北海道大学
One Health フロンティア卓越大学院プログラム
One Health Allyコース
One Health on-site Training報告書

Hokkaido University
WISE Program for
"One Health Frontier Graduate School of Excellence"
One Health Ally Course
One Health on-site Training Report from

One Health Module / One Health Ally Course
Submodule 4 One Health on-site Training
報告書 Report

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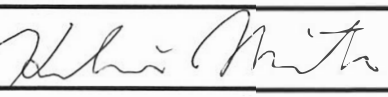
署名 [Signature]	
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活動報告 [Activity Report]

タイトル [Course Title]	Zoonoses intervention through One Health, education and public-private partnership
実施期間 [Periods]	29 January – 10 February 2025
共同実施者 [Other participants]	Ms. Atsuko Inoue
言語 [Language]	English
実施場所 [Location]	Morogoro, Tanzania

この活動に参加した理由（200字程度）[The reason why you participated in this activity (around 120words)]

Africa countries have fascinating unique in geological, climate, subsistence, and environmental aspects; moreover, emerging and re-emerging diseases are significantly concerned in this region. The project that I participated in focused on the problems of two negligible zoonotic diseases, Brucellosis and zoonotic tuberculosis. These diseases are not typically perceived as important diseases in animals due to the subclinical signs and latent period of infection. Transmission occurs when people are in contact with infected animals' secretions e.g. discharges, milk. The collaboration between JICA-AMED and Sokoine University of Agriculture, Tanzania will pursue the extent of the diseases' problems with epidemiological, environmental and ecological anthropological facets. Moreover, the intervention measures are planned to apply in the following course of the project such as developing a vaccine, educating children in primary and secondary school with VR. The is a comprehensive One Health project.

実施内容（2ページ程度、写真・図表含む）
[Activities details (up to 2 pages providing photos, figures, and tables)]

The activities were in Morogoro region, Tanzania.

- Mkongeni Mnadani livestock market

It is a livestock market 1 hour from Morogoro downtown. The market includes 5 sections: livestock trading area, slaughtering area, fresh meat market, grocery zone, and restaurants.

The cattle, sheep and goats are herded to the market from areas. Each herd must pass the entrance for Livestock Officer inspection. The herds were assembled in a field. The negotiation was processed there. There are routes of trading: trading for live animals or trading live animals to be meat. According to meat, it may be distributed

to local market in Morogoro, or transport to a city, Dar Es Salaam. The slaughtering area was roofed and had a concrete platform. The slaughtering method was in Muslim practice. Some carcasses were cut and sold at the market zone or to restaurants in place. The killing process and meat display did not undergo cooling system. There was a disposal pit for biological waste produced in the market. There were restaurants selling roasted goat meat, fries, and grilled bananas.

From my standpoint, the market does not have adequate biosecurity measures; moreover, the country has not had sufficient livestock movement control. There was no animal identification system or records. It is difficult to have traceability of livestock and products. However, as noticed, the sanitation at the slaughtering area was appropriate. There was a concern of food safety issues such as using tree branch with leaves as meat bedding, cross-contaminating of fresh and cooked meat with food contact surfaces e.g. knives, tables.

Figure 1-3 Livestock market

- Mikumi national park

This is the fourth-biggest national park in Tanzania. There are wildlife species including lions, leopards, giraffes, wild boars, gazelles, zebras, foxes. Some animals were observed before entering the conservation area. Some wildlife such as wild boars and foxes are reservoirs of important diseases which are African swine fever, and rabies respectively. There are international roads passing across the national park. In my perspective, there are opportunities for disease transmission through domestic animals and wildlife crossing over and vehicles. If there is an outbreak, it could develop a transboundary disease problem.

- Co-designing Neglected Zoonosis Intervention through One Health, Education, and Public-private Partnership (OHEPP)

This project is a collaboration of Rakuno Gakuen University, Japan and Sokoine University of Agriculture, Tanzania under JICA/AMED: SATREPS program. This project focuses on two neglected zoonotic diseases, Brucellosis, and zoonotic tuberculosis with comprehensive One Health approach in Morogoro region which is the eastern part of Tanzania.

In Tanzania, brucellosis is a major zoonotic disease, with cattle prevalence ranging from 0.3% to 60.8% and human cases reaching up to 48.4%. Similarly, tuberculosis (TB) poses a risk, with a 50.0% farm-level prevalence, 2% individual animal prevalence, and 18% of cases being zoonotic. These diseases highlight the significant public health and livestock challenges in the country. Previous research indicated that ways of animal raising, knowledge of diseases, living behaviors are risk factors of infection.

To achieve disease control goals, experts in different fields take part in epidemiology, environmental science, economics, ecological anthropology, bacteriology, and software development.

Participating in the project, it was observed that the project is at the beginning of the research plan. Implementation requires that stakeholders be informed of the project's progress in order to facilitate coordination. The kick-off meeting was held on February 5, 2025, to inform the stakeholders of the background, project's objectives, and research plans. The participants included the research team, district leaders, farmers, and government sections including livestock offices, educational offices, and medical offices from 9 districts in the region. Moreover, a group discussion session took place to assemble ideas from local staff. The participants were divided into 5 groups and assigned to discuss different topics. The results are as follows:

Group 1 explored methods for identifying individual animals in a sampling process. The participants identified three main techniques: electronic ear tags, which store comprehensive information about the animal, including ownership and location; microchips, which provide a more advanced form of identification; and traditional

branding using hot iron, a commonly used method for marking livestock. These identification techniques ensure proper tracking and management of animals within the system.

Group 2 discussed the process of tracing tuberculosis-infected animals both forwards and backwards. Forward tracing involves using ear tags with special codes, obtaining contact details of the owner and their address, and employing GPS tracking to monitor the movement of sick animals. Backwards tracing, on the other hand, relies on movement permits and GPS data to determine where the infected animal has been and potentially identify the source of infection. These measures help in controlling the spread of tuberculosis in animal populations.

Group 3 focused on conducting sampling within communities and identifying key participants for surveys. They emphasized the importance of understanding the economic activities of the community, such as pastoralism, meat and milk sales, food stalls, and slaughtering. Additionally, infrastructure factors like housing, water supply, and animal shelters were considered. The group highlighted relevant stakeholders, including adults over 20 years old, meat inspectors, meat sellers, slaughterers, and herdsmen. Their inclusion ensures comprehensive data collection that reflects the diverse perspectives of those involved in livestock-related activities.

Figure 4 Discussion kick-off meeting

Figure 5-6 Group discussion activity

Group 4 deliberated on strategies for encouraging pastoralists to carry GPS devices to track their mobility. The discussion emphasized educating pastoralists in groups while respecting their cultural practices. Training and support were deemed necessary to facilitate acceptance of the devices. Ensuring that the devices do not cause harm and building trust with pastoralists were also identified as critical factors. Additionally, providing incentives was suggested as an effective strategy to encourage participation in the tracking initiative.

Group 5 discussed the creation of three discussion groups for data collection from nine councils. The districts were grouped based on cost-effectiveness, geographical considerations, and accessibility. The group also identified key stakeholders to be included in discussions which are government officers in each sector. Additionally, community members, including livestock keepers, food vendors, meat inspectors, traditional leaders, and religious leaders, were considered essential for ensuring well-rounded discussions. Laboratory experts were also suggested to provide technical input regarding disease detection and food safety.

There were Japanese researchers from University of Tokyo, Tokyo University of Foreign Studies, Yamaguchi University, Hirosaki University, and Rakuno Gakuen University participating in the same duration of my visit. Two professors from Tokyo University of Foreign Studies and Hirosaki University will conduct research in ecological anthropology field with Massai and Sukuma tribes. A professor from University of Tokyo specializes in population health. Also, a professor from Yamaguchi will conduct research in developing vaccines.

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今回の活動経験が、今後のOne Healthに関連した活動、国際共同研究、国際協力、国際連携等に与える影響（500字程度）[Impact of the experience on future One Health activities, international collaborative research, international cooperation, international collaboration, etc. (around 300 words)]
The experience gained from participating in the "Co-designing Neglected Zoonosis Intervention through One Health, Education, and Public-private Partnership (OHEPP)" project has been invaluable in understanding the complexities of zoonotic disease control. This international collaboration between Rakuno Gakuen University, Japan, and Sokoine University of Agriculture, Tanzania, under the JICA/AMED SATREPS program, provided insights into the interconnectedness of human, animal, and environmental health. The project focuses on brucellosis and zoonotic tuberculosis, two major neglected zoonotic diseases in Tanzania. The fieldwork in Morogoro region highlighted the importance of epidemiology, environmental science, economics, anthropology, bacteriology, and technology in disease control. The kick-off meeting and subsequent group discussions with local stakeholders, including district leaders, livestock officers, and community members, reinforced the significance of engaging multiple sectors to address public health challenges. The discussions on animal identification, disease tracing, community sampling, and GPS tracking of pastoralist movements demonstrated the practical application of One Health principles in real-world settings. Visiting Mkongeni Mnadani livestock market further emphasized the need for improved biosecurity measures and livestock movement control. Observing the lack of traceability and inadequate hygiene practices in meat handling reinforced the importance of implementing better surveillance and food safety systems. These insights contribute to developing interventions that are culturally appropriate and scientifically sound. The project also provided an opportunity to collaborate with Japanese researchers from various universities specializing in anthropology, population health, and vaccine development. This international engagement enhanced the understanding of diverse research methodologies and strengthened skills in project coordination and cross-cultural communication. The experience underscored the importance of interdisciplinary approaches in One Health research and highlighted the benefits of global partnerships in addressing zoonotic disease challenges through sustainable and effective interventions.
備考 [Remarks]

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