

IVERP

Hokkaido University-The University of Zambia International Vet Exchange Program 2024

Achieving Global Standards of Excellence in Veterinary Education



Student Report from School of Veterinary Medicine, Hokkaido University August 8th to 24th



Project Managers

University of Zambia

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Miku GOTO , 5th year

Muli bwanji? Ndine Miku Goto. Nikonda Zambia.

Thank you for having accepted us for UNZA. Our stay was started from exchange event with UNZA students.

In the exchange event, firstly we introduced our selves and did origami together. At first, we worried about whether students can enjoy our event because "origami" is not familiar for them, but they kindly accepted us and enjoyed "origami" together. Even after the event, some of them took left paper and tried origami at their home. The event was done only one hour, but friendly student let us melt our tension and it became good memory. If I can get chance to go UNZA again, I want to tell them how to fold spinning tops by origami. Thanks to friendly and kind Zambian people, we could enjoy learning a lot.



I belong to the toxicology laboratory in Hokkaido university and I study about pesticides which worry researchers about health problems. So, my aim for going Zambia was originally to understand problems caused in Africa because pesticides are widely used to prevent infectious diseases caused by bugs.

The first incident which surprised me was happened in airplane heading to Lusaka from Addis Ababa. When the airplane was about to leave, cabin attendants started to spray something like pesticides with walking around between sheets. I am not sure whether it was pesticides, but it seems that it is current concern that infectious diseases caused by bugs like malaria or yellow fever are curried by airplane and spread other regions. Considering the cost and trouble for curing patients or preventing diseases' wide spread, this way is very efficient, but pesticides may also cause health problems for human. Even pyrethroids which are said to be safe for human can cause neuro toxicity for mammals. This experience had me consider the difficulty of balace between the effects and negative effects of pesticides.

Regarding to this topic, I want to mention about dipping. The farm we visited in shibuyunji does dipping once in two weeks and change pesticides once in around four weeks. When we visited there, 25% "Amitraz" was used (I missed asking why 25%). Amitraz is widely used as monoamine oxidase inhibitor which combine octopamine receptor which is typically merged in insects and it can protect animals from ticks. So dipping is efficient and efficacy way, but there are some disadvantages.

First, cattle are sometimes died of drowning in this manner. The depth of pool used for dipping is around 3m that is higher than baby cattle. Also, cattle are rushed to jump into the pool when dipping. That's why cattle are piled and small or weak cattle can be died of drowning.

Second, cattle easily drink pesticides when they jump into the pool. Actually, the concentration of pesticides which is mixed with water for transdermal administration is very higher than for oral administration and much more dangerous for cattle. In fact, organ samples which I analyze in my laboratory may have been died of accidentally intaking of pesticide which was originally for transdermal administration. Besides, many insecticides are lipophile and easily accumulate in organs, and there is a high likelihood that raw milk and meat will be shipped with insecticide buildup. Therefore, we should consider the way of dipping with taking both merits and demerits into account.

During our stay, we learned some problems occurring in Zambia like these or infectious diseases, but we also learned how great place Zambia is.



One of the biggest points of it is the beauty of national park. We stayed Lower Zambezi national park for three days and took cruise, drive, walking tours. All of them were awesome and we could observe many wild animals like elephants, hippopotamus, crocodiles, buffaloes and lions. It was my first time to visit national park and I was impressed by the power of wild animals. In particular, the sight of a male lion sloppily sleeping with his stomach up and a wild boar running with its tail raised like an antenna were so cute that I couldn't help but watch.

Saying about walking tour, we walked around with a ranger in the park and he explained for us about trees and plants or foot prints and feces of animals. After the tour, we became to be able to distinguish the feces of lions and hyenas. It was also interesting that we became to be able to find the plants or trees easily through his explanation even though we ignored their existences before this tour. Also, the sunrises and sunsets in the national park as well as the animals were amazing. I will always remember that spectacle.

Adding to national park, I think friendliness of Zambian people is also another great point. Many people talked to us at various places like supermarkets, university, farms and they kindly accepted our Nyanja greetings (Muli bwanji! or zikomo). In supermarkets, some people told us their recommended souvenir or how choose good mangoes or took pictures with us. We had many times that the kindness which Japanese people don't have of Zambian people relieved us.

Before visiting Zambia, I thought I would be exhausted by different cultures and languages. However, oppose to my thought, Zambian people were friendly and nshima with Okura or zambeef was delicious and even the characters of students who visited Zambia from Japan with me were very funny and nice. I enjoyed whole of our stay and became to want to know about Zambia more and more. Luckily, my laboratory does many researches in Zambia, so I'm considering about going to graduate school and continue to do research.

Lastly, I want to appreciate to UNZA teachers again. Thank you for accepting us and let us participate in classes. We could learn a lot of things and I'm sure that our stay will be property of my life.

Zikomo kwanbiri!!

Chihiro KANEKO, 5th year

In the future, I would like to work with foreign countries, and I am particularly interested in developing countries. However, even in this age of Internet development, there are limits to the amount of information I can gather while in Japan, and I felt it was important to actually visit and learn about these countries. Therefore, I decided to participate in this program to actually visit Zambia and deepen my understanding of the “now” of Zambia, and although it was only for a short period of two weeks, I was able to attend lectures on bacteriology, parasitology, and virology and do some laboratory works and observe small animal at the University of Zambia clinical care. In addition to that we had many valuable experiences, including visits to local slaughterhouses, farms, national parks, JICA and the embassy. There are so many wonderful experiences that I want to share about, but here I will mainly talk about the culture, the problem with anthrax and the experience in Kasisi Agricultural Center.

Firstly, I will talk about the culture. The first thing that surprised me when I arrived in Zambia was how developed the country is. The well-developed roads, magnificent shopping centers, and streets bustling with young people were very different from what I had imagined in Africa. I was also surprised by the generosity of the Zambian people. When purchasing a SIM at a shopping mall, I waited for several hours, but when it was my turn, the network was unstable, and I could not purchase the SIM. None of the other customers blamed the clerk, and I felt that I should learn from their tolerance. Also, I was nervous because I had never had an interaction with the Zambians, but I realized that it was the same for them too. What helped me as an icebreaker was a simple local language. In Nyanja, the local language, I would say, “Muli bwanji? (How are you?), which broke down all barriers and brought me closer to the local people. I would like to actively study the local language when I visit other countries in the future.

Secondly, I will talk about the problem of anthrax. Before my trip to Zambia, I read in an article that Zambia experienced its first large-scale anthrax epidemic in 2023 since 2011, and that one of the causes was eating the carcasses of wild hippopotamuses. Zambia has frequently had anthrax outbreaks, and I wondered what the locals thought about the risk of dead animals with unknown causes of death. I had assumed that lack of food was one factor, but I was told that even though people are aware of the prohibition against eating animals of unknown cause of death, there is an ingrained culture of eating the meat of animals if it is available. Of course, when people die in the area, the people of that generation become careful and bury the bodies, but after a few generations, it is forgotten where the bodies were buried, and the cycle repeats itself, causing another outbreak. I thought that the government should manage the land, but I felt that it would be impractical to do so with the population density of Zambia, which is less than one-tenth of that of Japan. Another factor contributing to the anthrax outbreak was the decrease in the number of vultures. Vultures are scavengers that eat animal carcasses and can break down bacteria such as anthrax, thus preventing their spread. However, their numbers are decreasing due to poaching of elephants and other animals using poison, which has become a problem.



Currently, they are working to conserve vultures by contracting with Zambeef and other companies to set up vulture safe zones where non-toxic and safe bait is sown. In addition, they were not only cracking down on poachers, but also teaching them how to make animal crafts using wire for traps and other ways to survive. I learned that even if it's about one infectious disease, anthrax, there is no immediate solution to it because of the complexity of the many factors involved.



Thirdly, about the experience in Kasisi Agricultural Center, a village established by a Christian mission. There I was able to listen to a veterinarian who was sent there as a JICA volunteer. The first thing that surprised me was that although there is a farm with a total of about 200 dairy and beef cows, there was no veterinarian there until she was dispatched. She was sent there to improve the quality of dairy products and their management, but she also had a wide range of other duties. One of these was the improvement of cattle breeds. She told us that improvement was being promoted by crossing disease-resistant native breeds with highly productive exotic breeds. However, many farms in Zambia are not fenced off, and when cattle return from grazing, they are sometimes bred to cattle from other farms, so there are some areas where progress is not as fast as expected. Another story that left a strong impression on me was that they received a milking machine as a gift from overseas, but soon stopped using it. This is because it is unprofitable considering the low milk production of the cows here and the cost required to clean the machine after milking. I realized the importance of providing support that meets the needs on the ground, because support is meaningless if the equipment is not usable.

Through this dispatch, I had a valuable opportunity to gain a deeper understanding of the cultural background of Zambia's public health issues and its relationship with wildlife. In addition, through actual interaction with JICA staff, volunteers, and researchers from the University of Zambia, I was able to increase my concrete options for work involving overseas. I would like to make the most of this valuable experience to build a career that will enable me to make international contributions. Finally, I would like to thank everyone who helped me during this program. I promise to visit Zambia again and visit the Victoria Falls next time! Ziko-mo kwambiri!!!



Muli bwanji! Ndine Soyo.

I stayed in Zambia for 2 weeks in August 2024. Through this study abroad program, I have learned, among other things, the importance of going to the field and experiencing the culture of the people there, and the difficulty of controlling animal infectious diseases including zoonoses in Africa. In this report, I will discuss what I have learned especially in relation to industrial animals and zoonoses, using anthrax as examples. Anthrax is a zoonosis that is transmitted by inhalation (pulmonary anthrax), ingestion (intestinal anthrax), or contact (cutaneous anthrax) with anthrax in infected animals or soil. In addition, the pathogen is difficult to eliminate from the soil because it forms spores and survives in the ground for long periods of time. Through anthrax, we learned about the existence of zoonotic diseases, especially through the culture of "eating."

First, when we visited a farm that also has a mission-based orphanage and processing facility, we learned about the behavior of local people against the consumption of infected livestock. At this farm, meat is picked up at a certain time of the year, and animals that have died due to malfunction or infection at other times of the year are distributed without veterinary diagnosis, and some obviously abnormal animals are buried but dug up and eaten by villagers. This farm has a dam inside the facility, and the water is used to irrigate the fields with a center pivot to grow grains, which is well equipped compared to most farmers in this country, where farming is difficult in the dry season and irrigation is not used. The fact that even there, the situation was like I stated before, situations in the current state of affairs at many traditional farmers by local people expected to be worse. I felt that it is important to understand the educational background of the lack of knowledge about infectious diseases and the cultural and economic background of people who eat anthrax-infected animals even if they have knowledge about infectious diseases, in order to take countermeasures against such high-risk behavior of ingesting anthrax-infected animals.

In the lecture given by a professor from the Faculty of Veterinary Medicine at the University of Zambia, he told us that anthrax can be transmitted orally through the ingestion of dead wild animals with anthrax. This practice of eating wild animals, which carries the risk of transmission of zoonotic diseases including anthrax, has not been improved due to economic and cultural reasons. When we visited the Lower Zambezi National Park, we saw impalas, elephants, baboons, and other wild animals in the area where some villages are located before entering the national park, and I found that people and animals are very close (Figure 1). Especially in such areas where meat is a valuable source of protein, people have to eat what they can eat to survive, and if a wild animal is dead, it means the meat will be lying around ready to eat without being hunted. In this situation, I thought it would be a rational choice to eat them for the people there.



Besides, the tradition of eating meat without heating could also contribute to the spread of diseases. During this stay, we fortunately had a lot of opportunities to eat Zambeaf. The beef was delicious and we bought the product at Shoprite sometimes. However, on the last day of our stay, we found out one of the products, biltong, could be processed without heat, since it is traditionally sterilized by adding vinegar and spices and drying. As it is controlled by a relatively reliable producer compared to the local from the point of view of sanitation, I don't think people or visitors who eat the product are exposed to the high risk of infection. However, if people eat the meat that is purchased in the local slaughterhouse or market without heating, they could take in some active pathogens into their bodies.

In addition, I thought that the cattle we saw roaming freely on roadsides and roads in some places were also a point to be considered in the control of infectious diseases (Figure 2). In the lecture, we heard that during the dry season, cattle roam around in search of food and water, coming into contact with wild animals and spreading infection. Of course, letting cattle walk freely and raising them on leftover crops and wild grass without feeding them concentrated feed is for the original purpose of animal husbandry, which is to convert nutrients and food that humans cannot digest into animal protein, and I think it is reasonable and respectable. However, I felt that applying infectious disease control, which is used in Japan and many other Western countries, to this form of livestock farming would be difficult. To do so while maintaining infectious disease control to the same degree and in the same manner as in today's "developed" countries would be unfeasibly expensive as cows move relatively freely.

In this training course, I learned about the connection between animals and humans through zoonosis and culture, and came into contact with the living conditions of local people and their environment. Through the experience, I increased my motivation to learn more and become a needed human resource.

Finally, I would like to thank professors and students in UNZA, and all those involved for their support of the training in Zambia. Zikomo kwambili!



Marina KOBAYASHI, 5th year

“Hello, Muli bwanji?”

During the stay in Zambia, we did various activities such as visiting a local slaughterhouse, farm, National park, participating large and small animal clinical practise, laerning about infectious disease, observing wild animals, and sightseeing on holiday.

On the first day, we held a exchange event with students of UNZA, where we introduced ourselves and had an origami party. It was quite difficult to explain how to create origami arts in English, but we were happy to see that they were more satisfied with their finished creations than we had expected. We frequently met and talked with the students on campus afterwards, and we sometimes did clinical practice together, so it was a good opportunity to get to know each other before.

At the slaughterhouse in Kafue, we learned about the process of slaughtering and meat inspection. The facilities at the slaughterhouse were quite simple, and there were significant differences from those in Japan in that stunning by stabbing the neck several times with a knife, and butchering on the floor. However, they said this stunning method is not the standard, and local slaughterhouses choose this method because of the high cost of gun bullets and the possibility of failure. A government veterinarian was sent to the slaughterhouse for antemortem inspection, offal inspection, and carcass inspection. We tried doing inspection following the procedure, and it was shocking to see the large amount of live *Fasciola gigantica* came out when I examined a liver. What was the most impressive was the atmosphere of the slaughterhouse. In Japan, they have a sensitive image about a slaughterhouse and the whole process takes place in a closed facility, whereas in Zambia it was open with music playing so the atmosphere was like a festival.

Related to large animal practice, we visited farms in Kasisi and Shibuyunji. Both farms had dip tanks to give the cattle a tick prevention chemical bath, which was carried out once every one to two weeks. It was powerful to see the cows jumping in and swimming. At the examination of sick cattle having fever, reduced activity and lymphadenopathy, they were suspected to be infected to tick-borne disease. So I realized the importance of tick prevention. At the Kasisi farm, we met a veterinarian of the JICA volunteer, and as I was also interested in the volunteer, it was very interesting to hear about her work and life there. As a volunteer, she finds and improves problems not only in herd management but also in milk processing. I think it would be very rewarding in that there are many things that can be improved. And there is frequent equipment support from foreign organizations. But one of them, milking machine was not suitable for the farm because of imbalance between milk production and maintenance costs. Therefore, I think that it is important to analyze the situation of the field and propose sustainable ways for them.

In infectious disease control, there are deeply rooted local customs and beliefs. For examples, milk that has gone bad due to lack of temperature control is drunk as sour milk, people sometimes eat meat from dead livestock or wild animals even though there is a risk of anthrax, and people believe that giving rabies vaccines to domestic dogs will change their personalities. I felt it was important to disseminate correct knowledge to prevent zoonosis.

In small animal clinical practice, to my surprise, the students were also examining and treating animals in front of their owners. I thought it was a good environment for students to gain practical skills and a sense of responsibility. Another feature of the hospital was that, as suspected parvovirus infection is not uncommon, a special room was set up for examination and treatment.



I was most looking forward to seeing wildlife on my trip to Zambia, and I visited Lusaka National Park and Lower Zambezi National park. In Lusaka National Park, they did a protection activity for orphaned elephant calves. During milk feeding time, we were very much healed by the defenseless and innocent appearance of the elephant calves, which we would not be able to see in the wild. There we were also able to learn about social activities that lead to the protection of wild animals, such as supporting poachers to work other fields and educating women. At Lower Zambezi, we saw a wide variety of animals, for examples, elephants, hippos, lions, impalas, kudus, warthogs, zebras, crocodiles, eagles, buffaloes....etc. I was impressed by the animals being lively, which is difficult to see in zoos, as well as their coexistence with each other, their parents and children, and the sight of their herds.

During stay, we were able to have meaningful exchanges with the local people. Especially when we learned the local language and tried to use it, it became a good opportunity for conversation. I had wanted to visit Africa long time, but I was a little anxious because it was so far away from Japan. However, once I got there, the people were friendly and kind, and the food was delicious. I will continue to improve my knowledge and skills so that one day I will be able to visit Africa again to contribute to overseas cooperation and other activities.

Finally, I would like to express my sincere gratitude to Prof. Ishizuka and Prof. Murata for leading us, to the professors of the University of Zambia who conducted the class practice, and to all the people at the places we visited.

“Zikomo kwambiri !!”



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Report from participants 2024

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