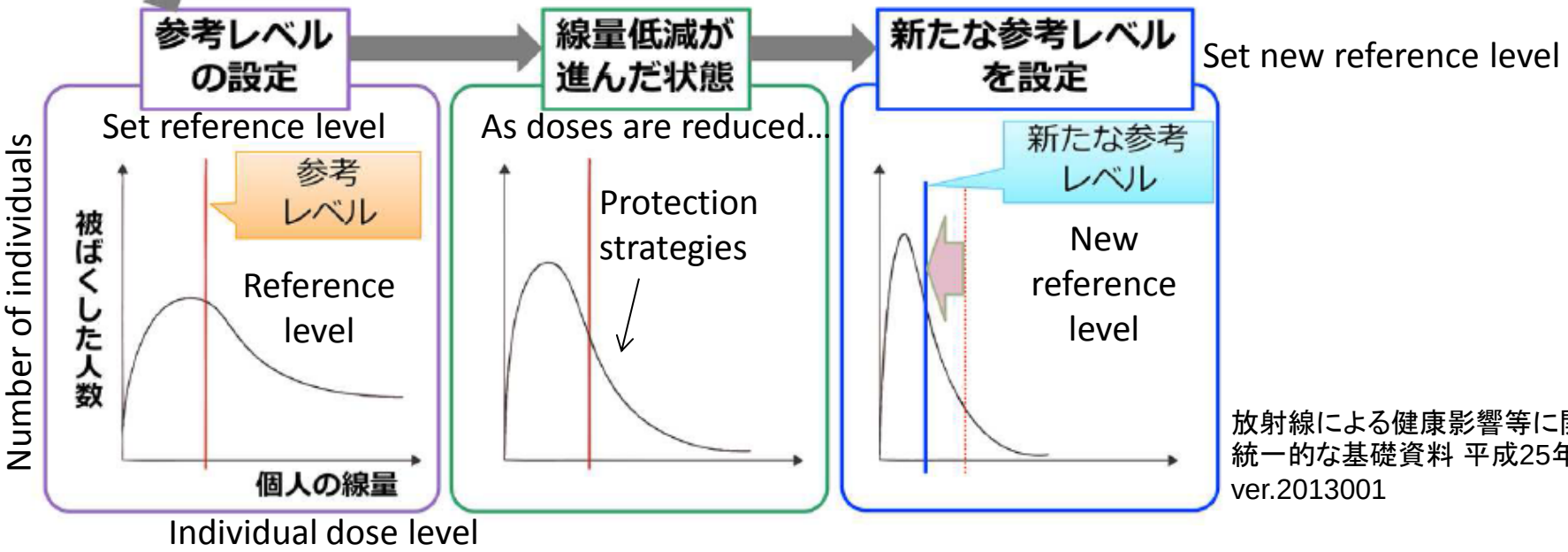
Focus on protective measures to reduce individual exposures above reference level

↓

Set new reference level as per appropriate

最初の状態

Initial state



放射線による健康影響等に関する統一的な基礎資料 平成25年度版 ver.2013001

Three issues → discussed in the next slide

‘Optimization’ Process - ICRP 111-cont.

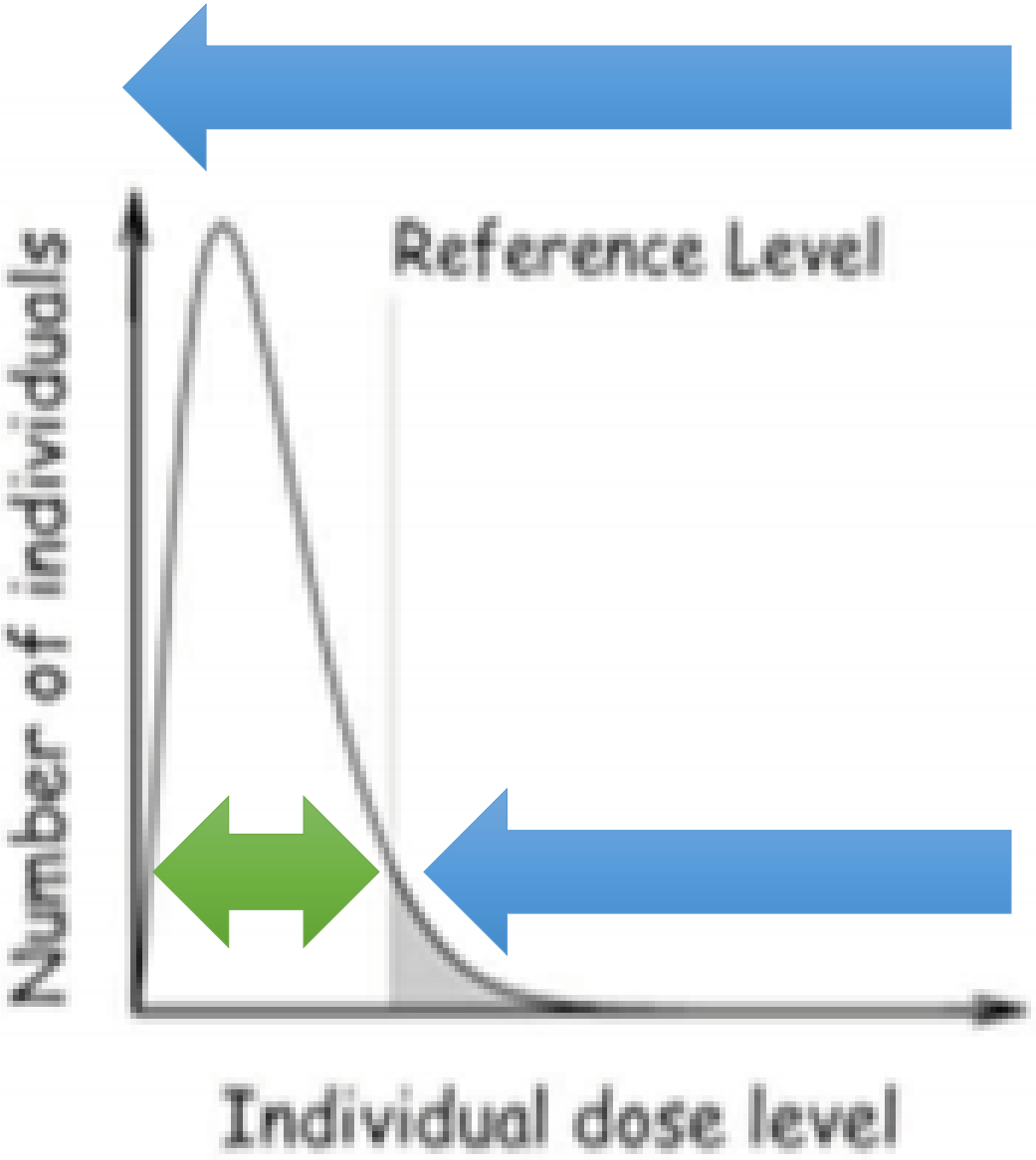
Three Issues:

1. Ambiguity of the definition “Individual dose level,” insufficient sharing of “Number of individuals”

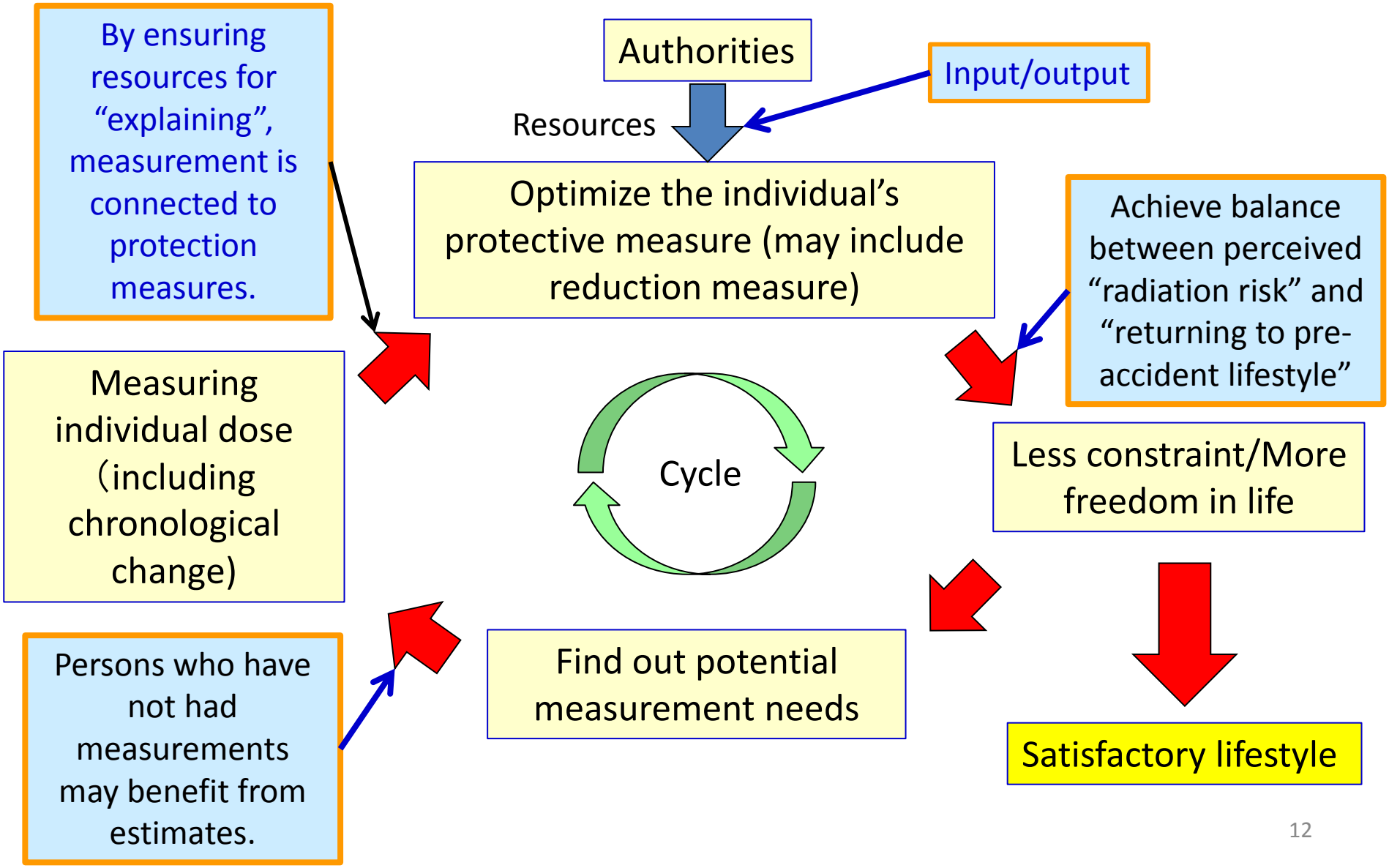
2. Consequences from setting "Reference level"- Reality more complex & opaque than a single line.

3. Silence about the individuals below Ref. level (The majority in Fukushima)

ALARA or ALAP, that is the question



Desirable “Cycle” in real life



Lessons from the reality of Fukushima
- from a clinician's viewpoint -

1. "Measurement" has positive value for the individuals
   - Dose can be used to make daily decisions.
     (what to eat, where to go, etc.)
   - Dose can be utilized to make future decisions.
   - Dose can be used to grasp overall situation.
2. Authorities have multiple roles
   - Need to grasp overall situation (incl. distribution and outlines), for better policy making and information sharing.
   - Provide resources for "Explainers" and measurement.

     (ex. Counseling opportunity, equipment, etc.)
   - Implement additional RP measures, as necessary.
3. Public health professionals
   - Collaborate with "Explainers" and authorities to improve the overall QOL of the individuals.

Musings of a clinician

Finally, I would like to share a few musings of a clinician.

These are not really final yet.