エッセイ 3

Recalling the power of a Cassava plant

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Childhood memories and Cassava trade

While having a rest, seated, and with a relaxed mind; I recall back the long-time memories when I was young. I remember when I was ordered by my parents to go to fishermen near the shores of Lake Victoria in Mwanza, Tanzania; with cassava flour in exchange of fish back in 1996/1997. I could understand that the fishermen were always in need of flour and we (family) were in need of fish to complete a meal of the day. Ooh what a means of life that was! It looked similar to the life before colonial era when barter trade (exchange of goods or services, in exchange for other goods or services) was prominent. Until in my adolescent age by 2003 prior to joining secondary school education (junior high school), I had so much learnt about cassava; not only how it is propagated, but also how important it was in comparison with other famous food crops such as maize, sweet potatoes, sorghum and rice.

Cassava's resilience and agricultural significance

In times when maize (the major crop) did not perform well due to soil and climatic conditions, cassava (the second major crop) performed well even in times of insufficient rainfall and high temperature. Cassava remained tolerant against drought and in relatively poor soils; giving sufficient returns in terms of food, cash, and fuel. Tolerance and high productive value made cassava an outstanding crop, hence perceived as the major crop in the Lake Zones of Tanzania among agro-pastoral communities. Born in an agro-pastoral family and raised in an agro-pastoral community in Mwanza region, Tanzania; I was able to explore the full potentials of cassava on a practical basis. Such benefits were basically from the 'cassava tree parts', specifically from the entire useful products of the crop.

Versatility of Cassava tree and family dependence

From the entire cassava tree, we were able to get the following:

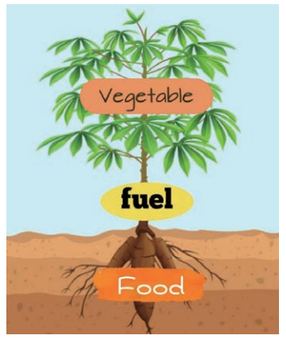
i) **Main food** (*Ugali* – common dish in Tanzania/Africa) that came from its ***roots*** i.e. the cassava flour from processed cassava;

Cassava roots, debarked, dried and processed into flour to make *Ugali*

ii) **Vegetable** from the cassava ***leaves*** (the topmost leaves) that made a complete meal achievable in a single crop. Grinded leaves and then boiled were made more delicious by adding fresh milk or coconut milk as ingredient, among other things.

Cassava leaves serve as vegetable

iii) **Fuel** from the cassava ***stem*** - dried stem provided cooking and heating energy in the form of firewood.



A meal is completely achieved in a single crop

Cassava stem served as firewood to cook the *Ugali* and cassava vegetable

Economic and educational impact of Cassava

We (family) relied on the crop as always to achieve our day-to-day meal requirements. Furthermore, growing cassava assured us with our:

i) Health needs thus fulfilled nutritional improvement;
ii) Financial requirements, which contributed to household income and community economy. Unprocessed or partially processed cassava roots (for food) formed the most traded part of the cassava tree;
iii) Social needs fulfillment i.e. various expenses.

The presence of cassava flour processing factory in the 1980s and 1990s in Mwanza region stimulated cassava businesses and hence increased the need for more cassava, turning it into a cash crop. This resulted into an increased cassava demand which led to hunger and starvation due to selling of cassava reserved for food. Consequently, raw materials became inadequate, all operations stopped and hence the factory was shutdown. Where cotton (the major cash crop by then) performed poorly and hence declined productivity in many parts of Tanzania since 1990s, cassava not only saved people from starvation or hunger, but also ensured a continuous cash flow for the general community. With the cassava crop, my parents were able to secure a substantial amount of cash; thanks to the cassava tree they managed to pay all the fees and other costs of my primary, secondary and high school education (equivalent to elementary, junior high and senior high school in Japanese education system). Conclusively; my academic life before university and the cassava tree are two 'friends' of a mutual relationship that forms a lifetime memory. Growing cassava has recently declined, mainly due to infestation. As of now while living in Japan, I remember a lot about cassava every time I go to buy African food stuffs (including cassava) at Shinjuku Halal Food, near Shin-Okubo station.

エッセイ 4 Into the world of aquatic insects and more...

Janine Tolod
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Research journey

I have been working in the field of limnology and entomology since 2014 when I had my first research-related job in a university in the Philippines after my college graduation. Back when I was an undergraduate, I would have never imagined that I would be a researcher, especially one who works on insects and river ecology. I entered my Bachelor`s course in Biology thinking that I would go to medical school after graduation because it has been my dream to become a doctor since I was 10 years old.

Discovering the fascination for insects

Fortunately for me, in my third year of my Bachelor`s, I took up an elective class on Entomology (study of insects) only because it was the only class that fit my schedule. I had zero interest in insects before then, but when I started learning about them, I came to appreciate the importance of these little bugs to our lives. My Bachelor`s thesis was about the succession of terrestrial insects on a decomposing King Cobra, which has applications in wildlife forensics. In my 4th year of Bachelor`s, I had a class about river ecology and I was surprised that rivers have a lot of insects. Thus, my interest in aquatic insects was born.

Transitioning research interests

Aquatic insects are those insects that spend part of their life cycle in water. These insects are usually in larvae form until they pupate and come out from the water as terrestrial adults. This means that these insects are important in the connection between aquatic and terrestrial habitats. Luckily for me, there was a researcher job opening at the university where I graduated from and the project leader was my professor before. He hired me as part of a 2-year project that aimed to study the aquatic insect communities of rivers in watersheds with geothermal and hydropower activities. I had the opportunity to travel to different provinces in my country and do research while also teaching the locals and partner companies about river ecology.

Expanding research and academic pursuits

Sadly, the project ended in 2015 and I was transferred to another research project which was very different from river ecology. This project was about a new species of *Rafflesia* in the Philippines. *Rafflesia* is known as the largest flower in the world and is also famous for its rotten smell. As for the species that we studied (*Rafflesia consueloae*), it is considered the smallest *Rafflesia* and the smell wasn`t so bad too. I stayed in the *Rafflesia* project until early 2017. This species is very interesting. It comes out as a flower but it does not have any roots, stems, or leaves. It is a parasite of a vine and we cannot tell if the vine has *Rafflesia* until the flower comes out! It amazed me that this kind of plant exists, and I always wondered if it was really a plant or an alien that entered the vine! Nonetheless, being in that project was refreshing because nothing was known about the species at that time and I was challenged to think of research questions and experiments. Finally, I was able to document the growth and development of this species, and it was the first extensive study that looked at the development of a *Rafflesia*. Even if the *Rafflesia* project was fun, promising, and had a lot of potential, my interest was still in river ecology. My bosses were very supportive when I told them I would like to go back to studying the river. I decided to pursue a master's degree and applied for the Japanese Government Scholarship Program and was accepted for the October 2017 entrance. I continued to study rivers and insects until now that I am already in my PhD course. There are still so many things to understand about the aquatic ecosystem! Below are some photos taken through the years of my research journey so far. Please take a look!

1) Field work in the Philippines during river research

2) Here are some photos of *Rafflesia consueloae* flower and flower buds

3) Photo taken during one of the field works I joined during PhD

4) We collect insects even on winter!

5) Some photos of aquatic insects viewed under the microscope

エッセイ 5

Beyond borders: Radiological protection research and scholarly initiatives

Thu Zar Win
Ph. D. candidate at Nagasaki University
2022 HISF scholarship recipient

Introduction and educational background

I am Thu Zar Win from Myanmar, pursuing a doctoral course in Advanced Preventive Medical Science at Nagasaki University (NU) in Japan. Currently, I am in the beginning of my third year of PhD and am supposed to graduate in September 2025. Prior to this, I did my Joint Master's program in Disaster and Radiation Medical Science at NU and my Bachelor's in Nuclear Engineering in Myanmar.

After high school in 2009, I chose to pursue engineering at the university. The subject of nuclear engineering attracted me, mainly because I knew very little about it except for the atomic bomb stories from Nagasaki and Hiroshima. This sparked my interest in looking deeper into the field. Prior to my time in Japan, I learned a lot about atom reactions, nuclear technology, nuclear physics, nuclear reactor engineering, and more, but surprisingly, very little about the human aspect of radiation protection in case of nuclear accidents.

Postgraduate research and objectives

The lectures I attended, detailing the unique experiences of Nagasaki University and Fukushima Medical University following the Fukushima Daiichi Nuclear Power Plant Accident (FDNPP), alongside narratives about the Chernobyl experiences, significantly influenced my research focus during my Joint Master's in Disaster and Radiation Medical Sciences. This sparked a deeper interest in exploring human aspects of radiological protection and emergency medicine, particularly emphasizing 'risk communication in the recovery phase after a nuclear accident'. My ongoing doctoral research focuses on giving a comprehensive overview of how the situation has evolved over the last decade in the affected areas, notably the partially lifted evacuation zone in the Hamadori region of Fukushima Prefecture after FDNPP accident. It is based on surveys conducted among affected residents by NU to support the recovery process of the town. This study aims to draw many lessons in terms of the sustainability of the recovery process related to the radiological situation and also the health, societal, and economic consequences of the accident. Furthermore, these findings aim to extend beyond supporting local recovery efforts, aspiring to contribute significantly to the development and enhancement of the radiological protection culture.

Regarding my experiences from October 2022, when I received the Honjo Scholarship, to the present, November 2023, I have been involved in several events, as follows:

1. The 7th International Symposium on the System of Radiological Protection (ICRP 2023), from 6 Nov – 9 Nov 2023, Tokyo, Japan (Presented the abstract: “Applying the co-expertise process beyond post-nuclear accident situations”).

2. International Advanced Training Course and Practice of Emergency Medicine Training Course, from 30 Oct - 6 Nov 2023, in Kawauchi village, Tomika town, Okuma town, and Futaba town, Fukushima, Japan.

3. Third NEA Stakeholder Involvement Workshop on Optimisation in Decision Making, from 5 to 7 September 2023, in Paris, France.
4. NEA International Radiological Protection School (IRPS) at Stockholm University, from 14 to 18 August 2023 in Sweden (I received financial support from the Honjo Foundation to attend this event.)
5. CTBT: Science and Technology 2023 Conference, from 19 to 23 June 2023, the Hofburg Imperial Palace, Vienna, Austria (Presented the paper: What on-site inspectors and support staffs under the Comprehensive Nuclear-Test-Ban Treaty can learn from the “co-expertise process” experiences implemented after the Chernobyl and Fukushima nuclear power plant accidents?). The attendance of the event was financially supported by CTBTO.

6. International Safeguards Policy and Information Analysis-Intensive Summer Course, James Martin Center for Nonproliferation Studies (CNS) and Lawrence Livermore National, Laboratory (LLNL), from 5 to 9 June 2023, Monterey, California.
7. Kick off symposium for a project “Acquisition, preservation, and dissemination of nuclear disaster knowledge”, within a framework of “Fukushima Institute for Research, Education and Innovation”, National Training Center “J-Village”, 14 March 2023, Naraha Town, Fukushima Prefecture, Japan.
8. Radiation Medicine from the perspective of Radiation Disaster Medical Science Research, 20 Feb 2023, Hiroshima University, Hiroshima.
9. 2022 CTBT Science Diplomacy Symposium, from 6 to 9 Dec 2022Vienna, Austria.
10. CTBTO and CYG Mentoring Program: supporting women in STEM via online from 29 Sept - 28 Nov 2022.

Extracurricular activities and gratitude

I engaged in Honjo Foundation events as extracurricular activities. Beyond the foundation’s objectives, I believe it provided a platform to connect with Honjo scholars, improve my Japanese proficiency, and draw inspiration from other scholars. Additionally, I regularly participate in English conversation classes for elderly individuals in Nagasaki and have initiated reading clubs with my siblings, beginning last year. Growing up in a low-income background, my childhood posed significant challenges. To help my siblings navigate life's challenges, I established a weekly reading club. I believe that possessing good knowledge can empower individuals to overcome life's adversities. Finally, I would like to express that I am very satisfied with the activities, either academic or personal, in which I have been involved. Inevitably, I am convinced that the Honjo scholarship has significantly impacted both my professional and personal lives. I cannot thank the Honjo Foundation enough for this wonderful and generous scholarship opportunity.

エッセイ ⑥

Ukraine in my heart. The darkest night followed by the brightest day.

Polina Pavlenko
Exchange Ph. D. student at Fukushima University
2023 HISF scholarship recipient

Personal impact of the invasion

24 February 2022 changed the lives of many Ukrainians, but my family's life changed drastically on the 5th day of the russian aggressive invasion when we experienced a great loss of beloved family member. It was and still is an enormous disaster for my family. This always reminds me that many families in Ukraine lose their loved ones every day.

Realization and historical insights

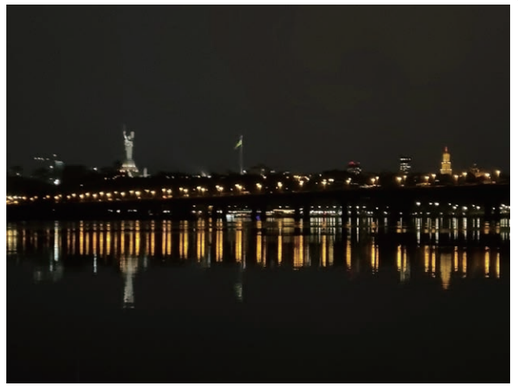
I blame myself a lot for not being prepared for the invasion in 2022. I did not realize that the war had been ongoing for eight years by that time (since occupation of Crimea peninsula and eastern regions of Ukraine in 2014), and that our enemy was trying to get rid of the Ukrainian nation in many heinous ways. I rediscovered Ukrainian history and culture from a different perspective. I had learned about it before, but it was just history, which seemed boring to me at the time. Is 5 million a lot? In Ukrainian history, 5 million is number of people died from an artificial famine caused by the Russians (soviet at that point of time), who considered all Ukrainians to be rebels. In 1932-1933 neutron particle, FM radio, polaroid photography, and the radio telescope were invented, while in Ukraine people were dying due to having their food forcibly taken away. In spite of the overwhelming evidence, russian propaganda for the Western countries denied the existence of the famine, as it does today. Additionally, russians have attempted to suppress Ukrainian culture and language by claiming that Ukrainian is merely a dialect of russian and should be banned from use in speech, writing, and publication. They have not limited themselves to killing Ukrainians as a means of getting rid of them. Notably that Taras Shevchenko, a famous Ukrainian poet and artist, was once imprisoned and banned from writing and painting. Hundreds of thousands of Ukrainian cultural figures, including writers, poets, artists, film directors, actors, and just mere people who desired to live freely in their own country and speak their native language, were executed or imprisoned, others lived in terror. Some people say that history tends to repeat itself, and the same things are happening just right now in Ukraine.

Academic journey and ongoing challenges

One thing I can say for sure is that I would never dare to go far abroad for such a long time if it wasn't russians` full-scale invasion to Ukraine. I am very lucky with my Ukrainian supervisors from National University of Life and Environmental Sciences of Ukraine, they helped me a lot in the hard time. And when I asked about the possibility to continue my research in Japan, they agreed, and with the support of Kenji Nanba-sensei, who is the director of the Institute of Environmental Radioactivity at Fukushima University, I had a 2-month internship there together with the best sensei ever - Toshihiro Wada. Surprisingly for me, during my internship I was able to apply for and get a scholarship from the Honjo International Scholarship Foundation. After returning to Fukushima University with scholarship, we were able to prepare and publish two very important research papers together with my Ukrainian, Norwegian and Japanese colleagues. We were first to use special Prussian blue additive to fish food in natural conditions of Chornobyl Exclusion Zone(ChEZ) and reported high radiological effectiveness of such an application. I really hope that no one will ever need to use our knowledge of countermeasures to reduce radioactive contamination of freshwater fish. But unfortunately, the world is not at peace now, the Chornobyl nuclear power plant (ChNPP) within the Chornobyl exclusion zone and the Zaporizhia nuclear power plant were occupied by the russians when the invasion began. Later ChNPP and ChEZ were deoccupied by Ukrainian army, but Zaporizhia NPP is still under control of russian terrorists. In the summer of 2023, russians destroyed the Kakhovka dam, which caused a great ecological catastrophe and the disappearance of the Kakhovka reservoir, which was the main source of cooling water for the nuclear reactors of the Zaporizhia NPP. Russians` actions are out of logic, they do everything to make nuclear accident at the biggest NPP in Europe again.

Gratitude and support

All in all, I am very proud to work with such outstanding people and be part of this research. I am also very grateful to the Honjo International Scholarship Foundation for comprehensive support, kindness and understanding. I am also very happy that the Japanese people and government are gradually supporting Ukraine, which is very valuable and heart-warming for me and all Ukrainians at this difficult time.



Night in Kyiv before the invasion in 2022

Near Chornobyl Nuclear Power Plant (before the invasion in 2022)

Near Fukushima Daichi Nuclear Power Plant

My hike to Witch`s Eye Pond near Azuma-kofuji mountain