

The making of 'Fukushima: 2011-2015'

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Introduction:

This paper is a first-hand report on the making of a documentary on one of the most tragic events in 21st century Japan – the Fukushima nuclear accident that occurred following a major earthquake and tsunami in March 2011.

We have made six documentaries about Fukushima, and the fourth one, 'Fukushima: 2011-2015' (2016, 74 mins), was screened at University of Haifa, Israel, in June 2017 as part of the '3rd Biennial IAJIS Conference: The Heisei Era in Retrospect.' This documentary was based on interviews we carried out between September 2012 and July 2015 - mostly with a group of Fukushima University scientists working on environmental radiation in Fukushima, some of which had been used for our earlier documentaries. When we started our interviews in September 2012, however, we were not thinking of making more than one documentary on Fukushima. Moreover, the making of the first Fukushima documentary was also not something we planned immediately after the Fukushima nuclear accident of March 2011. It rather emerged from seemingly unrelated encounters with various people after the accident, which we shall trace in this article.

Both of us were born and grew up in Tokyo, and worked there as print journalists prior to moving to Glasgow, Scotland, in the summer of 1989 with a view to completing two years of graduate studies and then moving on to Africa as development workers. However, we have

instead remained in Glasgow ever since and have worked at the University of Glasgow as both researchers and administrators.

It might have been the fact both of us had worked at a university that had made us so keen to find out about what universities in Fukushima were doing after the nuclear accident - an effort that resulted in the discovery (via the Internet) of a Fukushima University radiation assessment team. These individuals had volunteered to measure airborne radiation rates in Fukushima Prefecture and had also managed to visualise the findings in the form of a radiation map. This discovery then drove us to initiate and develop research collaborations between this Fukushima team and Scottish scientists, and we eventually managed to arrange face-to-face meetings with the Fukushima team members, from whom we heard stories too important to be left unreported, which is where our journalistic background allowed us to make our first Fukushima documentary. The following is a brief summary of how the idea of making Fukushima documentaries was born.

With this in mind, the article is made up of two parts. Part 1 traces the process leading to the making of our first Fukushima documentary and attempts to capture its nuances and guiding motifs, and especially those related to such notions as 'home,' 'outsiders' and 'stories.' Part 2, in turn, examines key messages we have received from the Fukushima team members and others alongside several quotes from the documentaries. In this respect, and as we tried to comprehend why they acted as they did, we also learned about their values and motivations – an aspect which scientists do not usually mention in their scientific papers.

Part 1: How did the idea of making a Fukushima documentary emerge?

11 March 2011

When East Japan (Tohoku) was hit by a magnitude-9 earthquake and subsequent tsunamis on the 11th of March 2011, we were in Glasgow, Scotland, where we have resided since the summer of 1989, the first year of the Heisei Era.

During the late afternoon of the same day, one of us was contacted by BBC Scotland and asked to appear on its live radio news programme. After being asked about the situation of our families in Tokyo, the interview proceeded as follows:

- Do you think that this might help the sluggish Japanese economy bounce back since lots of public money would be pumped into the reconstruction work?
- 'Many people have died. Many people have lost their loved ones. Many people are still running away from the disaster. Is it not rude to ask such a question at the present time?'

This is where the interview ended. We were stunned by the interviewer's insensitivity to those affected by the disaster, and were once again reminded that Japan was still the 'Far East' to people in Britain and that we remained 'outsiders' in Britain. Moreover, we were also 'outsiders' to the disaster in Japan, residing far away from the country and not experiencing the disaster directly. In retrospect, this interview might have been the first event which made us feel that we ought to find our own narratives with which to communicate this natural disaster that also triggered an accident at the Fukushima Dai-Ichi nuclear power plant to the people of Glasgow. We did not know, however, how and where we could find such a narrative.

A renewed interest in Hiroshima and Nagasaki

One of the first things we noticed after the Fukushima nuclear accident was the appearance of many articles about it on the Internet. In this respect, some writers compared it to the Chernobyl accident of April 1986, while others located it in the historical context of Japan's post-war nuclear power generation. In addition, we also noticed the emergence of a renewed interest in the August 1945 atomic bombing of Hiroshima and Nagasaki, which some people in Japan found rather uncomfortable.

For example, an exhibition entitled 'A Look at the Atomic Bomb: 1945-1970', scheduled to be held at the Meguro Museum of Art in Tokyo, from the 9th of April to the 29th of May 2011 was postponed indefinitely.¹ As museum spokesperson was quoted by the *Asahi Shimbun* on 30 March 2011 as stating that 'the aim of the exhibition has nothing to do with the disaster and the nuclear accident, but some images overlap, and this is not the time for visitors to watch our exhibition. As people are concerned about radioactivity, we wish to be considerate to people who have suffered from radiation, such as evacuees.'² While it can be argued in this respect that the atomic bombing of Hiroshima and Nagasaki and the Fukushima nuclear accident are different, as the former was caused by humans, while the latter was caused primarily by a natural disaster, it can also be argued that these are two sides of the same coin: the use of nuclear energy in war and in peace.

The museum's decision exerted some degree of influence on us. We had started a fund-raising activity for holding a 'Hiroshima-Nagasaki photo exhibition' in Glasgow in 2011 (but well before the Fukushima accident), and were asked by Japan-related founding bodies whether we wanted go ahead with our plans after the museum's decision was reported. Our answer was 'yes' because the renewed interest in the Hiroshima and Nagasaki bombings in light of the Fukushima accident would make the exhibition more meaningful than if the Fukushima accident had not taken place. We subsequently held the exhibition at the Mitchell Library in Glasgow, in August 2011 and at the University of Glasgow Chapel from November 2011 until the end of January 2012.³ We later received the following email from a regional newspaper in Japan while the exhibition was still active: 'Are you from Hiroshima or Nagasaki? If so, we would like to publish an article about your exhibition,' which led us to

¹ <http://mmat.jp/exhibition/archives/ex110409-2>

² http://www.asahi.com/culture/news_culture/TKY201103300284.html

³ The exhibition was supported by grant from the Great Britain Sasakawa Foundation, and the photographs were provided by the Hiroshima Peace Memorial Museum.

ponder whether or not 'outsiders' should be entitled to hold an exhibition about Hiroshima and Nagasaki.

A Scotland-Fukushima research collaboration

In November 2011, one of us, who was working as an International Business Liaison Manager at University of Glasgow, was asked by a Glasgow-based environmental radiation scientist to find his Japan-based research collaborators in Fukushima. The scientist had major Japanese universities in mind, but Fukushima University was recommended to him.

Fukushima University was, and still is, the only national university in Fukushima Prefecture, and as such might have been expected to do something for the local communities in the wake of the nuclear accident. In addition, internet sources had suggested that some scientists from this university had formed a radiation assessment team voluntarily⁴ which might appreciate Scottish expertise on environmental radiation more than major Japanese universities. With this in mind, we contacted the Fukushima University team, who responded to our inquiry quickly and positively, and led us to initiate and develop this Scotland-Fukushima research collaboration even after one of us was no longer employed by Glasgow University after January 2012.

'St. Kilda Tapes' - 'What does home mean for you?'

In January 2012, David Allison, a friend of ours and a journalist with BBC Scotland, asked us to investigate the possibility of screening his documentary, 'St. Kilda Tapes',⁵ in Japan. St. Kilda is an island about 66 kilometres off the Scottish mainland. The islanders left the island in 1930, as their life on this remote island had become unbearably difficult. David's documentary follows one of the evacuees from the island, Norman, who is asked the same question again

⁴ <http://www.sss.fukushima-u.ac.jp/FURAD/FURAD/top.html>

⁵ <http://www.theislandtapes.com/thestkildatapes.html>

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and again: 'What does home mean for you?' This question resonated with us, as the notion of 'home' was in our mind ever since we had left Tokyo for Glasgow. We thought it would be interesting to take David to Japan and to screen his documentary there as a kind of an experimental project to help us ponder the question of 'What does home mean for us?'

Our initial idea was to screen it in remote islands in Japan. With the theme of 'home', the documentary could provide people in Tohoku a hook with which to reflect on their recent experiences of the earthquake, tsunamis and the nuclear accident. At that time, however, we did not consider screenings of the documentary in Tohoku - possibly because our life outside Japan and the fact that we did not experience the disaster ourselves meant that we felt 'outsiders' to the disaster. It is also possible that we might have been unconsciously influenced by the regional Japanese paper's inquiry as to whether we were from Hiroshima or Nagasaki.

Hitchcock's 'Rear Window'

In March 2012, some members of the Fukushima University radiation assessment team came to Glasgow and we welcomed them at Glasgow Airport. On their way from the airport to their hotel, a taxi drove through Glasgow's residential areas, and one of the visitors said, 'It looks like Hitchcock's "Rear Window".' He seemed to be in his 40s, and yet he knew the 1956 film.

By then, we had failed to make anyone on any remote Japanese islands interested in screening the documentary, and we had abandoned the idea of using its 'island' aspect in the service of locating screening venues to show it. However, we were still keen on screening it in Japan not only for its maker's sake but also in order to help us ponder the notion of 'home'. We just did not have any idea about how to approach people in Japan in order to realize the project. However, once we heard someone mention 'Rear Window' in the taxi, we thought that his interest in film might work as an opportunity for us to discuss a possibility of screening the documentary in Japan. We quickly developed an idea of screening the documentary as part of a workshop on making documentaries with David as an instructor. We were still trying

to avoid relating the documentary's 'home' theme to the recent disaster in Tohoku. It might sound strange now, but we were not sure whether we were entitled to do so. When told about the idea, our guest showed an immediate interest in it, and we began to plan a screening of 'St Kilda Tapes' at Fukushima University. The film-lover in question was Kenji Nanba, a microbiologist who would become one of the main characters of our Fukushima documentaries.

The left-over survey meters

In March 2012, we also had an interesting conversation with another member of the radiation assessment team while they were in Glasgow. He told us that he had gone deep inside the evacuation zone about ten days after the nuclear accident in order to collect survey meters left at the Off-Site Centre. The survey meters he and his former colleagues collected were then used by the Fukushima Prefectural Government and local municipalities in Fukushima for measuring airborne radiation dose rates. The assessment team also used some of these survey meters in order to measure environmental radiation in Fukushima Prefecture in the service of making a radiation map. We felt that it would be nice if other people could listen to his story, so we suggested that he write a memoir of his activity. At this point, however, we were not thinking of recording his story ourselves so it could be shared with others. This person is Project Professor Kencho Kawatsu, another main character in our Fukushima documentaries.

St. Kilda Tapes tour in Japan

We failed to raise any external funds in support our planned 'St. Kilda Tapes in Tohoku' tour. One Japan-related funding body explained its refusal as being due to the fact that 'David Allison is not from St. Kilda and two of you are not from Tohoku.' While this might simply be an excuse with which they could justify their rejection, it nonetheless reminded us of the regional paper's *The Making of 'Fukushima 2011-2015'*

earlier question about whether we were from Hiroshima or Nagasaki. Since the atomic bombing on Hiroshima and Nagasaki and the Tohoku disaster are relevant to us all regardless of where we come from, and as we did not wish to be influenced by those who thought otherwise, we eventually decided to deliver our project as planned.

In July 2012, we took David Allison to Tohoku so he could screen his 'St. Kilda Tapes' documentary at Iwate University and at Kunohe Village Office, both in Iwate Prefecture, as well as at Fukushima University. In promoting these events, we also made a flyer in which we mentioned 'home' as the key theme in the documentary, but did not mention the recent disaster until a student who organised the event at Iwate University added a sentence stating that 'a year has passed after the disaster' to our message. The student told us that 'without this sentence, the event would have little meaning in Tohoku.' We felt relieved to know that we did not bring anything inappropriate to the people of Tohoku.

Outsiders

Fukushima University was the final leg of our Tohoku journey. To our surprise, far more students than we expected remained for a post-screening discussion and attended the documentary-making workshop compared to the other two venues. Furthermore, the students actively participated in the discussion from its very outset, talking about their recent experiences in relation to the documentary video's theme of 'home'. They had not been ordered to evacuate as they all lived near the campus, which was located about 60km north-west of the Fukushima Dai-ichi nuclear plant and well outside the evacuation zone. They remained in the same flat or house, and yet one of them said: 'Norman [the documentary's protagonist] remembered St. Kilda long after he left. I would like to live from now on, remembering St. Kilda as well as the very beautiful home that was pre-disaster Fukushima', reminding us that home is more than a house.

While listening to their talks during the discussion, we became aware that they attentively listened to each other's stories. This appeared to suggest that they might not have talked to each other about their experiences. And indeed, a professor who organised the Fukushima University event alongside Nanba later told us that she realised how hungry the students had been for something exciting to come from outside. 'Something exciting from outside' - the presence of 'outsiders' like us may have functioned as a catalyst for the students to talk about their stories. So there could be a space for outsiders like us among Fukushima people, and being outsiders suddenly became a positive thing. This other professor is Goto Fumiko, a Professor of American Studies, who has also appeared in all our Fukushima documentaries.

'St. Kilda Tapes in Japan' (a video): the last piece of the jigsaw

In August 2012, David Allison made a video documentary chronicling our 'St. Kilda Tapes' tour in Japan. His video was obviously made from his own viewpoint, which was not the same as ours. While watching his version of the journey, we began to think about making a video documentary on Fukushima from our perspective. Not that we say *a* documentary in the singular because we were thinking of making a single documentary that would record the story behind the making of the radiation map by the Fukushima University radiation assessment team - the same story we heard in March 2012 from those directly involved in it alongside some student stories. Recording their stories and sharing them with others through screening events could thus serve as our narratives of the disaster.

Print journalists making a video documentary

Both of us were journalists while we were in Japan, but we were print journalists who wrote for the Weekly Sankei Journal. Since we moved to Glasgow, we had been working for years as stringers on Scottish issues for a Japanese news agency, and we informed the agency about the story behind the radiation map. The agency, however, was not interested in the story. The

agency's lack of interest might have also been another factor which pushed us to record the story ourselves.

The story could certainly be recorded as a written article because we were print journalists. Making a video documentary, however, had been in our mind since our voluntary work for UNICEF in Ethiopia in 1985/86. After leaving the weekly journal we worked there as voluntary field monitors for relief goods sent from Japan to the people in Ethiopia suffering from famine. During our field trips across that country, we encountered a young Ethiopian video journalist, who asked us why we did not bring a video camera with us in order to monitor the distribution of relief goods from Japan. He also told us that video is more effective than words and that Japan makes lots of video cameras! We were certainly aware that video footage could not only capture people's spoken words but also their facial expression and posture and thus record more information than written words, but we didn't think of bringing a video camera with us. The video cameras used at the time were more expensive and more difficult to use than the ones used nowadays and editing a video was more demanding. The technological changes that took place during the Heisei era, however, made it possible for people like us to think about making a video documentary by ourselves with one of us being in charge of a camera and the other handling a tape recorder. Both of us asked questions.

We found the task of video editing challenging. Although we worked as researchers for TBS-TV's documentary on Japan's overseas aid to the Philippines after coming back from Ethiopia, we had no hands-on experience in video editing. However, we sought assistance from a friend of ours who works as a professional video editor.⁶ We selected the video footage we wanted to use, listed it in order on a spreadsheet, and he edited them accordingly. The way we arranged the video footage, and our extensive use of title cards in particular, may reflect our background in print journalism.

⁶ The video credits him as Hajime Kobayashi, but his real name is Colin Brierley.

Part 2: Why did they do as they did?

‘Our friends in Fukushima’: the first Fukushima documentary

In September 2012, we carried out our first video interview with Miyuki Sasaki, a fourth-year science student from Fukushima University, who was visiting Glasgow as part of the Scotland-Fukushima research collaboration we initiated and developed.

In December 2012, we visited Fukushima University in order to carry out video interviews with some members of the radiation assessment team and others. We heard the story behind the making of the radiation map, our main interest in making our video documentary, but we also heard much more than this. This was December 2012, about 21 months after the nuclear accident, and those involved in the map-making during the crisis had already begun new studies in their own research fields that incorporated issues relating to the nuclear accident. While listening to their stories, we started to sense the way of thinking and the value that underpinned their activities. In the words they spoke in our first documentary, *Our Friends in Fukushima* (2013, 40 mins), have been embedded in our memory ever since, and have formed the core of *Fukushima: 2011-2015* as we shall see below.

On Sunday 10 March 2013, *Our friends in Fukushima* was first screened at the St. Mungo Museum of Religious Life and Art, Glasgow, Scotland, as part of the event we organised to mark the second anniversary of the East Japan (Tohoku) Earthquake.⁷

For Fukushima⁸

In December 2012, Kenji Nanba, a Professor of Microbiology, talked about how the radiation assessment team had been formed immediately after the nuclear accident:

⁷ The anniversary event was jointly organised by Japan Desk Scotland and Japanese Matsuri for Glasgow and partly funded by a grant from the Great Britain Sasakawa Foundation.

⁸ The italicized parts are quotes from our documentaries.
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There was a teachers' meeting on March 19.

Prof. Yamaguchi and Prof. Kanazawa suggested that radioactive materials had been released and that radioactive contamination had begun.

They also stated that we must do something in these circumstances.

A few volunteers among us, about five or six in total, remained and discussed what we could do.

Fukushima University has neither a research group on nuclear issues nor any relevant facilities.

The university was not able to measure [radiation], but we did manage to gather equipment.

What we could do for Fukushima Prefecture would probably lie in understanding the distribution and extent of radioactive contamination.

The team's map revealed that airborne radiation rates were high outside the 20km evacuation zone in the area to the northwest of the nuclear plant. Prof. Nanba continued:

The map is said to have been passed on to the Prime Minister's Office.

The government may argue otherwise, but I believe that our map led to the government's detailed measurement and revision of evacuation zones.

Those scientists who made the radiation map were not experts on radiation at the time of the accident, but their map played a role in revising the evacuation zones.

Fukushima: 2011-2015 begins with images of lotus flowers in Kunimi Town, Fukushima Prefecture, that were planted by evacuees from Okuma Town, the location of the Fukushima Dai-ichi nuclear power plant, and of Kunimi residents. Lotus flowers are said to grow out of the mud and blossom above the muddy surface of the water. The image of lotus flowers was followed by Nanba's aforementioned words and then by the insertion of the following title card:

What would you do if you found yourself in the 'mud'?

Fukushima and Chernobyl

In December 2012, Prof. Nanba also indicated his willingness to keep on recording environmental radiation data in the long run, and thus follow the example set in Chernobyl:

When we examine the outcomes of Chernobyl we can see that the observations were conducted continuously from immediately after the contamination to the present day, more than 20 years.

The Chernobyl experience allows us to understand what would happen in the long run and what kind of anti-contamination measures would be required.

We think it is important to build up such a record of observation data.

Prof. Nanba and his students have measured and recorded radioactive Caesium in Abukuma River, which runs through Fukushima City and towards the Pacific Ocean, since April 2012. Nanba also mentioned another lesson from Chernobyl's experience in December 2012:

Contacts from abroad, and especially from Europe, taught us that preparatory measures against possible radioactive contamination were developed in Europe after the Chernobyl accident.

This was surprise because there are virtually no Japanese studies that have assumed the existence of a nuclear accident.

I don't think that this is due to negligence on the researchers' part. The issue may be partially related to researchers, but it is more of a social issue.

His comment on the absence of Japanese research that has assumed a nuclear accident was a surprise to the audience in Glasgow and elsewhere, but the situation in Japan has since changed, at least at Fukushima University.

In July 2013, Fukushima University set up an Institute of Environmental Radioactivity (IER), and Prof. Nanba was made its Deputy Director. He was later promoted to Director in April 2015. IER also employs researchers from Ukraine and Russia, which have extensive research experience as a result of the Chernobyl accident, as well as researchers from the United States and Bangladesh. IER also began a five-year research collaboration with Ukrainian research institutions in April 2017. The knowledge about Fukushima and Chernobyl that has been accumulated and that will be accumulated at IER will eventually be useful in the case of a future nuclear accident with environmental radiation implications just as the knowledge accumulated after Chernobyl was useful after the Fukushima accident.

The Elderly Should Take Action

In December 2012, Project Professor Kencho Kawatsu talked about how and why he had gone inside the evacuation zone to collect the survey meters left at the Off-Site Centre that was supposed to have served as the front-line centre during a nuclear accident.

[The function of] the Off-Site Centre had moved to Fukushima City.

As the airborne radiation rate [around the Centre] was high, staff members had left [the Centre], and left the survey meters behind.

[The survey meters] were at the Centre, that was located about 70km away from Fukushima City.

The Centre was near the nuclear power plant.

It wasn't easy to get there.

Nobody wanted to go there.

Prof. Kawatsu worked for the Fukushima Prefectural Government for 37 years, and, among other things, dealt with nuclear issues. After the nuclear accident, he served as a voluntary help desk for people in Fukushima who were concerned about radioactivity.

This was the time for us retired staff members, the elderly, to act.

People were aware of a cancer risk, and those within the organisations may have thought that young staff members shouldn't be sent there.

I asked other retired staff members to go to the Centre with me so we could bring back all the survey meters that had been left behind.

This was on 23 March 2011.

The collected survey meters were then used by the Fukushima University radiation assessment team and other municipalities. This is another story that made us consider what we would do if we found ourselves in the 'mud'?

What will happen in Fukushima?

In December 2012, we asked Kawatsu what message he would like to convey to the people in Glasgow.

This isn't about pity.

Please consider the fact that people are still living and struggling [in Fukushima].

I would like you to pay attention to what will happen in the future.

I would like you to never forget [Fukushima].

A disaster like Fukushima shouldn't happen again.

What should be done to this end?

I want you to think about this sincerely.

We wanted to see what would happen in Fukushima, and we also wanted to see these people we met in Fukushima again in order to hear their latest stories. With this in mind, we began visiting Fukushima every summer in order to interview Prof. Nanba, Prof. Kawatsu and others. We have made six Fukushima documentaries thus far, which represent time-series of annual snapshots or a fixed-point observation of people who remained in Fukushima after the nuclear accident in order to do something positive for people in Fukushima.

The elderly should take action again

Prof. Kawatsu introduced to us various people living in different parts of Fukushima every time we visited. In July 2014, we were introduced to Suzuki Hisatomo, the former Director of the Okuma Town Office's General Affairs Division. As mentioned above, Okuma Town is the location of the troubled nuclear power plant, and Mr. Suzuki was in charge of the evacuation of Okuma residents at the time of the disaster. In an interview for our third documentary, *Here and there in Fukushima* (2015, 48 mins), he told us that

We [the Town Office staff] remained with petrol and other supplies - enough for a week to ten days.

I asked older staff members to stay.

Radiation would have less of an impact on them, if any.

Their remaining life is shorter.

Mr. Suzuki's words, as well as Prof. Kawatsu's aforementioned words about the positive roles played by the elderly at times of crisis surprised the audience in Glasgow and elsewhere.

Hope as a workload

We started our first Fukushima documentary with our comment on hope:

Hope - This has been the focus of my thoughts since the East Japan Earthquake of 11 March 2011, but where and how can I find it?

Mr. Suzuki, who has retired from Okuma Town Office but is still working as a member of the town's temporary staff, related to his town reconstruction work in terms of 'hope' in *Here and there in Fukushima*, where he says that:

I believe that if you can realize your goals if you manage to keep up hope.

It's easy to give up hope, but I can't think of abandoning it.

Take on loads and overcome them one by one.

Living in such a way is possible.

Hope is sometimes used as an alternative to optimism, but the kind of hope that is reflected in Mr. Suzuki's words is worlds away from such a conception. His words on hope, along with Prof. Nanba's and Prof. Kawatsu's words quoted above, may indeed be loads for us to take on.

Is it safe to produce rice in Fukushima?

For our second documentary, 100 Bq/Kg, 0.23 µSv/h: *The Standard of Living in Fukushima* (2014, 43 mins), we interviewed Mr. Hirofumi Tsukada, a scientist whose specialty concerns the study of the transfer of air- and soil-borne radionuclides to agricultural crops. He joined Fukushima University in 2012 - after the accident - and is now IER's Deputy Director. We asked him whether it was safe to produce rice in Fukushima. He answered as follows:

Radionuclides transfer to rice through soil, water, and irrigation water.

Airborne transfer can be ignored except immediately after an accident.

The transfer of soil-borne radionuclides to rice is minimal compared to the equivalent figures for other plants.

Caesium belongs to the alkali metal group. It generally moves around in the environment.

However, if it enters the soil it won't move.

It is absorbed by the soil and cannot be removed.

It cannot be dissolved in water or taken in by plants.

Even if there is a high level of [radioactive caesium] in the soil, it is unlikely to be transferred to plants.

Mr. Tsukada has initiated a project that seeks to grow rice and other crops in Okuma Town. We asked him whether it was safe to raise crops in Okuma. Mr. Tsukada responded as follows:

For most of the crops, [the level of radioactive caesium] is below the current limit of 100 Bq/kg [of radioactive caesium].

Some crops exceed 100 [Bq/kg], but Okuma's soil has around fifty to sixty thousand Bq/kg.

And yet [radioactive caesium] density in crops has dropped to around 100 [Bq/kg].

Rice is mostly below 100 [Bq/kg].

100 Bq/kg is Japan's current maximum limit for radioactive caesium in most foodstuffs, a limit which was introduced in 2012. Japan used the EU limit of 500 Bq/kg before then, and Tsukada was involved in the setting of the new limit as a member of the advisory committee.

However, and despite these very strict food safety standards, there are still many people in Japan who refuse to buy Fukushima products. Mr. Tsukada made the following comments on this phenomenon which he referred to as 'damage by rumour':

My relatives in Western Japan do not buy Fukushima products.

When I asked them why, they answered that they wanted to reduce the potential health risks.

I told them about caesium.

Even if a person were to consume foods containing the maximum levels of radioactive caesium permitted under the current regulations, 100 Bq/kg, the tissue absorption rate would amount to less than 1mSV per year.

1 mSv/y, or 0.23 μ Sv/h, is often regarded as the safe individual additional dose rate following a nuclear accident:

In addition more than half of the foodstuffs consumed in Japan are imported.

Furthermore, most Japanese consume seasonal foods from other parts of Japan, which would further dilute caesium absorption.

The limit (100 Bq/kg) was calculated assuming the exclusive consumption of Fukushima foods alone.

The limit is on the safe side.

Not buying Fukushima food is nonsense and groundless.

People, however, may not live by science alone.

‘It was not comfortable even for a scientist’

Mr. Kimiaki Saito, a researcher at the Japan Atomic Energy Agency, visited Chernobyl every summer from 1992 to 1999 and measured radiation levels inside the exclusion zone. We first met him (in Glasgow) in 2012 as part of the Scotland-Fukushima research collaboration, when he talked about the importance of the public understanding of nuclear and radiation issues. We invited him to Scotland in 2013 and again in 2014 to give public lectures on environmental radiation in Fukushima. In July 2015, we asked him about his experience in Chernobyl, and his comments were included in ‘Fukushima: 2011-2015’. Among other things, Mr. Saito related that

When I went to Chernobyl for the first time, even scientists found it uncomfortable [eating local foods].

Entry to the 30km exclusion zone was, and is, prohibited.

It was illegal, but there were areas where elderly people had come back and were living their lives. We went to these areas to take measurements.

They were nice people and offered us homemade vodka and soup made from vegetables grown in their gardens as well as fresh goat’s milk.

We did not want to be offered these things, but we took them nonetheless.

On our return, we checked our body with a whole-body counter to find that our caesium levels were high.

We had such an experience every year.

We gradually began to understand that [these foods'] radiation dose was not too high.

Some local scientists, who knew about radioactivity, cooked soup with fish caught in a contaminated pond and offered it to us.

Perhaps they too knew that the radiation dose was not too high.

And their sense of risk seemed to have changed to become realistic.

For example, compared to the risk of a slightly increased likelihood of developing cancer, the risk of not being able to eat properly every day might be great.

Eating properly or having a barbecue together in a field - the benefits of enjoying life seemed to have been preferred.

Such a sense seems to have developed gradually.

We have experienced a similar kind of change in our diet in Fukushima and in our views on Fukushima in the course of regular visits to Fukushima.

Fukushima as 'Others'

In July 2014, Goto Fumiko, Professor of American Studies, analysed the phenomenon of 'damage by rumour' in relation to 1950s America - the time of the Cold War and anti-communist McCarthyism - for our third documentary, *Here and There in Fukushima*:

This was the time of Film Noir.

*For example, a mysterious creature comes from space, captures a person and places the person under its control. This is Don Siegel's *Invasion of the Body Snatchers*.*

Some incomprehensible power comes in order to destroy us.

In addition, discrimination against strangers or Others became widespread.

Indian reservations were used as nuclear test sites, and were later used as dumping grounds for nuclear waste.

I feel that an Other-ness has been imposed on Fukushima - such a sense seems to have developed among its people.

[Fukushima is] considered to be somehow fearful.

People fear those who had been living.

A kind of feeling that is akin to impurity.

Her words were also used in *Fukushima: 2011-2015*. We inserted the following title card after her comments:

What would you do for Others, such as people in Fukushima, instead of treating them as Others?

One of the biggest challenges for Others in Japan may relate to the question of where to store the permanently radioactive waste created as a result of the decontamination work carried out in Fukushima Prefecture. This question was dealt with in some detail in our fifth documentary, *Borders in Fukushima - July 2016* (2017, 65 mins).

Radioactive waste from the decontamination is currently stored in temporary storage facilities. As of 10 March 2017, Fukushima Prefecture had 269 temporary storage facilities with 7,526,847 bags, with each bag containing 1 cubic metre of radioactive waste (Ministry of the Environment). The radioactive waste will then be placed for 30 years in interim storage facilities which will be built in Okuma and Futaba Towns, near the Fukushima Dai-ichi nuclear power plant. When the Fukushima Prefectural Government agreed to have the interim storage facilities located within the prefecture, they asked for a final disposal site to be built outside Fukushima Prefecture. The location of the final disposal site has yet to be announced. We inserted the following title card in the fifth documentary:

The Fukushima Dai-ichi nuclear power plant started commercial operations in 1971, providing jobs for local people and electricity for the Tokyo area.

Would Tokyo residents accept the construction of the final disposal site for radioactive waste from Fukushima in their neighborhood?

Is environmental monitoring urgent?

Takagai Yoshitaka, an Associate Professor of Applied Chemistry, was a member of the radiation assessment team. In July 2014, he told us as follows:

Leaks have occurred from cracks in the reactors.

Only a limited amount of liquid had leaked, but its concentration is very high.

It has mixed with groundwater and has spread.

We have analysed the environmental effects such as the effects on soil and water.

However, my thoughts on the issue have changed since last year (2013).

The reactors contain highly concentrated and contaminated water.

Is it urgent to monitor the less contaminated area around the reactor?

Prof. Takagai developed equipment for measuring Strontium 90, which is carcinogenic, quickly and cheaply with a view to speeding up the process of decommissioning the troubled Fukushima reactors. His equipment has been used by TEPCO which runs Fukushima Dai-ichi nuclear power plant.

Is decommissioning necessary?

For our fifth documentary, made in July 2016, we asked Prof. Takagai why he believed decommissioning was necessary. He responded as follows:

The nuclear fuel left in the reactors still emits radiation.

If water isn't poured into the reactors we could witness another nuclear accident or worse.

Fukushima is not worse than [Chernobyl], but there are cracks in reactors that still contain a great deal of [nuclear] fuel.

[Nuclear fuel] is disintegrating and emitting radioactive material.

Leaving the reactors as they are would thus result in global contamination.

East Japan would be destroyed if the reactors break down.

The [problem] will not end until the nuclear fuel inside the reactors is completely removed.

Absolute safety is unfortunately impossible for as long as these reactors remain.

The public does not need to worry about them at the moment, however, because engineers have the reactors under control and money is being allocated toward handling this issue.

Decommissioning needs to be achieved sooner.

Achieving decommissioning, however, involves many other issues beyond the current state of science and technology.

These issues need to be tackled.

This is why decommissioning needs to take place.

Fukushima to Israel via Tokyo

In August 2012, we were thinking of making only one video documentary on Fukushima, but we ended up making six Fukushima documentaries thus far with the sixth one, *Evacuation Order in Fukushima - July 2017* (2018, 67 mins) being based on interviews we carried out in Fukushima in July 2017.

Our Fukushima documentaries have taken us to various places, including, among others, Fukushima University, Oshima National College of Maritime Technology, The Tuesday Seminar held at the Tokyo Institute of Technology, and Department of Japanese Language and Literature at Bucharest University. To facilitate these visits, we have also made video documentaries on The Making of 'Fukushima 2011-2015'

our views on Scotland and inter-cultural communications.⁹ We have also made video documentaries inspired by our meetings with new people.¹⁰ In addition, we have also made documentaries inspired by the making of Fukushima documentaries.¹¹ In total, we have thus far completed 27 video documentaries.

We have not placed these documentaries in the public domain via video sharing sites such as YouTube. Instead, we have screened them at various places, mostly universities, and held a discussion with the audience after the screening. This style may have been influenced by our experience with *St. Kilda Tapes* in Tohoku, and the interesting discussion we ended up having at Fukushima University in particular.

In July 2016, we screened *Fukushima: 2011-2015* at the Tuesday Seminar in Tokyo, and were asked (during the post-screening discussion) about why we did not place our Fukushima documentaries on YouTube. We replied that we regarded a face-to-face discussion with the audience as an essential part of sharing the stories we heard in Fukushima with others. A few months later, we received an email from the person who asked that question (Dr. Yona Siderer), inviting us to screen our video at the 3rd Biennial IAJS Conference: The Heisei Era in Retrospect that was to be held in Israel.

Finally, and in contrast, to what we noted above, we have recently decided to donate all our documentaries, including the six Fukushima documentaries, to the National Library of Scotland's Moving Image Archive and to place them in the public domain through this public organisation. We have also donated another copy of our Fukushima documentaries to the

⁹ In addition to carrying out interviews for our Fukushima documentaries, we have also run workshops on Scotland at Fukushima University thanks to Goto Fumiko and her colleagues. In facilitating these workshops, we have also created *Our Scotland: A Japanese perspective* (2013, 34 mins), *The bird, the tree, the bell and the fish of Glasgow* (2014, 32 mins), *The Economics of Scottish Independence* (2016, 38 mins) and *Japanese isn't English* (2016, 14 mins).

¹⁰ We visited Bucharest University for the first time in April 2013 to screen our first Fukushima documentary with the kind assistance of Jim Brown, a Glasgow friend of ours who was teaching British culture there. We were impressed by the standard of Japanese spoken by the Bucharest students and by their interest in Japanese cultural traditions. Since then we have regularly visited the university to run workshops and have also made two documentaries on Romania: *Our Japan: Bucharest students' views* (2014, 32 mins) and *Live a tradition in Maramureş, Romania* (2014, 26 mins).

¹¹ After making our first documentary on Fukushima in 2013, we also made *Hiroshima in 2013* (2013, 22 mins) in order to examine what we could see in Hiroshima after the Fukushima nuclear accident. With respect the notion of hope, we made *Hope – The Rev. Dr Norman Shanks* (2016, 15 mins), in which he talked about Christian perspectives on hope in relation to love and faith and on love as being connected to others.

Fukushima University Library. This notwithstanding, we will still continue to screen our documentaries and follow the screening with a discussion with the audience. In addition, we plan to continue our annual visits to Fukushima and to make additional Fukushima documentaries on a yearly basis.