



International Nuclear Workers' Unions' Network (INWUN) Meeting 29 – 30 October 2013, Tokyo and Fukushima, Japan

Abstract of my notes – Study trip in Japan (Fukushima) interCLI of Manche (France) - April 2013

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1 Introduction

I participated as a trade unionist in a post-Fukushima study trip in April 2013. We had meetings with several government agencies, local elected officials (mayors, former governor), citizens associations. I think it's interesting to share this experience with IndustriAll INWUN unions.

Organizations or institutions met:

- French Embassy (Mr XERRI),
- Mayors (MM. KAWASE, ISHIRA, KISHIMOTO, ECHIZEN, OGAWA, SAKURAI, KANNO)
- Zen Gen Kyo,
- NRA (Nihon Regulation Authority),
- Citizen center for radioactivity control (Mr SAKAZAMI),
- TEPCO (Mr AKIMOTO and others),
- JAEC (Ms SUZUKI, MM. KONDO et AKIBA, and others),
- NIRS (Mr AKASHI, and others),
- Information Centre for decontamination, office of the Ministry of Environment in Fukushima City (Mr AOKI).
- a former governor (Mr SATO)
- municipals officials (MM. IDÉ, TEHADA)
- inhabitants (Ms. TAKAHASHI, Mr et Ms. WATANABE, Mr et Ms. WAKAMATSU).

Traveled cities :

- Tokyo
- Fukushima-city
- Kôriyama
- Kawauchi
- Minamisoma
- Namié
- Iitate
- Iino
- Matsuhima
- Ishinomaki

So many lessons to share.

避難指示区域と警戒区域の概念図

NEW

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2 Context

For one week in April, 2013, I was part of the delegation of three Local Information Committees (CLI) of the department (prefecture) of La Manche (Normandy, France) who went to Japan to learn from the nuclear accident Fukushima in 2011.

The delegation included members of three CLI, representatives of the different categories: local elected officials, scientists (nuclear specialist, pharmacist), members of associations (eg Greenpeace), representatives of the local business community (eg farmers), trade unionists.

3 The Local Information Committees

Local information committees exist in France for each nuclear site. Its began in the early 1980s, but since 2006 the French law made it required.

Pluralist, they consist of local elected officials (Chair of the department, regional councilors, councilors, mayors and councilors etc.), scientists, representatives of associations related to the environment, representatives of the economy local, and representatives of trade unions.

There are four meetings per year, on an agenda decided by the committee's members. Can be considered any subject relating to the operation and safety of the plant, to the protection of the population and the environment. There are questions to the industrial operator (EDF, AREVA etc.), as well as to the Nuclear Safety Authority (ASN), or any other competent authority.

Meetings are public, the local media will usually attend.

CLI can organize conferences, publish a newsletter for the population, provide a website, or achieve and publish studies.

For example, after the Fukushima accident, the three CLIs began extensive work together by asking all questions about safety and security that may arise population, asking the authorities the answers, and publishing the results in a White Paper. To complete this work, a study trip to Japan was decided and organized.

Here below a very brief meetings summary, and synthesis of the lessons I've learned.



4 Meetings summary

☞ **Monday, April 15** in the morning, we met **Mr. XERRI**, Nuclear Counsellor of the French Embassy in Tokyo.

He presented the radiological situation at Fukushima according to IRSN (French Institute for Radiological Protection and Nuclear Safety) dated February 27, 2013.

In the afternoon we had a meeting at the French Embassy with **several mayors of Japanese cities with nuclear plant** :

- **Mr. KAWASE** mayor of **Tsuruga**, a member of the Council of Nuclear Municipalities "Zen Gen Kyo"

- **Mr. ISHIRA**, mayor of **Omaezaki**

- **Mr. KISHIMOTO**, mayor of **Genkai**

- **Mr. ECHIZEN**, mayor of **Higashidoori**

- **Mr. OGAWA**, director of security of the city of **Matsue**.

They showed us the new arrangements that their cities have taken after the Fukushima accident.



Then we met some twenty members of the **NRA** (Nihon Regulation Authority, Japanese organization created in September 2012) in its building.

The NRA director told us that CLI or something similar are under discussion in Japan, but it will probably take some time. They were interested to hear firsthand french CLIs members. We answered all their questions.

☞ **Tuesday, April 16** we visited the offices of a federation of associations which runs a voluntary lab ("**citizen center for control of radioactivity**").

We were received by **Mr. SAKAZAMI** who replaced M. AOKI, a scientist, but traveling in Korea. He told us many steps they have taken to ensure that the population has health checks. They created a "Chikurin-sha" laboratory ("house of bamboo bush").

Then we met with leaders of **TEPCO** about compensation for populations affected by the accident. As Westerners, we had a big surprise: the main representative of TEPCO - **Mr. AKIMOTO**- initially apologized for having frightened us because of the Fukushima nuclear accident.

I asked them about the consequences for TEPCO employees, of the huge cost of compensation, the total amounted to 2,000 billion yen (€ 17 billion). How Tepco will repay the government, especially if the reactors are not allowed to restart ? This will be the citizens through taxes, or employees by wage cuts, which will pay, right ?



Indeed, the Business Plan (post Fukushima) is : selling real estate and subsidiaries, 30%

reduction of remuneration (variable share of wages in Japanese companies, paid 1 or 2 times per year) staff reduction, reduce the cost of the supply of thermal power facilities and optimization of production.



After lunch, we had a meeting at the **JAEC (Japan Atomic Energy Commission)**. This is a committee of wise men, composed of scientists who made proposals to the government on energy policy. It is chaired by **Mr. KONDO**, are also present **Mr. SUZUKI** and **Mrs AKIBA**.

They ask us about the expertises we do as a CLI and their practical consequences, and relations with the public. It seems that the JAEC recommends the creation of CLI in Japan.

Then we met a large delegation of the **NIRS** (National Institute of Radiological Sciences) led by **Mr. Makoto AKASHI**.

NIRS is equivalent to the French IRSN, but with wider competences.

We have a full presentation of NIRS (created in 1957 following U.S. H-bomb tests in the Bikini Atoll and exposure of Japanese fishermen) and of NIRS interventions after the Fukushima accident (emergency teams "REMAT "sent there).



Following one of my questions,

Mr. Akashi gave the example of the Iwaki City hospital, about 30km from Fukushima nuclear plant, which was equipped and designed to receive and treat contaminated casualties. But as it was filled with refugees, it could no longer take contaminated wounded who had to be sent to the university hospital in Fukushima City, 60 km from Iwaki City.

On the April 16 evening, we made a first step in the trip report. Here are the main points that I proposed:

- There need to be a right to information on nuclear and nuclear facilities for local residents, for example one day a year, for private sector employees, it could be part of the professional training
- There need to study and prepare permanent fallback bases that do not exist in France
- CLI may make recommendations or wishes, addressed to local authorities and government. Local authorities (municipality, departmental council, regional council) could be seized and request funding, for example on the issue of fallback bases; public measurement devices ; an instruction manual in case of accident ; a system of "radiotelegraph" (« muzen »).
- What is the role of a CLI in case of accident ?
- How organize healthcare to contaminated injured under different distances (30 km, 50 km, 100 km ...) ?

☞ On 17 April, we traveled to Fukushima Prefecture.

In **Koriyama** we were received by **Mr. SATO**, a former governor of the prefecture, during a Rotary Club meeting.

Mr. Sato presented the region and discussed several topics that followed this thread: "France is for peace in the world, I am for peace, I am now against nuclear, France should be against nuclear".

Mr. Sato think Japan take a turn for the worse, starting from leaders. For example, on the 1st of January 2001, the Japanese government joined the nuclear safety authority in the MITI, which means, according to him, « to put the police and the thief in the same office ».

Mr. Sato said MITI decided to reject the contaminated water in the ocean without warning neighboring countries (ie South Korea, China).

The town of Iitate lost a lawsuit in 1992 against the government after the decision of building a new nuclear reactor. The Prime Minister said that they did not have to listen to the common people.

Mr. Sato shows us a MITI leaflet distributed at the time in 400,000 homes around the plant saying that security was guaranteed.



April 17 on afternoon we went to **Kawauchi** ; on the city hall facade waved a banner proclaiming : "We will not give up."

Mr. IDÉ, reconstruction officer, explained the sequence of events in this town after the earthquake and tsunami. He told us that, knowing nothing about nuclear, he was very worried before the evacuation.

We went on the road to nearby Tomioka city, now in the red zone, and whose inhabitants have evacuated to Kawauchi in first. In Kawauchi they were notified 5 days after the accident, a few hours after the explosion.

We could see not far a decontamination site, near the habitable zone. The work is done by private companies but paid by the Japan State. Workers receive an extra pay of 10,000 yen, so a monthly salary of 27,000 yen (about 3000 €/month, the Japanese minimum wage is about 1200 €/month).



At 100 meters from the workers we measured 1.5 $\mu\text{Sv/h}$. No special protections except the inevitable surgical mask (widely used in Japan for the season of famous cherry blossoms). The tools are not packaged in vinyl and probably not even checked. However, we did not know exactly the purpose of the work, as they worked in an already decontaminated area (everything below the red line on the top of the photo has already been decontaminated).



Mr. Idé stated that after the explosion

in the fourth reactor, inhabitants of Kawauchi and refugees have decided to evacuate, although they are not in the area where the evacuation order was given .

The explosion took place on March 15 at 6:00 ; at 11:00 containment order ; at 15:00 gave the mayor order to evacuate ; March 16 everyone had evacuated to Koriyama.

Mr. Idé said us all villagers were warned by the "Muzen." This is a kind of radio in every household in rural areas. You can lower the sound but not turn it off. The radio broadcasts nothing but messages from the municipality, so when it wakes up there is something to listen to. But it can be a local information, for example the announcement of a cows market...



After we passed by the secondary school where few students have returned. They are outside, playing sports, which is great because nobody let children play outside, or not too long, to avoid radiation.

One last stop in the village before the 2 hours in the bus to Minamisoma. On the road in the bus measures rose to 1 $\mu\text{Sv/h}$.

Dinner in **Minamisoma** ; discussion with **Ms TAKAHASHI (inhabitant)**.

She runs a laundry in Minamisoma and struggles to revive the city (which is decorated in the main streets with kakemonos "rebirth"). During the dinner she made a poignant speech, recalling that they had confidence, but according to her we must stop nuclear power in the world because we do not know how to master it, and it is not known if mankind can master it.

For 40 years they were told it was safe. They were proud to have nuclear plants in the region. But since the accident, the locals are discriminated against, they are like plague victims. At the beginning of the construction, they were not reassured, and they repressed fear.

To 9:00 p.m. to 9:05 p.m., we felt an earthquake strong enough (5.2 Richter) which lasted a few seconds but nothing and nobody moved. At my request Ms. Takahashi said that indeed there was similar before 11/03/11, but nobody paid attention.



☛ **On April 18**, we were **still in Minamisoma**. We welcomed **Mr. TEHADA, crisis officer**. He accompanied us on the tour of the city. Mr. Tehada told us that all homes are equipped with a dosimeter provided by the municipality.

We take the National Road 6, which is a major north-south axis. We followed commercial and residential areas devastated by the tsunami. Two years later, there are still many buildings destroyed, disused or abandoned vehicles, piles of sorted waste. Around 10:10 we enter the area of 20 km (red area). Then we came to Namie, currently uninhabited (10 km area). We came close 3-5 km Fukushima plant to the north. We stopped at a little distance from the checkpoint controlling access to the area, at kilometer 259 of the NR 6. A church nearby. Measurement: 0.24 $\mu\text{Sv/h}$.



Mr. Tehada told us that decontamination don't progress enough, problem is to find place for intermediate storage of contaminated rubble. There were 636 deaths in this city (Minamisoma) due to the earthquake and tsunami. There are currently 3,200 temporary housing.

Early afternoon, we were received by **Mr. Katsunobu SAKURAI, mayor of Minamisoma**. There were 71,000 inhabitants before the accident, less than 10,000 after the evacuation. There are still areas where nobody is allowed to live. There are approximately 40,000 inhabitants today. 17,000 people have moved house, 6,000 have left the city permanently, 23,000 are not (yet) income. Because of the nuclear accident, 406 people died as a result of the evacuation (elderly, disabled) and the difficulty for rehabilitation, even if it is not the only cause (weak, sick).



« *The economic damage is incalculable. And Fukushima Prefecture is not densely populated, in another it would have been worse.*

Recover requires enormous energy. 5,700 people are in temporary housing or leased by the municipality. We worked very hard to restore infrastructure, such as running water in the Odaka neighbourhood. But decontamination goes too slowly, and if a neighbourhood become safe, no longer compensation for people. Since April 2012, 23 companies have returned to Odaka and 10 should come back this year.

Here is Tohoku company that supplies electricity, TEPCO is only for Tokyo supply. Tepco called me 11 days after the accident ! But Tohoku supported when we decided to stay here. Tepco is not determined to definitively stop all the reactors in Fukushima, while announced that it waives its construction project.

Yes we need electricity. The municipality has agreed to a new 1000 MW power plant, thermal, supplemented by wind and solar.

Farmers an grow crops, but they are hesitant. The rice produced last year did not exceed the standard of 100 Bq/kg. » Mr Sakurai said.

70% of doctors, pharmacists and nurses have not come back. That's why the municipality made free the registration fee for the nursing school in order to recruit.

April 18 on afternoon, we were with **Mr. and Mrs. Watanabe, inhabitants of Minamisoma**. We visited the Odaka neighbourhood still inhabited. At a crossroads, ground measurement was 0.95 $\mu\text{Sv/h}$ (8.3 mSv/year *) to the output of a gutter measurement was 2.2 $\mu\text{Sv/h}$ (19 mSv/year *if staying there 24 hours a day).

Then we went to **a farm** that is a **kind of refuge for cattle** of farmers from the exclusion zone who stopped farming. The cattle are raised here, volunteers feed them, and the animals can have a decent end of life (they die naturally). They feel they do not have the right to drop those animals that were food that gave life. One measure was 5,5 $\mu\text{Sv/h}$ (48 mSv/an *).

Finally we went to a "**agri solar park**." This is an educational solar power plant in **Minamisoma** created by a man who introduced himself as a former Tepco employee. A hydroponic farm is expected to produce thousands of lettuce for which it already has commitments to buy, but we had not been able to visit.

The **dinner** was an opportunity for discussion with **Mr. and Mrs. WAKAMATSU** (about 77 years old), **retreated Japanese teachers**. On my request, she said they don't blame Tepeco' employees they know, but Tepeco' managers.

Mr. and Mrs. WAKAMATSU left Minamisoma on March 15. They had discussed leaving due to lack of supply. The brother of one of them had proposed but they refused first. But when they heard the first explosion then they decided to leave. They had no specific information on the situation of the nuclear power plant, all the details were in the tsunami. Only when they arrived at Fukushima city they learned the circumstances. Unfortunately Fukushima-city had been most affected by the plume and fallout than Minamisoma (radioactivity levels 10 times higher). So after a month they returned to Minamisoma.

Every 3 months there is a control of radioactivity in every home. Last time it was measured 3.7 $\mu\text{Sv/h}$ (32 mSv/year *), but in my opinion it was likely a "hot spot" on the outside.

☞ On **April 19** we left Minamisoma to **Fukushima-city via Iitate and Iino**.

Iitate, about 35 km from Fukushima plant as the crow flies, is in evacuation zone, only the retirement home was not evacuated. The mayor was preparing to restart administrative services. The measures were: 0.54 $\mu\text{Sv/h}$ at 1 meter above the ground, 2 $\mu\text{Sv/h}$ floor, 3 $\mu\text{Sv/h}$ at the exit of a gutter.



Iitate City hall

We then went to **Iino**, where the municipality of **Iitate** is relocated and we met **Mr. Norio KANNO, Mayor of Iitate**.

Mr. Kanno explained us that Iitate had 6,000 inhabitants, the activity was mainly agricultural. They were almost ignorant of nuclear power. After the accident, they were evacuated to about 1 hour of their village. This was a very painful experience for inhabitants.



Mr. Kanno think man can not master the nuclear : *« what should learn from this accident? The economy is bad everywhere. Does he do not change direction? We thought too much to progress the country's development, quality of life. We must pause and mature our quality of life. Too much energy expended which may have led this nuclear accident. This nuclear accident may be an opportunity that Heaven/God has sent us to this. »* Mr. Kanno quoted a Spanish proverb: *"It is those who want to have more who are poor."*

Mr. Kanno recommends adopting the lifestyle "Ma Te" (or Maday or Madei in the local dialect), that is to say, to act "heart and hands clasped," or in other words when you can do something with one hand, for example serving tea, why not do it with both hands to put whole heart?



までいとは...

真の手(両方揃った手)が語源。「手間ひまを惜しまず」「丁寧に」「心をこめて」「つつましく」という意味で使われる方言

We drive by bus to **Fukushima city** (Fukushima-shi in Japanese). Note that the name comes from Shima terms which means "island" and Fuku terms which means "Good Fortune" ... This city of 285,000 inhabitants was founded in 1907, and is enclosed between the Azuma mountains and crossed by Abukuma River .

Over lunch, an earthquake is felt: 7.2 on Richter scale, strong enough anyway (major), but about 900 times less than that of 11/03/11 (8.9) and with a remote epicenter 500 km north of Japan (Kuril islands) against 130 km east of Sendai.



⌘ In the **afternoon** we went to the **Information Center for Decontamination (antenna of Ministry of Environment)**, a public room filled with panels, models and equipment presenting decontamination.

Mr. Hitoshi AOKI made a presentation entirely in French and responded well to many questions in French. Contamination covers an area of 13,000 km², and the yellow and red areas were contaminated only in 12 hours. This represents 10% of the contamination ejected (the rest has gone above the ocean) and 1/7 to 1/8 of what was thrown at Chernobyl.

Last year 10 million of 30-kg bags of rice (produced in the region) were tested ; only 71 exceeded the limit of 100 Bq/kg ; 388 were greater than 75 Bq/kg.

Mr Aoki said that "the government thinks that if the annual dose is less than 100 mSv there will be no major peak of cancer." That is why the government has set the limit for the population to 20 mSv/year (1 mSv/year in France). This is the ICRP recommendation that says 100 mSv/year increased by only 0.5% in the number cancer deaths. For workers, the maximum annual dose was set at 650 mSv.

Contamination on Fukushima city was greater than 20 mSv, but it was mainly due to xenon-133 (product of fission β radioactive gas with a half-life of 5.25 days).

Decontamination costs are estimated between 3,000 and ¥ 7 trillion (€ 24-56 billion).



☞ **On April 20 we left Matsuhima to In Ishinomaki.** This trip was to allow us to see the extent of damage caused by the tsunami. In fact it's scary, yet two years later. In Ishinomaki we went to the Okawa neighborhood which was devastated. Remained only the ruins of the school, the wall of the courtyard with its childlike mural. Here on 108 schoolchildren, 74 were killed 4 bodies have not been found. One teacher survived, he can no longer speak.



We were told that the wave occurred 50 minutes after the earthquake, 15 meters high, arriving at the coast propagating 500 km/h ... At school, they had the tsunami alert, but the instruction of evacuation that teachers expected never came. In this neighbourhood squeezed between the sea and the wooded hills, where there were 150 houses, there remains nothing but the devastated buildings of the school. Could still see traces of the wave on the trunks of trees, and imagined with horror his terrifying power followed by reflux almost as devastating. A memorial is being finished, names of the victims ended engraving. There were 200 killed here. A flowered altar was served by a religious. Visitors gather there, us too. This time of the trip was very moving.

Then we went on the **Ishinomaki harbour.**

After meandering near the docks, in streets wounded to death by the tsunami (more than 61,000 homes have been washed away), we stopped in front of what was a college. The facade still bore the scars of the disaster. This is next to the mount Hiyoriyama which was a refuge for locals (you can see it on webvideos). Walking to our bus, we almost had to walk on the ruins of houses, with their plastic bowl, sandals, radio, twisted little girl pink bike etc.. Here and there small altars made of piled stones with half wilted flowers. Nearby a Buddha wearing decorations seemed to watch over, sitting on rubble. At the horizon, the view was blocked by thousands of cars piled carcasses. Here the tsunami damage was visible, but you could move freely, while in parts of Minamisoma, damage nuclear accident were invisible but nobody could live there.

End of the study trip

5 Synthesis

This synthesis includes my reflections at the end of this trip.

The trip was extremely successful. The program of visits and meetings, discussions with elected officials, residents and so on, has no doubt deeply changed my approach of a nuclear accident and its consequences for the territory and the population.

This has materialized which was a study hypothesis and discussion. We have seen the consequences of a nuclear accident, workers scraping the earth, uninhabited villages, disturbed areas and upset citizens, radioactivity displayed everywhere, broken families. Of course many things are available on internet, but we saw these people and have walked these paths.

Despite the emotion we felt, we didn't forget that the accident was caused by a major earthquake followed by a rare tsunami. But nobody can't forget the responsibilities of institutions (governments, companies) who have misunderstood or ignored environmental rules or warnings.

This trip has confronted our different approaches to the nuclear issue, and has confirmed some of our convictions despite of inevitable rethinks.

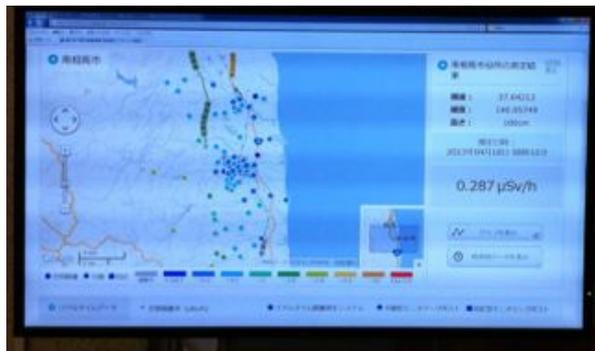
Important points among others :

The health service must be able to mobilize the resources needed, because anticipate, face and monitor is essential.

A good public information is an essential condition for acceptance of nuclear power. Our CLI (Local committees for information) have a decisive role can be summarized by « to inform themselves and inform independently ». Population and trade unions should be involved in surveillance of nuclear installations.

This raises a host of questions: schooling should provide minimum knowledge, what role for experts in industrial societies, etc..

The Japanese radioactivity measuring pillars, with on-site display on a website has an interest in information and also for education. It can be also valuable in case of accident by locally providing information on the distribution of contamination. We have seen that evacuations had sometimes sent people in more contaminated areas than those they left, even contamination was effective in a day and evacuations took place several days later.



"Leopard skin" contamination poses real problems recovery in "normal" post-accident life. You have to imagine village with all their administrative services, health or business totally or partially situated in the exclusion zone. Or a large city without its hospital. Or an impracticable main road (like the Japanese N6).

Decontamination of large areas also raises many questions.

Topics such as the public dose limit, strongly raised by the Japanese government, the compensation set by the government and the operator, or the local economic impact, challenge us.

Many other aspects could be addressed, including the evacuation exercises (organization and participation); infrastructure and means of transport (road, rail) ; supply for those staying behind etc..

Finally our trip has reinforced our need to spur the authorities and operators, that their activities or their subordination not necessarily inclined to worry about people, even if they have to respect regulatory obligations. However, the Japanese example can encourage us to more vigilance, knowledge, prevention and care.