Present thought after Fukushima on the affected peoples and territories

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Topics Today

- 1) Magnitude of the Fukushima nuclear accident from a viewpoint of human disaster.
- 2) Local perspective in considering the disaster.
- 3) Making Common Knowledge in the Nuclear Age
- Hungarian lesson instead of conclusion

1) The affected territories by the Fukushima accident





Yukio Hayakawa, prof. at Gunma Univ.

1) Affected Territories

Major Radioactive plumes after 3.11, 2011



The affected territories, about 20,000km2, from the northern to the central Japan

http://ramap.jaea.go.jp/



Who is affected?

- 1) Compulsory evacuees (90,000)
- 2) Voluntarily evacuees (more than 70,000)
- 3) Residents living continuously under exposure (7 million)
- 4) Socially affected people
 - 4-1) residents living near the NPPs
 - 4-2) citizens having started social actions

Residents' Exposure during the first 4 months, estimated by the Fukushima prefectural authority (*Fukushima Minpo (a local newspaper)*, Aug. 14, 2012)

nerson	more than				Controlled	Zone	Additiona Zone	al Controlled	
person	unan				Controlled	20110	20110	Kiva	
Region	North	Central	Aizu	South Aizu	Soso	Namie	litate	Kawamata	Total
Less than 1	3,189	377	854	340	7,111	7,809	365	162	20,207
1~2	5,997	328	2		978	2,267	597	273	10,442
2~3	906	30			11	472	546	169	2134
3~4	22	1			2	103	412	60	600
4~5	1					47	402	23	473
5~6						27	329	14	370
6~7						26	178	5	209
7~8						18	80	1	99
8~9						12	61		73
9~10						6	31		37
1 0 ~ 1 1						13	27		40
1 1 ~ 1 2						8	20		28
1 2~1 3						5	11		16
1 3~1 4						4	6		10
14~15						4	6		10
15~						9	3		12
Total	10,115	736	856	340	8,200	10,830	3,074	707	34,760

"Areas to be Decontaminated", officially reported

http://josen.env.go.jp/zone/index.html



Estimated number of the residents exposed by more than 1mSv/ year in the contaminated areas

Exposure level	Less than 6 mSv/year	More than 6 mSv/year	Total
Fukushima pref.	1,454	602	2,056
lwate pref.	252		252
Miyagi pref.	237		237
Ibaragi pref.	1,567		1,567
Tochigi pref.	584		584
Gunma pref.	420		420
Saitama pref.	196		196
Chiba pref.	1,769		1,769
Total	6,479	602	7,081

(1=1,000 persons)

Comparison of the Two Severe Accidents from a Human Perspective (1,000 persons)

1,000 Bq/m2 (Cs 137)	37-185 (less than 1 mSv/ye	ar) 185-555 (1-5 mSv/year)	555- (more than 5 mSv/year)	Total
Chernobyl Total In Russia, Belarus, and Ukraine	4,532	689	403	5,624
1,000 Bq/m2 (Cs 134+137)		30-300 (less than 6 mSv/year)	300-1,000 (more than 6 mSv/year)	Total
Fukushima Daiichi Total	?	6,479	602	7,081

2)Local perspective



Warabi-Daira district with 50 families

















At a funeral: family and community gather on this occasion. (In the background shows the constructing incinerator of contaminated materials.)

Most elder evacuees now live in a temporary housing in an urban area, separated from younger members of the family















Anthropological studies on Chernobyl

Oleksandora Britsyna

Dialect of Mashevo, 2003-2005.



 С. йукаті, Переселенці з с. Машеве, Т.І. Шульга, М.П.Беленск, Л.К. Легионевко, Г.М. Горбаменко.
Сего Л.Пеномар. 1994.

Local mothers' initiative moved Ukrainian central government in 1989.



New settlement in Novosilky for the evacuees from an affected area outside of the 30 kilometer zone

Chernobyl NPP

Zsovtneve

30 km radius zone

КИЇВ

HEPHIFIB

житомир

Novosilky

ицький

вінниця

Questionnaire Survey, in litate village "What is your plan after the decontamination?" Divided opinions among the family members; "Return Home" or "New Home"



A case of voluntary evacuee

A typical statement by a voluntary evacuee: Takako Shishido, born in 1972 in Fukushima, living in Sapporo now. "I came to Hokkaido in June 2011 with two children. I was being worried and suffered until I had not decided to evacuate voluntarily. The government said that the nuclear accident would not be serious, but I could not trust it. Then I quarreled with my good friends; I made my children abandon their hometown; and I left my husband and parents, so that I could realize my decision of 'running away from radiation'. I was all on my own."



- \cdot Mother-child evacuation is typical.
- Deep Psychological gap to family members and neighbors in their native community.
 - Economic difficulties

Voluntary Evacuees Change of the number from 2011 to 2015 (Periodic reports of the Agency of Reconstruction)



Residents living near the Tomari NPP, Hokkaido prefecture



Enlarged Nuclear Safety Agreement conducted by the residents near NPP





Ceremony with the governor Takahashi and mayor Miyauchi

16 municipalities of Shiribeshi county located around the Tomari NPP in Hokkaido collectively negotiated and conducted the agreement with the Hokkaido Electricity Company on 16 January 2013 under the leadership of Miyauchi, Rankoshi mayor.

Beautiful nature around Tomari NPP



Making Common Knowledge in the Nuclear Age

- Professor Sung's questionnaire survey in the middle regions of Fukushima prefecture comes from the lesson of his previous studies on Minamata disease. He was convinced in crucial importance of continuous and long-lasting survey from the beginning phase of the accident
- The result would serve the hum beings as common knowledge in the nuclear age.





Change of life after Fukushima Fear, anxiety, unfair, gap



No local foods No outdoor clothe-drying Need of temporal evacuation Wish of evacuation Fear of health Fear on child raising Anxiety of relation to children Anxiety of emotion Anxiety of information Gap to spouse Gap to parents Gap to neighbors Unfairness of compensation Economic burden Fear of discrimination

Information gap: Serious or not serious? Fear to Health: Increasing Thyroid cancer? 20-50 times than normal cases Official information: No relation with exposure?

	3/100万と比較	有病割合と逆数			
	IRR* (95% C.I.) *	×10 ⁶ 1人あたり			
①平成23年度地域	29.90 (16.73-49.31)	359 2,787.3			
②北(福島市・桑折町ほか)	19.76 10.21-34.51)	237 4,218.2			
③中(二本松市・本宮市ほか)	50.38 (15.15-90.15)	605 1,654.0			
④郡山市	38.54 (24.94-56.89)	462 2,162.5			
⑤南(白河市・西郷町ほか)	40.49 (17.48-79.79)	486 2,057.9			
⑥いわき市	40.46 (25.92 -60.20)	486 2,059.5			
⑦いわき市を除く南東地区(H25年度)	25.15 (11.50-47.75)	302 3,313.1			
⑧会津地方(西地区:H25年度)	29.66 15.32-51.80)	355 2,810.0			
⑨相馬地方(北東地区:H25年度)	0 (0.00-48.34)	0 -			
*発生率比(95%信頼区間)					



Fukushima-Chernobyl Multi-disciplinary Research Projects, Creating Common Knowledge in the Nuclear Age for human beings with support of JSPS and Toyoda Foundation

· Imanaka project; measuring the radioactive

- Fukumoto project; radioactive influence on animals
- \cdot AKimoto project; radioactive influence on insects
- \cdot Sung/Ushijima project; socio-psychological influence on young generation
- \cdot leda project; socio-economic change of the evacuated people
- \cdot Nishizaki project; short evacuation program for children by NGOs
- \cdot Koshino project; memory and literature of the nuclear disaster
- \cdot Kyoko Ueda; resilience of community after disaster
- \cdot Shiroshita project; disaster education
- · Taniguchi/Shiroyama project; civic participation in nuclear safety
- \cdot Takakura project; protection of the affected cultural materials
- \cdot Kenji Oshima; economy of nuclear energy
- \cdot Koyano project; international law and domestic regulation
- \cdot Ota project; human light of the affected people
- \cdot Takahashi project; religious aspect of disaster
- \cdot Kanayama project; nuclear science in the modern history

From my Hungarian studies

"Disasters happen.





It is difficult to prevent disasters. However, we can prepare the post-disaster managements, which mitigate the damages on the disaster victims."

(Hungarian National Directorate General for Disaster

Management)