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Katsunobu Sakurai

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Five years have passed since the disaster in Soma area. Regarding the survey results of the health and health impact and countermeasures, the data was also presented and we viewed a lot of voices from the field. We'd like to divide the panel discussion into three areas: immediately after the disaster, up until now, and the future.

First, right after the disaster. As the head of the municipal government, I'd like to have comments from Mr. Sakurai first.

Katsunobu Sakurai

Before I talk about that topic, I'd like to talk about the Chile Earthquake that occurred in February, 2010, when the entire eastern Japan received a warning of tsunami. In Minamisoma city, 45 centimeters tsunami was observed at that time. However, a year later, on March 11 - I remember I had finished a speech at the graduation ceremony of Harumachi 2 junior high school a 21 meter tsunami came in Minamisoma city. This was the first huge tsunami in 400 years, and nobody was able to deal with it. As a result, 636 people were killed



and 41 square kilometers were washed away, and 111 people are still missing.

At the time of the Chile Earthquake, we established evacuation centers, to which only 15 people per center had evacuated. However on March 11, we had to accommodate close to 2,000 people at one place. We didn't imagine a nuclear accident would occur on the next year.

Let me explain how was the situation at the time of the nuclear accident. Shortly after 3 p.m., we got an announcement from the police that there seems to have been an explosion at the nuclear power plant. We instructed the firefighters to check, but thirty minutes later, they reported that they could not confirm anything at all.

We had made an evacuation order in response to the tsunami on March 11. When we got a flash report from the police, we had made an order of indoor-evacuation to the people. When it was not confirmed, we announced that 'it was a mistaken report'. But after 5 p.m., what we saw on the TV screen was the exploding reactor building. We again made an indoor-evacuation order. Such was the confusion in the disaster countermeasure taskforce.

The evacuation order within 20 kilometer zone was issued from the national government while we were still searching for those who were missing after the tsunami; 2500 people were still missing at the time. So we couldn't even notice that order so it was only after watching TV, that started to instruct the residents living within 20 kilometer radius. We had to move 14,000 people overnight. So there was a huge confusion. Everybody did a great job but still 100 people in the Minamisoma city were left within the 20 kilometer radius. Then March 14, when I contacted Mayor Tachiya, he offered former Soma women's high school as an evacuation center for those people.

On March 15, on my own decision, 1,500 people were sent to Soma, Date, and Marumori areas that day. Public buses owned by Minamisoma city, buses of Showa company and school buses of Iitate village were used to evacuate these people. The problem was that a huge number of the residents had also started to evacuate by themselves at that time. Because of the traffic jam, it took more than 3 hours to evacuate to Fukushima city- usually, it's just 1-1/2 hours. What was more difficult back then was that supplies didn't come at all into our area because of the evacuation order. We were isolated. Mayor Tachiya talked about the pharmaceutical products and drugs, but such problem was not limited to drugs. As banks were closed, we could not withdraw cash. Even if you had cash, there was no place to shop.

Finally, a week later, a store in Soma decided to open. So Minamisoma residents had to come to Soma to get commodities. So the major confusion in our area was caused by the total disruption of supply of our necessities such as water, medical supply and food, because of the nuclear accident. We were asked to get oxygen and heavy oil for the municipal hospital and butane gas for gas companies. We were in such an emergency. In the



middle of this panic, we noticed that there is no more mass media people. I tried to contact the journalist club but nobody was there. This means that the situation within Minamisoma city was not reported at that time. They reported the situation of the northern part of Miyagi prefecture (the prefecture adjacent to Fukushima), but it was not until I had sent a message through YouTube on 24th March that the global media came to our area to understand the situation in Minamisoma.

We were able to contact the national government on 13th March for the first time. It was about the supply of gasoline. Then Mr Shogo Tsugawa, a government vice minister, visited Minamisoma on 17th March. On 18th March, Mr. Ryu Matsumoto, the minister in charge of disasters came, which was the first direct access of the national government to me.

On 14th March the number 3 reactor exploded and then even self-defense forces suddenly disappeared. There was a rumor that evacuation order was expanded to 100 kilometers' radius, there was a major confusion. I contact with the Fukushima prefectural government and claimed 'The self-defense forces are leaving. What's happening? I wanted to contact the governor, but he couldn't answer the phone. At that time, they were busy trying to settle down the government officials. Someone say the situation was 'beyond our assumption', but actually, I rather say something we had never imagined did occur. In the field, we tried to deal with the situation; in the middle of this havoc, we had to search and rescue the victims of the tsunami. In Minamisoma city, 9 fire fighters and 2 city government officials and a police officer were killed. One reporter was also killed. What was happening in Minamisoma city was not reported on the media at all, but we had to save and rescue the affected people. That was the situation back then.

Kenji Shibuya

I really felt that must be quite a confusion back then. Now in Japan, there is a lot of turmoil going on at the time. And question to professor Thomas.

How did the countries outside Japan look the situation of right after the disaster?

Gerry Thomas

Immediately after the disaster or the Great East Japan disaster, what everybody saw was the huge tsunami wave. We knew there had been an earthquake in Japan but earthquakes happen in Japan quite a lot. But I think as soon as we saw the pictures on television, and this was the first time that something like this had really unfolded with us all watching. There had been the earthquake and the tsunami in Indonesia before but now we were actually seeing it in Japan and everybody was completely shaken by the fact that such a natural disaster like that could happen.



But the sad thing was that as soon as the accident in the Fukushima power station happened, information about the tsunami was in the middle pages or the back pages of the newspaper and the only thing the media wanted to talk about was the accident at the power station, and people tended to forget that there had been a huge earthquake and a massive tsunami and the death toll from the tsunami was just impossible for us to imagine. Those of us who lived in western countries cannot imagine losing that number of people in a matter of minutes. It just isn't something that happens in our countries.

And it was quite annoying to be asked all the time about an accident that was killing nobody but was making people very frightened. And I think the western media in particular have a lot of answer for this. The headlines that were coming out used incredible emotive language. They were based on very bad science. They weren't actually interested in the early phases of the accident, and in talking to the scientists; they were quite happy to listen to other people who did not really base their comments on science but could made good headlines. And I think part of the problems with people understanding what was happening was that while the Japanese press were reporting properly measured information, the international press was sensationalizing everything. So, many people who spoke both languages were in touch with me on email, saying 'Who do I believe?' The worst thing you can do to a human is to give them two sources of information that tell complete opposites. That is destined to cause fear and panic. So I think the international media have to look at the way they reported this.

Eventually, they did start talking to scientists and I think some scientists were quite reticent about coming forward. None of us like to talk unless we have facts. And because you'd had a huge disaster, it was almost impossible to get those facts out. We are used to being able to use email and fax and

things like that. When you have no electricity, you can't use anything. So it was difficult to get facts

and I think that was the problem with the natural disaster that would cause such situation more than anything else. But people liked to speculate it was for other reasons, but I think actually it was due to the fact that there was very limited communication.



Scientists don't like to speak until they have the facts and that gives other people a chance to step into that vacuum and to talk to the press and that's why you see the headlines that you saw. I think after a while the press began to realize that actually it wasn't the story they thought it was several years later. I now have journalists saying to me, "We got it all wrong, didn't we? Why did we report this so badly? What can we do to make it right?" Well, 5 years later, that's a bit too late. They should have realized that earlier. But I think we are now starting to have sensible conversations with journalists about the aftereffects and we should be focusing more on the earthquake and the tsunami. That's what caused the death toll here.

Yes, we can learn lessons from the nuclear power plant accident, but it was an accident. I think we turned it into a disaster. It wasn't the nuclear power plant itself that was the disaster, it was our actions that made the disaster. So I think there are big lessons to learn in the scientific community. We should be prepared to talk to the media. Most of us are very scared of the media. We must be prepared to talk to people. We must be prepared to listen to what the population is telling us. But I think the one abiding thing that most of us will remember is the dignity of the Japanese people. It was incredibly dignified, the response that we saw on the television, to such a huge disaster. I doubt there are many other countries that would have had the resilience to cope in the way that Japan has done.

Kenji Shibuya

I gather from both you and mayor about why we are – while he was focusing on power plant accident, people tend to forget about the actual disaster. That's one of the messages. But also you mentioned the bad science and headline stuff. And you said international media tend to focus on that. But to me that all surprise to the Japanese media, they tend to focus more on the headlines not stuff like baseline evidence. So can you just give us some examples of bad science, which you experienced during the early phase of this Tohoku disaster?

Gerry Thomas

I can remember one occasion I was actually on live television on BBC World, and we had just had a story about a Belgian minister who used the word 'apocalypse' to describe the nuclear power plant accident. And I think that tells its own story. It's the very, very emotive use of language. And unfortunately, we tend to respond as humans to the language that is being used. So, there were many people who were saying thousands of Japanese were going to die because of the radiation. That's just not true. And unfortunately, I have to say that 30 years after Chernobyl, we are still hearing bad science reported on our television screens.

Kenji Shibuya

Why is that?

Gerry Thomas

Because there is lots of papers out there, and there are lots of charismatic people who are not scientists

but who can talk to the media and talk to them well. And journalists like somebody who looks good on television; and sadly, most scientists don't look good on television. So I think we have to be prepared to engage in an awful lot more.

Kenji Shibuya

So we need somebody like you.

Gerry Thomas

Yes, in Japan, you definitely need people who are prepared to talk out.

Kenji Shibuya

Somebody like Dr. Tsubokura and these kinds of people.

Gerry Thomas

There is a problem however and I think we need to be honest about this. If you are a scientist on the media, you will become a target. You become a target for the anti-nuclear lobby. And I have heard some incredibly rude and nasty things said about Japanese colleagues that I know personally, which must have hurt them an awful lot. And I think if the media want to talk to scientists, they have to respect them too, and they also have to support people with an opposite opinion, often with a different set of values to the ones that we would hold. They want to come out and try and say something different. The personal attacks are very painful. Scientists are not used to that. That's why we stay in our labs and work. We are not good on talking to people. So when the attacks come personally, and within 2 minutes of leaving my first TV interview, I had hate mail on my phone. And I was quite taken aback. I was expecting it because I'm used to that sort of thing but it still shocked me how fast it was because of social media etc. And because academics particularly are very visible, it's easy to find my email- you just have to Google me, and it will come up. So it's very easy for people to get at you personally. We need to make sure that there is support for scientists when they speak out otherwise they will win the argument, not us.

Kenji Shibuya

Well, we listened from the administrator. So let's switch gear. And this is a question to you, Ms. Hokotate. You are representing parents at schools, what were the reactions at the time of disaster?

Chikako Hokotate

This is according to my own experience and so these things are very subjective. My house was not affected by neither tsunami nor the earthquake. The roofs were partially damaged, but the house was still standing, and none of my family members was injured. However, the nuclear power accident that occurred afterwards gave us the toll. We didn't know what we should do at that time. Because of the fear we were very much in chaos.

With regard to radiation, that was something that we had no thoughts at peacetime. I just knew it doesn't smell and is not visible. But we hadn't thought about how to manage it in peacetime. When the accidents occurred the firefighters came to us and urged us to go inside the house. So we thought, "Okay, we have to go inside the house and confine ourselves into the house." However, we still didn't know whether tap water was drinkable or not. Or we didn't know what about using the water for bath, whether that would damage us through the skin or not. We knew nothing. So our family decided to evacuate ourselves temporarily. We went out of Soma and we took refuge in Nihonmatsu. But afterwards, we have learnt that the radiation level in Nihonmatsu was higher than that in Soma. If we knew that, our action would have been different, although the absolute radiation level at that time was not something to be feared.

The schools were to be resumed some months later, and we came back to Soma. We thought that because schools were open, there would be no problem with the radiation. But when the schools reopened we had to use Geiger counters or dosimetry to measure the dose levels in the ambient



environment. I took part in dosimetry measurement, and there was a reference level; below this level it is safe, something like that. But that was the first experience for us so we didn't know whether we could trust that level or not. We didn't know either that whether the dosimetry is really accurately measuring the level or not. Negative things are easily accepted by the people but even if the authorities say, "It's okay", it is difficult to accept it; we needed courage to judge 'it's OK'.



My children were elementary students at that time, not kindergarten or nursery school or babies, but those with younger families must have had greater fear because they thought that they had the responsibility to protect their babies. So these younger parents had to make decisions on the spot whether they stay in Soma or they go out of Soma, without any accurate information.

Now I trust these figures and now I trust what the authorities said, so I came back to Soma. This is partly because my friends brought me to Dr. Tsubokura's lectures on radiation soon after the disaster. And I had the opportunity to listen to Dr. Tsubokura. That was a very fortunate thing for me. But I thought because he is a renowned doctor, I suspected that he might be paid off by the national government, and he might be only saying what the national government wants him to say before I came to know his personality. One day, he was on the move to somewhere, running in a sweat. Yes, he easily sweats, but anyhow, when I saw him sweating and running, I was somehow convinced that this person will never lie. So from that point on, I trusted him 100%.

Kenji Shibuya

Yes Dr. Tsubokura's lectures on mothers, what were the things that impressed you the most?

Chikako Hokotate

The doctor himself took the dosimetry and he himself inspected the produces. And because these produces are safe, he's eating them himself. He also told us that if there is no radiation at all in the atmosphere, worms do not reproduce, so radiation is sometime harmful to ourselves, but there ought to be a certain low level of radiation. So I learned that we do not need to eliminate radiation but be careful that radiation level is lower than reference level.

Kenji Shibuya

Mayor Tachiya, the mayor, it's your turn. Immediately after the accident, there was a big chaos and the information was crisscrossing, and as a mayor, what did you think was the priority issue?

Hidekiyo Tachiya

Well, I may be a little bit the sidetracking from what we have been talking. Dr. Tsubokura is a physician and he was much fatter. Now he is slimmer now. But we have to talk about acute phase, subacute phase, and chronic phase separately.

In the acute phase, radiation is only a part of many problems. When we have disasters, there is no written scenario. This is particularly true with the triple disasters, and the most severe damage was tsunami. Fortunately Ms. Hokotate's home was away from the coastline but as a mayor I looked at the city and the most affected areas were those affected by the tsunami. So the first priority is to rescue the survivors and to prevent secondary deaths



among the evacuees in the the shelters. So radiation was not the priority immediately after the accident or disaster.

Administrators need to get an overview and prioritize policies. What is the most urgent issue? That is what we have to think about. The basic rule of decision making is probably to consider whether that is fatal or not and whether that leads to the death or not. The other thing is overlooking the current state of the disaster effects. But then, the next problems would emerge.

For example, while we are thinking of preventing secondary deaths among people surviving tsunami in the shelters, next wave of damage, a radiation issue from the nuclear power plant accident, arrived.



As professor Thomas and Ms. Hokotate mentioned, before, the major problem was a severe lack of information. Soma city had no radiation countermeasure headquarter, and there was no expert on radiation protection. So we needed to consult with the Fukushima prefectural government, but no information came from them. Ms. Hokotate mentioned that the mothers were very anxious because of lack of information, and that was because as a mayor I was not able to have the answer to lay down these anxieties. To overcome the problem, Soma city began dosimetry measuring two days after the nuclear power plant accident. At that time accuracy of the measurement and validity of the formula that we used for calculation might not have been guaranteed, but we needed to decide whether to evacuate the hospital inpatients. Hospital evacuation itself has a risk, so we needed to choose the measures with less risk. That was why we collected information in order to execute that measure. That was a continuous process of thinking what was the priority issue and what was the thing that we needed to do urgently. This process was required not only in managing radiation issues but also managing other newly emerging problems such as PTSD. As a mayor of Soma city, first I tried to have a grip on the overall picture then consider the priorities and implement these priority measures on my own responsibility.

And information is the key to these decision makings, just as professor Thomas mentioned. I was watching TV news and felt that what the commentators are talking was not at all helpful. The commentators on TV predict the worst case scenario and mention what to do to prevent the case. The commentators on TV predict the worst case scenario and mention what to do to prevent the case. Making any plans is never free from risks. However, there are also risks of not having any plans at all. So while agonizing ourselves, we make temporary decisions and implement these priority measures.

During such days, we have to give top priority to avoid risks of radiation exposure among children. We were not so much confident about our knowhow, knowledge, and technologies we had; to what extent we can address these issues. Especially we were not very confident in the mid-to-longer term. As Ms. Hokotate said, we didn't know what to believe. But I could feel the concern of the citizens in my bones. If I can say something with confidence, that would be better, but I was not confident at that time. Then we received support. Dr. Tsubokura he worked very hard to provide radiation education to the residents. Judgment to avoid risks as much as possible for a mid-to-long term was needed and I had struggled to make the best judgment and we were able to overcome the super acute and acute phases. I am not sure whether our judgment was correct. It must be proved in the future generations. But as Soma city office, we struggled to think, and asking you to stay in Soma city.

Regarding children, I think it is important to investigate and study carefully to send out a good message based on the evidence to take action. That is going to be the best approach. From across Japan, we had

physicians. Thanks to their support I think we have been able to do this in both Minamisoma and Soma city.

Kenji Shibuya

Thank you very much. We have to give top priority to life to make a judgment under these circumstances, according to Mayor Tachiya.

Then from the super acute to chronic phase, you decided to give higher priority to children's health. Going back to topics of countermeasures against health for children, municipalities took health measures. We had cases presented in each lecture. Based on the contents of the lectures, Dr. Suzuki, could you share the current status of thyroid screening and also back then how was it started? It's impossible to eliminate the risk to zero so you have to consider tradeoffs, but initially what was your idea to proceed with the thyroid screening? Could you look back upon the past to share with us?

Shinichi Suzuki

Right after the disaster, Dr. Yamashita and Dr. Takamura came from Nagasaki University, and Dr. Kamiya from Hiroshima University as advisors of the Fukushima Risks Communication Council. They also gave lectures to the residents in Soma and Minamisoma city. I was attending the lecture as a disaster medicine coordinator of Fukushima prefectural government. I was able to learn how to make risk communication or what the residents were thinking through this process.



Then thyroid cancer became to cross the lips of the residents. But right after the disaster, during such a panic, it was impossible to talk about conducting investigation and screening. We just tried to be close to people because of the concern. Then we gathered experts from across Japan to hear their views on how to conduct screening. People wanted to have the screening as soon as possible, but we cannot do this overnight. If we do this all at once, the quality would be down and there can be variance in the results. You have to use the same standards. Just doing a token ultrasound screening is meaningless. We need a certain level of precision and we have to continue it for the future. We consulted with many experts at that time.

At first, I and a few other experts and non-experts in my university as well as experts from all over Japan worked together to educate others so that more physicians would become able to conduct standardized form of screening three years later. As Dr. Shimura presented this morning, many physicians are now joining in the screening, and support structure has also improved.

This project got started on 9th October. We did a lot of simulation before starting. For example, when we simulated how to provide the information, the staff members brought their children and conducted drills together with the mothers. After simulation, we received lots of feedback. Even with this preparation, we got a lot of claims when we exerted the screening on thousands of the residents. We decided to change where possible to make progress little by little. We couldn't look back upon the past until now but thanks to support from all across Japan and also from people in Fukushima prefecture we have come to the third round of the screening.

The problem was that the frequency of A2, most of which were benign cysts, was higher than expected, and it was a big topic in the world. Some experts suggested that even when we explained this is benign, some people would be worried and take the ultrasonography repeatedly. Then if cysts that they didn't have before were detected, they would become more worried. This concern was turned out to be correct. Although we started based on various scenarios, not all the people fully satisfied with the screening. So we struggled a lot, but we shouldn't stop, because it was not us who decided to conduct the screening. We started in response to the opinions from many people and with approval for many people.

Now a lot of data has been accumulated. Looking back at the beginning, we could not expect this result when we had started. From across Japan, we invited experts. All of them are specialists. They had many

patients because they are specialists. They had to leave their patients behind to come to Fukushima. That means that there are colleagues across Japan at hospitals to support those specialists and they decided to come to Fukushima to continue these efforts. Every day it was difficult to secure enough human resources. Sometimes we have to go and leave our work to help the staff. Finally, it's becoming more stable.

Kenji Shibuya

Dr. Thomas, based on the experience in Chernobyl regarding thyroid cancer, regarding the recent thyroid ultrasound screening was started, you talked about it. How do you perceive the screening in Fukushima right now?

Gerry Thomas

I think the thyroid screening is going to give you an awful lot of data but you have to interpret that data for the media and for the public. And I think one of the early problems that we had is that people have taken the figures from an ultrasound and compared it with figures from operative cancer, and the two of them are not comparable at all. And as I showed in my talk, when you screen, it changes the curve, it moves the curve to the left, and I think explaining that to the public and to the media has been very challenging.

When you talk about human health, nothing is ever simple and so it becomes very difficult to explain to people. But I think, you know, you have experts. You have the world experts in thyroid in Japan. You have the world experts in using ultrasound to screen patients. Very often they will give the presentations at international meetings because they know more about it than the rest of us. So, I think you can be very confident in the people that you have doing the screening. I think the difficulty becomes in the interpretation of the data. And you could say maybe you should have done mass screening elsewhere in Japan to make it easier to explain that actually what you are seeing is a result of screening, not as a result of radiation. But I spoke to a young mother once in Iitate, who said I do not want another mother to go through what I went through. It was so stressful as a parent seeing that. And I think she had a very good point. As scientists, we may see the world in one way but you need to speak to the people who are actually going through the procedures to understand whether you have it right. And I think a lot of discussion is now going on with the people who are in the screening program as to how they want to have the results presented, how they want it discussed with them. And I think the world will learn an awful lot from this and we should be learning an awful lot.

Kenji Shibuya

You are exactly right that we didn't have the exact choice to how to proceed, and we have really a broad way but we have some mission to fulfill that kind of effort like a thyroid examination problem.

Now Claire-san, from standpoint of health management, maybe you can actually share your view because you came from outside this region. I am sure that we expect that you have fresh perspectives, and that you engage in that kind of health management from the standpoint of women as well.



Claire Leppold

Lot of us have already discussed the importance of information availability, especially right after the disaster. And one thing that I've really learned since I came here is the importance of sharing science with the public and sharing results of studies with the public and making science accessible for everyone, particularly in the case of Fukushima with the result of the whole body counter screenings or the baby scans. Really, people need to know the results of these and the importance of the results and then the importance of their continued participation. So I think, thinking of important areas of health from here on out, in Fukushima I would say there's a really big importance on continued work to track the health of affected populations but to also make these results available for everyone. That's my general impression.



Kenji Shibuya

As Dr. Thomas mentioned, the scientist should be at the forefront of the communication to the general public and it has to be very effective. Now, what about the situation of the children in Soma?

Hidekiyo Tachiya

About 3 months after the disaster, the members of parliament from the Niigata prefecture visited us and she insisted that all the children in Fukushima should be evacuated. She said it is the safest way to safeguard the health of the children. But the children's health has to be evaluated in a holistic way. If the children are separated from their parents, or leave their own hometown, this doesn't actually serve right, like a psychological stress can easily be anticipated. The issue of radiation exposure, as Dr. Tsubokura mentioned, is considered with regard to the total amount of exposure and incremental probability of health problems.

As I have just mentioned, in disaster management, you have to compare risk and choose the option with smaller risks. So, the decision of Ms. Hokotate was not wrong. You can evacuate and if you think Soma is safe, then you can come back.

At that time, no one, including administrators, was confident in the decision they made. We had some information and data available to make the fine judgment that the dose level was not as serious to evacuate all the children from this district. However, we cannot measure people's anxiety. Therefore, if someone were worried, we don't deny their decisions to evacuate, because the situation was so uncertain.



But the city government must make the accurate measurement of the dosage and share the results with the community. We measured the external and internal exposure levels of the residents and air dose rate. Meticulous efforts were needed to see whether the trend was aggravated or improved. We have been measuring air dose rate since right after the disaster. When the dose aggravated, our decision would have been different. But luckily the dose was going down as time went by. So we made a decision to stay. From this experience, we learned that we should have scientific measurement and research so that we can be afraid properly and reduce risks wisely. In the areas with little bit high air dose rate, there is a tendency that the rate by windows is higher than by corridors. If that is the case, then the children's bedroom should be closer to corridor to reduce the amount of radiation exposure.

Of course, people would say that if there is some amount of radiation, it is better to evacuate children with all means. But considering that the exposure level is minimum, and that there is also the risk of children to be separated from the family or from the home, we may make the wise decision and option.

We actually have made a decision based on that evidence. For example, we offered the option to the families living in the areas with higher air dose rates to evacuate to the area within the city with relatively low air dose rate.

Kenji Shibuya

Soma city was really proactive and participatory, and deal with that situation by conducting internal and external radiation exposure measurement. They also openly shared the results with public since the very early stage after the disaster. So Ms. Hokotate, can you tell us what made up your mind that you and your family came back to Soma city.

Chikako Hokotate

Well, not only the information from the municipal, but also the measurement conducted by the school gave us assurance. The measurement was done at every school and on every corner on the street to the school. The results of the measurement was disclosed and that really gave us the peace of mind and we felt secured and that all information is shared with citizens. We were very thankful for the city government, which made a great effort to create environment in such a way so that children can live safely.

As for the food selection, there was a concern of food contamination. So soon after the disaster, I asked my relative living away from this city to send us rice. I cooked the rice for my children, and the adults ate the local rice. So we had two rice cookers. And at school lunch, the old ingredients were disclosed so that some measurement data was actually shared with us and all those efforts by the city government made us more secure of the situation, keep track of the situation.

Kenji Shibuya

Now, outside Japan, what was the situation? How the disaster in Fukushima was announced and also reported? Question to first of all Mr. Johnston. How the Fukushima incident was communicated?

Peter Johnston

I think the first thing to say is that we were only interested in the radiation, particularly the nuclear safety side of the accident. We were aware of course of the terrible tsunami and of the terrific loss of life. But the normal orthodoxy was that if there was going to be a nuclear accident, it would happen in a single nuclear power plant. It would involve a release of radioactivity over a short period of time, and then there would be countermeasures put in place and it would be controlled.



And that's not what happened of course. We had a power plant which was damaged by water where multiple units had failures. There was very little information provided to the international community and so people really had little idea of the status of the plants. Most of the people who knew what was going on worked for governments and so weren't allowed to talk to the press. And so, people were thinking very bad things, and as a result of that, for example, the United States imposed a 50 mile exclusion zone for Fukushima Daiichi nuclear power plant. And the instant that happened, the Australian government did exactly the same thing. And so there was really a lot of concern. A lot of Australians lived in Japan and a lot of Australian companies had major offices in Tokyo. And the questions were, should those people leave? Some of the foreign embassies in Tokyo left, and so a lot of confusion.

The current situation from an IAEA perspective is we remain very concerned about the fact that there is something like 100,000 people who are still displaced from their homes, that's a very bad situation.

We don't think about the situation in Soma city. We think about the situation in Fukushima prefecture. We think on a much bigger scale I guess. And also, we are really aware that there is a very long way to go to decontaminate areas so that all of the communities can be restored. And there are enormous problems with respect to waste and soil collection and water. Water is obviously going to be a really big issue in terms of the release of water that is being purified at the plant. And then there is the long-term decontamination. So, from the international perspective, we see significant progress but we also see an awfully long road ahead with many technical problems.

Kenji Shibuya

Dr. Nozaki, what is the world view on the situation in Fukushima?

Shinjiro Nozaki

Well, probably from the viewpoint of WHO I'd like to speak. I was in Geneva at the time of accident. In the Fukushima Daiichi nuclear power plant, the roof blew off with the explosion. That image spread through the world. Rather than the word 'the Great East Japan Earthquake', people all over the world said 'Fukushima', 'Fukushima', and they focused only on the nuclear power plant. In the case of Sumatra earthquake in Indonesia, there was the earthquake and tsunami and all the people throughout the world came to rescue and the WHO was also there to do the investigation.



But WHO does not have such office for advanced countries, such as Japan office. And if it were earthquake and tsunami only, the role of WHO would be just to gather information of damage and recovery. However, unfortunately, there was the nuclear power plant, and after that all attention was paid on Fukushima. Since immediately after the disaster till 4 years later, there were people with signage saying 'Fukushima' in front of WHO in Geneva office everyday. So every day during the commute I saw the signage of Fukushima, so I thought that WHO will have to investigate the situation in Fukushima.

Initially people thought that it is the same as Chernobyl, but there were many WHO reports and thanks to that, the current understanding of the world about Fukushima is that the radiation level is low enough not to cause the health effect. So that is no more panic in the world.

Kenji Shibuya

Mr. Johnston mentioned about the 50 mile evacuation zone which was advised by the US government. On which basis did they decide to set the 50 miles evacuation zone? We now understand the exposure, radiation level is very low, but we didn't know that at that time.

Peter Johnston

That's right, and it wasn't based on the radiation dose level. It was based on the fact that the US NIC had formed the view that one of the spent fuel ponds had cracked, and that there was a possibility that all of the spent fuel in that pond would deflagration and burn. And we did modeling in Australia all the time about what was happening at Fukushima. And if that eventuality had happened, the plutonium annihilation plume would have gone at least 100 kilometers, at a level which would have been dangerous. So that was the Americans really adopting a worse case approach and putting the dose limit and Australia followed because it could. There were only a few hundred people within that radius who were Australians, but of course for Japan it was impossible.

Kenji Shibuya

Professor Thomas, what about UK perspective, what about the UK views on Fukushima now?

Gerry Thomas

...very different perspective on the accident which is why the British embassy didn't evacuate from Tokyo. We are lucky in the UK in that we have scientists, working scientists in each of our government

departments. So, the first thing that happens when there is bad news somewhere, whether it's a new disease or whatever, is that the prime minister will call a meeting of the working party, which is really to advise governments on what its action should be. And the advice of our chief scientist, and he'd spent most of the night on the phone to experts about reactor safety. And in the UK, because we were early adopters of nuclear technology, we have quite a lot of good experts. So he spent most of his time talking to people about nuclear reactor safety and he was able to put a worst case scenario from the British perspective, which was very different from the American perspective.

And said, what do we need to do to make British people safe, because that's always the concern of a foreign government is their own people. And the decision was taken that Sir John Beddington who was the chief scientist at the time would video link in to Tokyo, that that could be provided as a video link to anybody who wanted to listen to it, whether they were British or not. And the advice was stay where you are, do not try to get on a flight home. You will have more of radiation dose on the flights.

Kenji Shibuya

So it was quite opposite to the other countries.

Gerry Thomas

Absolutely, yeah, very opposite, and I don't know why the scenarios that played out were so different. But there is a very interesting video that I saw when I was in Tokyo on the fifth anniversary, that when the British embassy team went to Sendai to look for British people that we knew were in this area, and there were quite a lot of British people in this area, they filmed what happened, and it is now used as a training video for disaster management. And it was quite incredible to see it actually unfolding in real time and you can understand why people were so worried.



But now, we know what the doses are. We have lots of very august reports that have told us what the doses are. And I think most people in the UK now understand that those doses are very low, that there will be no visible health effects from it. There are still some people who are nervous but I think we have been allowed a lot of media access after Fukushima to try and explain what is happening. And it's interesting now, when you see the anniversary, it's not a story about the nuclear accident any longer. It's a story about the earthquake and the tsunami and that's really what we should be talking about, not the nuclear disaster as people like to call it. It's an accident and it's interesting how that has changed over time. First year, first 2 years, it was all focused on the nuclear, now it's focused on the tsunami and how well Japan is recovering from that.

Kenji Shibuya

Thank you very much. As Dr. Thomas said, the dose was relatively low, but we were able to tell only after measuring. Initially we didn't really know. Thyroid screening and as Dr. Hayano showed the data, the air dose rate was not so high. So with regard to communication with the general public what was the issue and what should have been done better? Dr Suzuki, what could have been done better based on your experience in the field?

Shinichi Suzuki

That's a difficult question. First of all, regarding radiation level, external and internal radiation exposure levels were measured several months after the disaster. ¹³¹Iodine has very short half-life time, so measurement of external exposure to ¹³¹Iodine for each of the affected residents was impossible. But it is Iodine ¹³¹ that affect the thyroid the most. We have several research with small sample size and we

had some estimated data, but the variance was too big to apply the result to each individual. So that was part of the difficulty.

Communication changes by time, and timing is very critical. We need to ‘read’ the atmosphere around us, which changes over time, and make an appropriate explanation and address this situation properly. Our explanation may not have been sufficient, but we tried to be more meticulous in explaining.

Kenji Shibuya

I see. Dr. Thomas, sorry to ask you many times, but in crisis communication, in UK scientists find it difficult to communicate about thyroid screening. Despite the low dose, crisis communication was also difficult in Japan. You came to Japan many times. You also have experience in UK about the study in Chernobyl. So, what should we have done better in the crisis communication?

Gerry Thomas

As professor Suzuki has mentioned, it is very difficult to tell you what you should have done, but I will share one thing with you. The year before Fukushima happened, there was an International Thyroid Congress in Paris. I was there as were most of the thyroid community around the world, and we heard that because the following year was the 25th anniversary of Chernobyl. We heard from the Japanese and we heard from the French what they would do in the event of a nuclear accident. So I knew what the Japanese plans would be, which gave me great confidence to be – and I knew the people who would be involved, so it gave me great confidence to be able to speak out on the media. And I think it’s a shame that that plan had not been shared with the Japanese people beforehand.

So I didn’t understand at the time but I think I understand now, it’s difficult for us from a different culture to know what is going on in another country. And I think the thing that was missing in Japan was the elements of risk communication. When we do anything in business, in academia, we have to draw plans that assess all the risks and have what we call business continuity plans now. People don’t like using risk assessment any longer. It’s business continuity is the term we use. And so that means for absolutely anything that we do, we have to assess the risks and be able to say what we will do to reduce those risks, and I don’t think that culture existed in Japan before 2011.



Kenji Shibuya

You mean the contingency plans?

Gerry Thomas

No, risk assessment and then how you are going to alter that risk and how you are going to communicate that risk. So that's all part of what we do in everyday life virtually. So I think that's partly it. I was shocked when I heard from Japanese nuclear industry that they had told everybody that nuclear power was completely safe. There is nothing in life that is completely safe and we may as well accept that – going home on the plane in a couple of days, going home on the train is not completely safe. So I think that was a myth that didn't help. I think if the plans had been known, I think people would have been a little more relaxed. They would still have been worried. And I think one of the things that we have to understand is a nuclear power plant is not a nuclear bomb, and the two things have been confused in our minds. And we have to understand that the doses that we get from a nuclear power plant accident are very, very small and it's the individual dose that matters to the risk for health.

I am a pharmacologist originally so I understand dose response curves but that's not something that everybody else understands. But we have to get the concept over that a small dose equals a small risk and a small effect. A big dose equals a big effect and a large risk. And I think we have a problem and it's not just Japan. It's everywhere. We all share the same misconception that from a nuclear power plant the individual dose is very large. That is not true.

Kenji Shibuya

We talked about the situation since the disaster till now, so those who have moved to Soma area, Ms. Kana Yamamoto and Ms Claire living in Minamisoma city, what made you decided to live in the city, what was your concern and what has changed on your mind after actually living in Minamisoma? First Yamamoto-san?

Kana Yamamoto

I began to live in Minamisoma city, 1 year and 1 month has passed. I am in the second year as an intern at Minamisoma Municipal General Hospital. When I was a university student, I had a chance to listen to Dr. Tsubokura's speech on radiation. So I was not worried when I came here. But on my way here, my mom asked me 'You are not willing to get married? Are you okay?' My university professor also asked me 'Do you know how near Minamisoma city is from the nuclear power plant?' And my friend also told me 'It's close to the nuclear power plant. I wish you good luck.'



But personally I was not concerned. My concern is whether I can do well in my first year of my career, whether I would be accepted by the hospital staff. And because of my ignorance, I thought Tohoku is a snowy region, so I wonder whether I can endure winter.

It's a kind of promotion, may I? On April 19th, I published a book about anemia from Kobunsha publishing company. Right after the national exam I began to write this book. Dr. Kami gave us advice so that I can write this book. There were deadlines. I was managed to send the draft by the deadline. And there is a Facebook post by the doctor. I say sorry, the deadline is approaching. I wondered whether I would be able to complete. So there is no regret after coming here at all.

Kenji Shibuya

Any difficulty? What about your parents?

Kana Yamamoto

No further misunderstandings. Initially they were worried. Are you living okay? Do you have people around you? They didn't really understand, so I continued to send delicious sweets from this region for months. And I sent photos with my colleagues at the hospital and photos taken by Dr. Oikawa, and then my parents came here so they understood my situation.

Kenji Shibuya

Claire-san may have a different perspective, coming from Edinburgh, what was the reaction of your parents and friends there?

Claire Leppold

Many of my friends were really surprised when I came to Fukushima. I came here because I met Dr. Tsubokura, so fortunately I was able to learn a lot from him before I came. And of course I read everything that had already been written about this place and so I felt pretty well informed and I didn't have particular worries myself. But of course my parents were shocked, and my response to their shock was to actually send them all of the papers I had found. And my mom is a nurse, so she has some medical knowledge and she can read scientific papers and understand them. My dad was particularly worried because he's actually very anti-nuclear and he's the type of person who thinks everyone should put a solar panel on their house and not use any other type of power. So he was really worried and it took him a long time to kind of accept that I decided to come here.

But recently, he finally got used to the idea of me being here, and he read as much as possible himself as well and it made himself informed of the reality.

My friends first lost their words – one of my friends joked that my future children would be born with birth defects, and I saw the problems of stigma.



Kenji Shibuya

Now the next part of the panel discussion will focus on social impact of disaster and challenge and into the future.

So I would like to ask once again the passionate, the Mayor of Minamisoma, Mr. Sakurai. After 5 years, what social impacts remains? What is the current situation? What will be the future hld, your comment is very much welcome.

Katsunobu Sakurai

As I said yesterday, 20 km or 30 km divisions were made within my city. All those zones were designated by the national government. This also draw lines in the hearts and minds of our citizens, which caused psychological impacts. For example, monetary compensation was not given to those who were living more than 30 kilometers away from the nuclear power plant. Medical fee and fee for nursery is also free for the people living within 30km zone. So to speak, these residents were not treated as citizens of Minamisoma. the treatment is totally different from one zone to the other. Within 30 km distance, long-term care, insurance fee were all free. There is a totally different treatment, no grants, no subsidies

outside the 30km zone. This sense of discrimination prevented us from talking this issue openly. There is a division, division of relatives, division between parents and the children.

With regard to radiation, we started monitoring since July 2011, following instructions of experts. Parents of small children in Minamisoma now understand that the health impact by radiation is small. However, there still are psychological barriers, especially among those who are still evacuating. At maximum 60,000 people evacuated from the city, though residents living in the mandatory evacuation was only 14,000. These 14,000 people are not allowed to return to their homes yet.

In addition, 636 people lost their lives by the tsunami. Part of these victims' houses exist in the 20 km or 30 km zones. This complexity is hardly understood by people outside. Among those who lost their families and houses, compensation is quite different whether or not they live within 20km zone or not. Those within 20km zone get 100% compensation of the nuclear power plant accident, even when their houses were not damaged. But those families who lost everything by the tsunami were compensated only for the land. This situation is causing sense of inequality among the residents.

In such a situation, residents' needs vary depending on age. For example, elderly people living in temporary housings want to return to their home and end their lives at their own home. But parents who want to avoid health risks of their children are more likely to decided to leave; 9500 people totally left from Minamisoma, which is 1.5 times larger than that of Iitate. Minamisoma actually evacuated, 9500 people left the city and 11,000 people are living outside of Minamisoma. In addition to this, 7,000 evacuees from 20 km zone are evacuating within Minamisoma. In total 27,000 evacuees- this is the worst number among the affected cities.

Particularly, 13,000 people of productive age are lost from Minamisoma. Therefore, how to compensate the loss of human resources is a key to the recovery of Minamisoma. We need to invite people from outside. Sharing scientific data to actually assure people outside that living in Minamisoma is safe, and letting people like Yamamoto-san and Claire-san spread the message all over the world, is important. This is why I need support from your cooperation, specialists, and then the industries, we have so many industries there in Minamisoma. Why don't you come over and join us.

In order to fulfill our objectives, we decided to team up with the national government and the prefectural government and make test fields for innovative science. We are also planning to build international research institute in Minamisoma. In agriculture, plants factories will be open. Before the disaster, we focused on farming of the crops but now that we have new kinds of crops that we are growing, that's the rapeseed flowers to make the rapeseed oil and soap out of that. We have to create a new job, new industry. So such series of new challenges and new innovation is needed for us to realize our dream to recover and reconstruct Minamisoma.



In Edo era, the Soma clan experienced a severer famine and so many population was lost. Then the migration policy was taken and they invited migrants from outside. So that's just like Yamamoto-san and Claire-san, the great resources coming from outside really contribute to the great future of Minamisoma. Also, in that city we have to provide better education to nurture and foster the future human resources. That means that the population, 71,000, has actually shrunk to 57,000. But this number is not so bad. There are some new entrants. I think this is partly because the city functionality was maintained and thanks to the Tohoku Electric Power, there was no blackout. That resulted in the resumption of the water services or the recovery of the social infrastructure.

All those recovery, and reconstruction work was done by city staff members, but city staff members, who were often the target of criticism by citizens, have to actually retire due to stress. But it is due to the efforts of those public servants that we are able to really retain their population. They were the great driver to keep us going with grand plan for the future.

Kenji Shibuya

Thank you very much indeed. The health effect is one and also that social discrimination, and that the future, city development and perhaps introducing people from outside the city to Minamisoma.

Now I would like to ask a question to the people living outside this region. Question to Dr. Thomas. Now that's the 5 years after the disaster but we have to continue the effort for the total recovery of this region. From the world, what is the difference in the viewpoint between people inside and outside?

Gerry Thomas

First of all, I think you are really lucky to live in Japan, a beautiful country. I think you have fantastic resources with the investment that is going in. There are still people who query whether it is safe to eat Fukushima food and when they ask me, I say, "Not only is it safe to eat the food but you should come to Fukushima to eat it. Food is always best where it's grown so why don't you come and visit the place for yourself." There will be nervousness on behalf of some people and some people you will never persuade to come back. But I think you need to carry on doing what you are doing. You need to really sell this area. You are putting in new infrastructure, new jobs. Why would you not want to bring your family here? It's much better than Tokyo or Sendai? To live in the country is what most people would want. So why do people not want to come here? And I think you have to keep reinforcing that and I think eventually you will find the population comes back. I certainly can't think of a much better place to be. It's beautiful here.

Kenji Shibuya

Would you like to stay?

Gerry Thomas

I would like to stay and, even better, I might get my son to come here. Hopefully, if he gets the grades, he is going to do German and Japanese. I brought him to Japan when he was a young boy. He loves Japan. I have to have a separate bag when I go home to take food for him because he loves Japanese food, and he's so in love with the country, he wants to come and live here.

Kenji Shibuya

What about Mr. Johnston?

Peter Johnston

I think I am seeing lots of good investment, and lots of good facilities here in Soma city. I can see, however, that for the areas where there has been evacuation, the redevelopment of those areas is going to be quite different because I think the returning population is going to be small and I am sure the ministry of environment is actually thinking about these issues going forward.

A horrible reality of a disaster is that things are never the same after the disaster. You build a new situation. You build a new community, but it's not the same as the old community. It's changed.

Kenji Shibuya

Okay. Just as Sakurai-san mentioned, there are two immigrants, or two young aspiring persons have immigrated to this city, and so these younger people coming back and they work and they have families, they raise children, and these two could be the role models, Yamamoto-san and Claire-san. So you are younger people with lot of things in the future. What are the good things that the city will have to say to the outside world in order to convince the people coming back or outside people immigrating in this region? First, shall we start with Claire and then Yamamoto-san.

Claire Leppold

What's important for people going anywhere or for people to live in any place is to have good jobs, good places to live and accurate safety information or information about risks in a place. So I think for Minamisoma, if we are going to increase the number of young people, we really need to create a good environment; but also, like I said earlier, the spread of accurate risk information. And I think those are truly the most important things and all of those things are what helped to bring me here as well. And I think it's going to be true for young people from other places in Japan to come here, or for people originally from here to come back are those three points.

Kana Yamamoto

I am still a fresh person in second year, so I do not have strong opinion like other panelists. What I have to do is to fulfill my mission in the hospital. I want to become the Ob-Gyn and I worked as a resident in Minamisoma Hospital. There is only one Ob-Gyn doctor and he is really busy. And some patients asked me until when I will work in the hospital. I was very much wanted, that's what I felt. Also I had the overnight duty under supports not only by the doctor but nurses and the patients themselves, and that's what I feel every day. It was quite a good luck that I was able to come here and also I got acquaintances with the city hall people and the civil servants in the Soma city.

So that was good luck that I had and that sort of destiny I should meet you in this wonderful place and I feel very lucky myself about that.

Kenji Shibuya

Ms. Hokotate, as a mother, I believe that one of the main topics is to send out the message to the world. So you live in Soma region and you are a mother. What is your message to the world? If not to the world, to other people. So what about your personal view? Your message to the world.

Chikako Hokotate

First of all, ever since the disaster, we have received a great deal of assistance from throughout the country and throughout the world. And as an ordinary citizen, I didn't speak up much, I would like to take this opportunity to thank them all.

During this 2-day symposium I was able to listen to what the people with different background thought and acted. My children are participating in El Sistema, and SEISA group also invited my children to the place where they can play outside with no concern.

I personally feel that Soma is safe enough for me to raise children, but to prove this, I have to remain healthy and lead a happy life. I believe that that would be the best return that I could give back to those who have helped us.

And of course, still many people are working to stabilize the Fukushima Daiichi nuclear power plant. But of course, there is a long way to resolve the situation completely. So what we can do is we will keep receiving the test screening using the whole body counter and the glass badges to monitor our radiation exposure levels.

If people say it's safe *after* an accident happens, we may not be able to accept these words. As there are nuclear power plants throughout the country, throughout the world, all the people will have to educate themselves before accidents happen and these sorts of learning processes can be part of everyday life.

I heard companies are still building new nuclear power plants, so I want them to develop more robust disaster plans in case an accident happens. As long as there are nuclear power plants, there is a possibility of accidents anywhere at any time. So we will have to prepare before accidents happen.



Kenji Shibuya

Before we close, we would like to have a message from each panelist. First, Dr. Thomas.

Gerry Thomas

I think I'd like to see this place to return to how it was. I came here in September 2011, and (in today's short sightseeing tour) I didn't recognize where I had been until we suddenly realized that we'd been to the same place and it looks totally different. We remember the (abandoned) bus. We remember the ship, but now it looks a lovely seaside town. So I hope in the future that with all of the efforts you are putting in, that you will invite people back, that they will come back and that you will have a thriving young population here. I could see no reason why that should not happen, and it should be happening now already. There will be jobs in this area. There will be jobs associated with the power station because it has to be decommissioned. Those will be good jobs, highly paid jobs, skilled jobs and there should be no reason why you shouldn't be able to bring an awful lot more people back to live in this lovely area.

Peter Johnston

Thank you. I just wanted to reassure everyone here that in fact many lessons have been learned in the nuclear safety area from what actually happened at the power plant, and the safety standards have been reviewed and updated. And with this accident we have learned things and we will put the lessons into practice.

Shinjiro Nozaki

Keyword is that Soma is the only area in the world with unprecedented disaster and we have a mid- to long-term initiative. We need to continue for the future as well. To the world, this experience must be shared. You have to send a message. You are working on this aggressively. This is great. WHO Kobe center would like to cooperate with you as we proceed for the future. So, we appreciate your continuous collaboration.

Shinichi Suzuki

We have to continue screening as was mentioned this morning. I heard that Soma Central Hospital will start screening from next week. This means you can get screening from the nearby doctors who you know well. So we can do this more locally. That is going to happen from now on. Next issue is about collecting data. We have to gather data to report so that you can evaluate. We would like to continue

these efforts. All the more, we shouldn't allow the quality to go down. We have to continue in the same way so that we can do the same assessment.

Claire Leppold

First, I hope that this place can continue recovering and that young people will come back here and that we can continue learning lessons and sharing lessons from the situation and to not forget what has happened, but what also can be recovered and what can be done from here on.

Kana Yamamoto

I came from outside. I would like to communicate the real situation of Minamisoma area with the rest of Japan.

Chikako Hokotate

I thought I didn't have to talk anymore. I thought that was my last turn. Some people may still have some worry to live a healthy life. So I'd like to send a message to them. And also, we received a lot of support but still I'd like to ask for continued further support.

Katsunobu Sakurai

Within 20 kilometer radius, animals and plants were sacrificed. Cows were sacrificed and they were forced into famine. Plants were in ruins. Can we live in a society where we just value the human life? As Mayor Tachiya said, we have to value the life. But human beings are supported by all other living creatures, and we should not have a society that thinks about only human beings. Like the lesson from the nuclear accident, we must educate all people how human beings should live. At the same time, we have to make efforts to give a future to young people, who should have future. For elderly people, time is running out. So how to ensure sense of safety for them is important. So we have to make every effort to achieve these goals. We have to work with people around the world and also people across Japan to send out the message that here is a great region. This is what I'd like to do.



Hidekiyo Tachiya

This symposium has the capability to disperse so much information and data message, and that will be proceedings later so that we really invite you to actually go and see the result of this symposium. Many people died and lost their lives because of starvation. Elderly people who were bedridden and those abandoned people died because they were not able to get food. That is why we have to make decision on which risk should we choose. That's the ultimate question. During these 2 days, we have had so

many discussions, and as we came to the conclusion that radiation should be fared with properly and be avoided in a reasonable way. I'd like to repeat this message.

Yesterday, at the onset of the symposium, I touched upon the story of the relief surprise to Kumamoto. We sent gypsum panels but they didn't know the panels is to use as the partition to secure privacy at evacuation centers. On 5th of May, I convinced a mayor in Kumamoto prefecture to convince them that the gypsum panels

should be used and used wisely. All efforts we have paid in the past 5 years were not effectively communicated and shared in the disaster management, the disaster preparedness. That is really unfortunate.

So, I think the result and the outcomes of this symposium and also the lessons learned have to be evaluated by whole the society. I am so grateful for Ms. Hokotate for her contribution to the symposium. She emphasized the importance of the radiation education and also disaster education training.

We are grateful to take many presentations and recommendations from the floor during these two days. We'd like to send these messages from Soma area to the rest of the world.

Kenji Shibuya

Thank you very much. Very rightly and a very powerful concluding comment by the Mayors. Ladies in gentlemen, please join me for the appreciation of the contribution given by the panelists.

