

## Life of Mothers and Infants in Fukushima 9 Years after the Nuclear Disaster in Japan

\* Fukushima Daiichi Nuclear Power Station Unit 3 (after the explosion)

Mothers who continue to feel anxiety about living in the radiation-contaminated areas and their infants, and mothers who have become able to tell their stories by measuring radioactivity

### Fukushima's nuclear power plant accident

The Great East Japan Earthquake occurred on March 11, 2011, the largest post-war disaster in Japan triggered the Fukushima's nuclear power plant accident. The reactor of the unit 1, 2, and 3 melted down, and the unit 1 and 3 buildings exploded. It turned out to be the worst accident in history, classified as Level 7 in the International Nuclear Event Rating Scale.

The people of Fukushima Prefecture where the nuclear power plants were located became the victims of the nuclear disaster from that day.



Photo:Shun Kirishima

People were terrified by the invisible and frightening thing called radiation, they tried running away, and even felt hesitant to breathe in the air fearing it might be contaminated by radiation. Among them were children, mothers, women, pregnant women and their unborn babies. One could visually see if an earthquake or tsunami was coming, but one couldn't see or smell the radiation damage caused by the nuclear accident. Only the sensibility of those who intuitively feel the existence of radiation damage had a sensor to know the damage. Since the degree of sensibility differed from person to person, the difference in perception caused conflicts among them and tore apart their communities. They didn't only suffer from the radiation exposure, but also from the doubled and tripled damages resulted in rifts and conflicts in their families and friends.

Falling to rock bottom of fear, they were stuck in this heavy stagnated mood that they couldn't shake off. In this atmosphere, being in the most trying position was the mothers and their children.

### Lives of the Mothers and Children

In Japanese society, where economic development has been encouraged as a symbol of affluence since the Meiji Restoration, women were always considered less in the society as the vulnerable. If women expressed their own opinions and have independent thoughts, they often got criticized. The situation was still the same in 2011.

In ancient Japan, women were regarded as sacred beings, as the sex to give births and raise children, had high status in society. However, in today's male-dominated society where economic development took precedence over everything, women have been discouraged to speak out and express their feelings and opinions.

In the wake of the Fukushima nuclear accident, women hugged their children feeling terrified of the invisible radiation. It was an instinctual fear, and they intuitively knew the imminent danger to them and their children. The fears and words stemmed from their intuitions were not regarded as theoretical or scientific, therefore, they were suppressed and ignored, in midst of social trends to recover economically from the impact of the disaster.

Nine years after the Great East Japan Earthquake and the Fukushima nuclear disaster, we'd like to tell you how mothers and women including us, the socially vulnerable group, regained our voices, and how we felt at the time, what actions we took, how we started speaking out, telling our stories, and how science has helped us to achieve all this.

## Mothers' Endeavors and Citizen Science

In May 2011, we started preparing to open a center for measuring radiation by the citizens in order to protect ourselves from radiation damage. That was because we wanted to protect the lives of our children and families with our own hands. Since the nuclear accident, there was no active support from our government to protect our lives from the radiation exposure. The government was perplexed by the unprecedented catastrophe occurred in this country and had no means to protect people.

On November 13, 2011, we opened a NPO "Mothers' Radiation Lab Fukushima -

TARACHINE". The name "TARACHINE" is an old Japanese word meaning a strict and strong mother who is responsible for protecting and nurturing the family.

To measure radiation by ordinary citizens led to disclose the information only special governmental agencies and class members could have known. It was viewed as a rebellion against national and administrative authorities. The center opened in this very harsh environment. We took after the name "TARACHINE" since we were convinced that if we didn't operate our center with the strong maternal authority, we wouldn't last."

One of the first activities at the center was to measure radiation in food, water and breast milk. The measurement nuclide was cesium.

There was a conflict between a grandmother who wanted her grandchildren to eat vegetables from her garden and a mother who didn't want them to eat doubting the vegetables might be contaminated. But this conflict was solved by simply measuring radiation. By measuring and knowing the result made it easy to assess whether to eat the food or not without getting emotional.

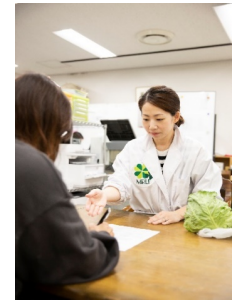
With a whole body counter device, we started to measuring radiation within the human body. The results showed many people in a particular region had been exposed to radiation.

The person who was discriminated by his relative in a distant place that his body might have exposed to radiation and contaminated visited the center to verify whether it was true or not. TARACHINE was crowded with many visitors every day, they were terrified and angry of the thought they might have been exposed.

Despite the condition, we tried to deliver fair and accurate measurements to them.

In July 2012, we started a therapeutic camp project in order to help restoring children's health and also to provide them with experiences in nature. In collaboration with the NPO Okinawa Kuminosato, they would play, eat, sleep, and laugh out loud in the great nature of Kume Island, Okinawa Prefecture. Aiming to heal and revitalize the lives of the children.

The natural environment in Fukushima has been contaminated by radiation, and children could no longer touch plants and insects nor walk barefoot on sandy beaches. It was necessary for the children's mind and body to feel freely in touch with nature in a safe environment.



\* Storage of measurement samples



\* Radioactivity measurement of gamma rays



\* Playing tug-of-war



\* Playing in the sea

In March 2013, it was about time a high incidence of thyroid cancer among children could emerge. The government conducted systematically to screen the children living in Fukushima Prefecture for thyroid cancer. It took two months for the government officials to report the results to their caregivers. Moreover, the result was only given in the form of four classifications as A1, A2, B and C. At TARACHINE, the thyroid cancer screenings was carried out while the parents or caregivers were present, and our doctor provided detailed explanation directly to them.

When some sensitive children saw cysts and nodules in their ultrasonic echo images, they might make a direct connection that with their death, thinking they might die, even if the examiner did not say anything. Therefore, it was very important that the children were accompanied by the parents and received accurate explanations.

The thyroid screening project was conducted not only in Iwaki City, Fukushima Prefecture where TARACINE was located, but also in the entire Fukushima Prefecture and also the adjoining regions. It still continues till this day.

In October 2014, our laboratory at TARACHINE began measuring beta-ray nuclides that were difficult to analyze. The nuclides to be measured were strontium-90 and tritium. Although they were harmful nuclides that spread in the 2011 nuclear power plant accident, no one had a chance to know the values because it was difficult to measure.

Strontium 90 in particular exists in soil as well. It's in the places where children play such as school yards and parks, they may take it into the body through inhalation and suffer internal exposure.

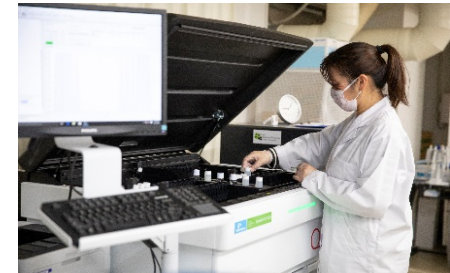
It accumulates in the bones and continues to emit strong beta-rays in the body.

Tritium binds to the tissues of living organisms, when it made into the human body, it enters the center of DNA and damages genes. We can protect our children's health by measuring, finding out the contaminated locations and keeping away from those locations.

In order to protect ourselves, our precious children and families from the turmoil of 2011, we've been turning to science squarely, verifying and reporting the findings to the public.

Although our steps of daily progress was small, the accumulated power became large enough for us to look at the damages by the radiation exposure scientifically.

The people who had regarded our words as "unfounded" have turned around to listen to us as important matter to protect our children. It was our usual daily work of science, measuring radiation of everything had been bought in by the citizens that was necessary for us to regain our voices to speak out.



\* Beta ray measurement by liquid scintillation



\* State of the lab



\* Discussing about measurement results

In January 2016, we started to prepare the opening of a pediatric and internal medicine clinic. An increasing number of children who were born around 2011 and those who spent their infancy and early childhood in that year have started to participate in our therapeutic camp, which we had been organizing every year since 2012. It was around this time that we felt changes in the mind and body of the children.

Many of them were taking psychoactive or gastrointestinal medications regularly, being restless, and even having diagnosis of developmental disorders.

We started to hear that many mothers who came to use our radiation measurement services and therapeutic camp project didn't know what to do with many concerns they had and where to ask for help.

The government and prefecture were eager to move towards the recoveries from the devastation of the nuclear disaster. They were relentlessly pushing the narrative of the current situation as safe and secure and the damages from the accident had been under control.

Meanwhile, the mothers who were the socially vulnerable had to shut their mouths and became increasingly isolated.

Despite being the victims of the disaster, the general atmosphere was that we couldn't express our anxieties about the radiation exposure, even we hesitated to say the word "radiation".

Seeing their isolation and sufferings, we realized that we needed a medical institution where they would be able to talk freely about their worries.

We opened the clinic in June 2017, where we created an environment that the taboo word "radiation" could be freely talked about. We aimed at the clinic to be the place that anyone could come and talk about their worries with the doctors, nurses and staff.

Although the adult patients visited the clinic due to being unwell, many of them wanted to discuss about radiation with the doctor.

Some worried about letting their children eat the crops from their own vegetable garden, others worried about letting their children go swimming in the sea.

When we responded to each one of their questions thoroughly, many of them went home feeling relieved from the built-up tensions, saying like "I'm glad I came here."  
"It was natural to feel anxious!"

We found many children had the problem of insomnia, lacking appetite, and restlessness in school. With the limited consultation hours, sometimes their problems were too grave for us to provide an adequate consultation.



\* Examination at the clinic



By 2018, many study sessions began to be held by child care specialists.

Since it became apparent that the high rate of children who were born around 2011 found to be restless at school, and they suffered from sleep, developmental disorders and other similar problematic behaviors with no particular diagnosis given, there was a need for lectures and workshops by child mental health specialists to the teachers and caregivers in the educational fields. These problematic behaviors were the exact same things we had heard from the mothers came to our clinic.

Many mothers were bewildered by their children becoming unwell after all this time and didn't know how to deal with the children's state and changes, all the while still living and worrying about the radiation exposure. We had many discussions with the experts to figure out how we could help them.

We've come to realize the importance of us getting close to both mothers and children and survive together.

We, the adults of the affected areas have responsibility for good health and future of the local children. It's also our responsibility not to ignore the behavioral issues found among them and to keep addressing firmly.

The mothers in the local communities and we had the same humiliating experience of not being able to express our feelings and speak out about how we were terrified and anxious from the horrific experience of being exposed to radiation.

As we shared the same miserable and painful feelings, we were convinced that we would be able to work together with them.

With that in mind, we started preparing to operate a mental health care project for mothers and children.

In January 2019, we opened the mental health care center called "Atelier TARACHINE".

Two spaces called "Uwari Un Pe" and "Sir Pirika" were prepared for children. "Uwari Un Pe" is an ancient Japanese word for "a child". This is a safe space for children to play a HAKONIWA sand play and drawing pictures, where they can play freely without any interruptions, and can be immersed in their world.

"Sir Pirika" means "a shining place, an especially good place". Here people can receive bodywork, which a massage treatment that has mental effect of feeling safe and stable by working on the skin and fascia. It's also a non-linguistic approach that allows people to feel at ease.

What we started to see in our practice is that there are the things we can do only right now. We listen to the stories of the mothers and children from the prenatal period they were still in the mothers' wombs to the present day, and we reflect on their lives and stay present with their current concerns.

We've involved with the mothers and children, keeping in mind that mothers as a safe haven to the children need to be in a good spirit for them to thrive.

However, we faced the difficult challenges of building a trusting relationship with them.

We also faced the difficulty of drawing out the stories of the disaster from the mothers which was necessary for their healing process, but it was extremely hard thing to do for them to recall the painful memories.

We have continued to listen to each one of their problems and tried to provide a detailed support that only we at the "Atelier TARACHINE" could provide.

Then, gradually we have been able to draw out various expressions and emotions from them.



\* HAKONIWA Sandplay



\* Playing house



\* Atelier Tarachine Facility

One mother whose child was three years old at the time of the disaster told us that she couldn't remember anything about how the child was. She couldn't recall how the child was playing, what he was eating, or how he was spending time. Another mother shed tears while talking about how she felt at the time.

Some of them faced tremendous struggles in choosing whether to evacuate or not in the aftermath of the disaster. Even if they had chosen to evacuate, they were taken back by the inconveniences and mental exhaustion caused by living in a new location.

On the other hand, the people who had chosen not to evacuate worried constantly about the children being exposed to radiation. The mothers were in the unstable mental state at the most important period for raising children.

Then we realized once again that the anxieties and fears were still present in them, and we were able to see clearly their anxieties passed onto their children.

The children had been growing up perseveringly in the circumstances where they couldn't depend on their unstable mothers, suppressing normal childish behaviors. They have lived patiently in such an environment.

Nine years has passed, the children who had been still in the mothers' wombs, babies and infants at the time of the disaster finally began to express their feelings through words and attitudes, which they had suppressed until now.

The way they expressed was by rebellious words and rough attitudes to parents, refusing to attend school, and so on. Some of them even said to their parents that they wanted to die or had to die. Now nine years later, we began to realize that the children's problematic behaviors stemmed from the fact that they could not form a normal healthy parent-child relationship in infancy.

Our ongoing therapeutic camp has been very useful for children to free their mind and body. Kume Island where the camp facility is located is rich in nature, and the whole island is a place for healing and a therapeutic effect. However, due to the limited length of the camping program, they cannot live there forever. It's a dreamlike extraordinary time for children.

It's very important for people to look at the problems in the context in their daily lives.

"Atelier TARACHINE" has become the place of healing in the day-to-day world and for us to stay present with the mothers and children.



\* Playing and drawing on the blackboard

Our children have been growing up in the contaminated environment by radiation.

They have been growing up being influenced by adults' distorted thinking; "It's ok to think no damage has been done by radiation, since we cannot see it" We will continue to engage with the children through our therapeutic services, while still facing the ongoing denial of contamination which is a particular problem to any affected areas.

The children who were infants and young children at the time of the disaster have now become elementary and junior high school students. They are now in early adolescence.

In addition to going through a rebellious adolescent stage, the mothers still have to raise them worrying about the radiation contamination which is invisible, odorless and intangible and trying to protect them from the exposure based on the precautionary principles. The heavy burdens have been on them.

We were glad to hear a child who regularly visits us said, "Since I came here, I was able to speak what I feel well." "I'll be fine because I can always come to TARACHINE."

Their mothers said, "I'm so happy to see my child is looking forward to it." "I've come to think I want to spend more time with my child."

What we can do is to listen to them thoroughly and stay present with them.

The outcome from our daily activities may not to be too obvious, however, there have been many things we came to understand with time.

It's been the 10th years since the nuclear disaster, we are reflecting on how we will live from now on.

As we continue to watch over and support the development of the children together with the local mothers, we are also gaining emotional support from them.

Ensuring children's physical safety and protecting their minds are also sustaining our lives.



\* Mother-child contact

