

International Livestock Research Institute

Training visit report

An introduction to environmental and occupational health
and safety at the International Livestock Research Institute



February 2014





ILRI
INTERNATIONAL
LIVESTOCK RESEARCH
INSTITUTE


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Written by Tezira Lore

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Background

The Department of Land Resources Management and Agricultural Technology (LARMAT) at the University of Nairobi's College of Agriculture and Veterinary Sciences offers an undergraduate degree program in management of agro-ecosystems and environment. Fourth-year BSc students undertaking this degree program take a course unit on occupational and environmental health.

In order to give the current fourth-year BSc students an opportunity to link the theory of occupational and environmental health to practice, the Department of LARMAT requested for an educational visit to the International Livestock Research Institute (ILRI) to enable the students observe and learn first-hand about various aspects of occupational health and safety at ILRI's Environment and Occupational Health and Safety department, Large Animal Unit, Small Animal Unit and Tick Unit.

On Monday 17 February 2014, a group of 30 students visited ILRI, accompanied by their lecturer Benedict Mwenji. The key learning points of the visit were:

- Environmental risk and health assessment procedures applied on staff at ILRI regarding exposure to bacterial, helminthic, chemical and physical disease-causing agents in the surrounding environment
- Environmental risk and health assessment procedures applied on staff at ILRI regarding exposure to noise, sound, food, soil, water, air and dust pollution.
- Preventive measures against exposure to environmental pollutants, for example, gases, allergens, food additives, bacterial contaminants and chemicals in foods.
- Epidemiological frequencies of exposure to environmental pollutants among staff at ILRI.

ILRI's Capacity Development Unit organized the visit, in conjunction with the Institute Animal Care and Use Committee, the Environment and Occupational Health and Safety Unit, Tick Unit, Large Animal Unit and Small Animal Unit.

Training summary

Organizers

Joyce Maru, Capacity Development Officer

Jennifer Kinuthia, Administrative Assistant, Capacity Development Unit

Lecturers/facilitators

Joyce Maru, Capacity Development Officer

Josephat Otieno, Environment and Occupational Health and Safety Officer

Simeon Otieno, Supervisor, Large Animal Unit

Jane Ikanyi, Supervisor, Small Animal Unit

Stephen Mwaura, Manager, Tick Unit

Introduction to ILRI and the Capacity Development Unit

ILRI's Capacity Development Officer, Joyce Maru, began her brief presentation by welcoming the students and their lecturer to ILRI. She then gave an overview of ILRI as a member of the CGIAR Consortium and the mission of ILRI, and how ILRI's livestock research agenda is undertaken within the framework of the CGIAR Research Programs. She pointed out that capacity development is embedded within the livestock research agenda and involves not just individual training but also includes developing the capacity development of staff and partners for research uptake.

With respect to individual training, she mentioned that ILRI runs a graduate fellowship program and also offers opportunities for student internships from time to time. These enable students to link the theory they learn at the university to practice. In addition, students also have the chance to benefit from mentoring by senior scientists. She summed up her presentation by acknowledging the lecturer for his commitment to ensuring impact in teaching through field visits such as this and hoped that as a result of the training visit, some of the students would be inspired to consider careers in agricultural research.

Environment and Occupational Health and Safety

Josephat Otieno's presentation began with an overview of the key functions of ILRI's Environment and Occupational Health and Safety unit, namely, environmental management, occupational health and safety, and research compliance. He then presented on ILRI's operations on environmental risk assessment, management and control of noise hazard, water and wastewater testing, monitoring of air quality and emissions of the boiler and generator, occupational health service, food safety audits in the staff cafeteria and training of food handlers on kitchen hygiene, food safety and waste management.



Josephat Otieno presents on ILRI's environmental and occupational health and safety operations (photo credit: ILRI/Samuel Mungai).

Large Animal Unit

Simeon Otieno, the supervisor of the Large Animal Unit, gave an overview of the operations of the unit. It is a Biosafety Level 1 unit that keeps only cattle for purposes of research on non-zoonotic diseases. There are a total of 69 animals of various breeds.



Simeon Otieno (right) discusses with University of Nairobi lecturer Benedict Mwenji (centre) and a student (photo credit: ILRI/Tezira Lore).



Simeon Otieno explains the use of the cattle crush at the Large Animal Unit (photo credit: ILRI/Tezira Lore).

Small Animal Unit

Jane Ikanyi, the supervisor of the Small Animal Unit, briefed the students on the operations of the unit which is a biologically secure facility for research on animal diseases. The unit has rabbits, mice and rats on which experiments are carried out first before being done in the large animals. The rabbits are supplied to the Tick Unit for work on the East Coast fever vaccine.



Jane Ikanyi (wearing head net) explains how the experimental mice are fed in the Small Animal Unit (photo credit: ILRI/Tezira Lore).

Tick Unit

The manager of the Tick Unit, Stephen Mwaura, gave an overview of the research carried out at the facility, which is a Biosafety Level 1 unit. The unit focuses on various tick-borne diseases and is involved in anti-tick vaccine research which is an emerging area of research currently being pioneered in Australia and Brazil. The East Coast fever vaccine developed at the unit is based on an infection and treatment method. The technology has been transferred to Malawi where the vaccine will be produced for use in the region.



Stephen Mwaura gives an overview of ILRI's tick vaccine research (photo credit: ILRI/Tezira Lore).

Agenda

| Time | Item | Facilitator |
|-------------|---|--|
| 0930 – 1000 | Arrival, registration and coffee/tea | |
| 1000 – 1030 | <ul style="list-style-type: none">• Introduction to ILRI and the Capacity Development Unit• Environment and Occupational Health and Safety | Joyce Maru Josephat Otieno |
| 1030 – 1300 | Visit to the following units: <ul style="list-style-type: none">• Large Animal Unit• Small Animal Unit• Tick Unit | Simeon Otieno Jane Ikanyi Stephen Mwaura |

Training material

Environment and Occupational Health and Safety (EOHS): Presented by Josephat Otieno

| | |
|---|--|
| <p style="text-align: center;">Environment, Occupational Health and Safety (EOHS)</p> | <p style="text-align: center;">EOHS</p> <ul style="list-style-type: none">• Environmental Management<ul style="list-style-type: none">– Hazardous waste mgt (radioactive wastes, infectious wastes, glass waste)– Impact assessments• Occupational Health and Safety • Research Compliance |
| <p style="text-align: center;">Risk Assessment</p> <ul style="list-style-type: none">• Infectious agents & Workplace based• Risk Groups (1,2,3,4)<ul style="list-style-type: none">– individual and community risk• Containment Facilities• Training• Safety Equipment• PPE | <p style="text-align: center;">Noise Hazard</p> <ul style="list-style-type: none">• Noise mapping/survey• Hearing & Conservation Program<ul style="list-style-type: none">– Survey– Training– Audiometric Testing– PPE• LN 25 & Noise and Excessive Vibration Pollution Control Regulations |
| <p style="text-align: center;">Water and Wastewater</p> <ul style="list-style-type: none">• Water<ul style="list-style-type: none">– Daily microbiological analysis (Bacteria)– Monthly physical and chemical analysis• Wastewater<ul style="list-style-type: none">– Every two weeks internally and monthly externally– BOD,COD, TSS, TDS, Heavy Metals, Nitrates & Phosphates | <p style="text-align: center;">Air Quality</p> <ul style="list-style-type: none">• Emissions Survey• Indoor air quality monitoring• Chemicals – Laminar Hoods |
| <p style="text-align: center;">Occupational Health Service</p> <ul style="list-style-type: none">• Pre-employment• In-employment• Post-employment• Vaccinations/Immunizations• Radiation monitoring<ul style="list-style-type: none">– TLD (personnel)– Geiger Muller (work environment) | <p style="text-align: center;">Food Safety</p> <ul style="list-style-type: none">• Food Safety team• Training<ul style="list-style-type: none">– Defrosting– Cold storage– Cleaning (equipment & facility)– Waste mgt• Periodic audits<ul style="list-style-type: none">– Food samples– Swabs– Water quality check ups• Food handlers medex |

List of participants

| Serial No. | Name | Sex (M/F) | Country of origin | Country Classification (Developing/Developed) |
|------------|--------------------------|-----------|-------------------|---|
| 1 | Alex K. Mibei | Male | Kenya | Developing |
| 2 | Allan Achola Otieno | Male | Kenya | Developing |
| 3 | Angela N. Gitau | Female | Kenya | Developing |
| 4 | Antony Bonnke Opiyo | Male | Kenya | Developing |
| 5 | Antony Macharia Waithaka | Male | Kenya | Developing |
| 6 | Bernard Yegon Kibet | Male | Kenya | Developing |
| 7 | Brook T. Makonnen | Male | Ethiopia | Developing |
| 8 | Columbus E. Achan | Male | Kenya | Developing |
| 9 | Doreen J. Chirchir | Female | Kenya | Developing |
| 10 | Gilbert Kibet Langat | Male | Kenya | Developing |
| 11 | Grace Wairimu Kanyoro | Female | Kenya | Developing |
| 12 | Hellen Jepkorir Kechei | Female | Kenya | Developing |
| 13 | Isaac G. Odoyo | Male | Kenya | Developing |
| 14 | Jackline Mwikali Woie | Female | Kenya | Developing |
| 15 | James Macharia | Male | Kenya | Developing |
| 16 | Janet Ochele | Female | Kenya | Developing |
| 17 | Katiwa B. Munyoki | Male | Kenya | Developing |
| 18 | Kevin Njuguna Maina | Male | Kenya | Developing |
| 19 | Lampat J. Parashina | Male | Kenya | Developing |
| 20 | Lillian Wangui Mugo | Female | Kenya | Developing |
| 21 | Mercy Chepkirui Mutai | Female | Kenya | Developing |
| 22 | Patrick Ondiek Oleche | Male | Kenya | Developing |

| Serial No. | Name | Sex (M/F) | Country of origin | Country Classification (Developing/Developed) |
|------------|------------------------|-----------|-------------------|---|
| 23 | Reuben Muthiani Wambua | Male | Kenya | Developing |
| 24 | Ruth Chemutai Sitienei | Female | Kenya | Developing |
| 25 | Ruth Gathoni Ngugi | Female | Kenya | Developing |
| 26 | Serah Nyawira Ndiritu | Female | Kenya | Developing |
| 27 | Tobias R. Okando | Male | Kenya | Developing |
| 28 | Vincent Nyongesa | Male | Kenya | Developing |
| 29 | Vivianne Awino Oyugi | Female | Kenya | Developing |
| 30 | William Agawo Victor | Male | Kenya | Developing |
| 31 | Benedict M. Mwenji | Male | Kenya | Developing |