



## Co PI's Letter



All Tweets #UrbanZoo

## DAIRY VALUE CHAIN STUDY IN NAIROBI, KENYA

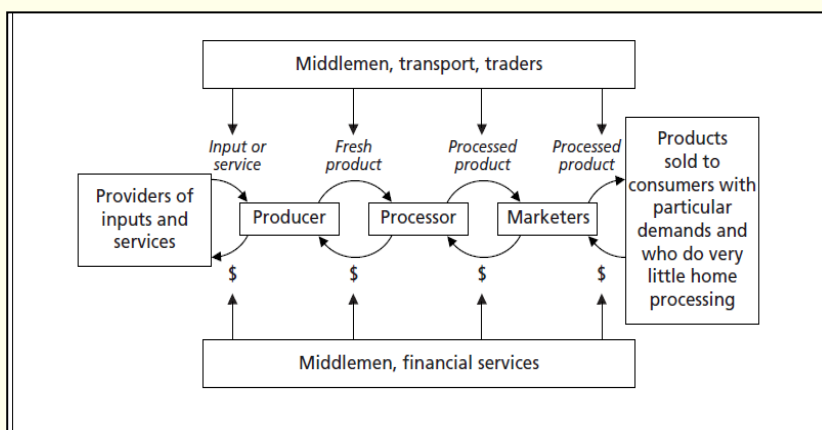
About three quarters of emerging diseases emanate from animals (zoonotic diseases) either directly or indirectly. Despite barriers and precautions taken to prevent encounters with these pathogens, zero risk is still not guaranteed, because risk distribution is uneven and is propagated by known and unknown factors.

Livestock keeping and consumption of livestock products constitute important routes of transmission of certain zoonotic diseases, but the extent and impact of this transmission can be minimized through a proper understanding of how pathogens get introduced and transmitted along the various livestock value chains that bring food products from sites of production to sites of consumption. Livestock value chains are, however, complex and dynamic, as are the networks for livestock product distribution. Understanding how these chains operate, how they are regulated, who dominates the various chains, what the challenges are, etc. presents a great opportunity for understanding what can be done to improve and make these systems more robust.

One of the many sub-components of the Urban Zoo project will focus deeply to understand the dairy value chains operating in Nairobi, with the main objective being to understand the types of dairy value chains that are operating in the city and particularly to understand their functionality and importance in terms of consumers reached. Understanding the trends affecting the entire value chain and examination of the powers and interests that are driving change along the chains, will help determine avenues and opportunities for realistic action, lobbying, and policy entrepreneurship to generally improve on milk safety.

The dairy study is organized in two main phases; i) that of value chain analysis (see illustration below) and ii) a laboratory component that will utilize genetic mapping tools to describe pathogen diversity and transmission using *E. coli* as a marker. Both formal and informal production and marketing systems will be examined.

**Figure 1: Schematic diagram for value chain: Source FAO 2011 by N. Taylor and J. Rushton**



Report written by: Dr. Stella Kiambi, PhD Student working on the Dairy Value Chain Analysis.

## The PI's Corner



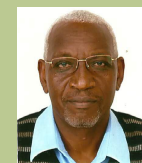
**Jonathan Rushton** is the Professor of Animal Health Economics at the Royal Veterinary College. He is a livestock economists with particular expertise in value chain analysis and the integration of risk assessment and value chain studies. <http://www.rvc.ac.uk/staff/jrushton.cfm>



**Cecilia Tacoli** is a sociologist with interest in urban-rural linkages, food security, migration and gender. She is the Co-Head, Human Settlements Group; Team Leader, Rural-urban Development at IIED. <http://www.iied.org/users/cecilia-tacoli>



**Catherine Kyobutungi** is a clinician and an epidemiologist. She leads the Health Systems and Challenges Research Program at the APHRC <http://www.aphrc.org/team/catherine-kyobutungi>



**Erastus Kangethe** is a Professor of Veterinary Public Health at the University of Nairobi. He is a veterinarian with interests in veterinary public health, meat hygiene, urban livestock and zoonoses and urban development policy in Kenya.



**Delia Grace** is a veterinary epidemiologist and food safety specialist at ILRI. She brings expertise in applied veterinary public health, food safety and food chain risk assessments and participatory epidemiology. <http://www.ilri.org/users/dgrace>



**Sam Kariuki** is currently the Chief Research Scientist and Head of Department, Centre for Microbiology Research at KEMRI in Nairobi. He is also <http://www.kemri-wellcome.org/index.php/en/profile/72>



**Eric Fèvre** is a Professor of Veterinary Infectious Diseases, Institute of Infection and Global Health, University of Liverpool with expertise in epidemiology of zoonoses at the livestock human interface. <http://www.zoonotic-diseases.org>



**Mark Woolhouse** is a Professor of Infectious Disease Epidemiology at the University of Edinburgh in Scotland. [http://www.vqe.vet.ed.ac.uk/epigroup/Mark\\_Woolhouse.html](http://www.vqe.vet.ed.ac.uk/epigroup/Mark_Woolhouse.html)



**Julio Davila** is Professor of Urban Policy & International Development, & Director of the Development Planning Unit, University College London (UCL). <http://www.bartlett.ucl.ac.uk/dpu>



**Tim Robinson** – is a Senior Spatial Analyst at ILRI. He maintains the only comprehensive global resource on sub-national livestock statistics. <http://livestockfish.cgiar.org/about/people/>



# The Nutrition Seed project



Participant cooking in a low-income HH of Dagoretti

Kathleen Colverson (International Livestock Research Institute), Prof Eric Fèvre (University of Liverpool), and Dr Elaine Ferguson (London School of Hygiene and Tropical Medicine) were awarded a CGIAR grant for this research, which was supplemented with funding by the Leverhulme Centre for Integrative Research on Agriculture and Health.

A postdoctoral researcher (Dr. Paula Domínguez-Salas) and four research assistants (Emma Osoro, Douglas Angogo, Judith Mwangangi and Gideon Mwangi – see staff profiles) were recruited for this work. The study builds on the Economic Thread of Urban Zoo. LVC work and both teams work closely in specific areas, namely in Dagoretti and Korogocho. In Korogocho, the teams received logistic support from the African Population and Health Research Centre.



Finger prick for haemoglobin testing

Our target population is non-pregnant women of reproductive age and children 1 to 3 years. In each household, we completed a 24-h dietary recall, asking women to remember and estimate with food models everything that they and their children ate on the previous day. Data on socio-demographic characteristics, livestock keeping and purchase choices were also collected, followed by anthropometric and haemoglobin measurements. Data collection for 200 households is nearly completed and data analysis will start in March 2014.

In addition to producing novel data on the potential links between LVCs and nutrition, this research will inform the development of a larger grant proposal on leveraging animal source foods for nutrition. We would like to thank all our supportive participants of Dagoretti and Korogocho for their help in this study.



## The Nutrition Team:

From left, **Paula** Domingues-Salas (Post Doc), **Emma** Osoro (BSc. Biomedical Science & Technology), **Gideon** Mwangi (BSc. Biotechnology); **Judith** Mwangangi (BSc. Foods, Nutrition and Dietetics), **Ibra** (security guide), **Douglas** Angogo (BSc. Environmental Health), **Richard** (driver) and **Abdi** (security guide), dropping school material at one of the two public schools in Korogocho.

## Selected staff/student Profiles



**Dr Sohail Ahmed** is a postdoctoral researcher at the Development Planning Unit (DPU) in the University College London (UCL), London, UK.

In May 2013, he joined DPU, UCL for conducting research in the ESEI (Urban Zoo) research project in which the DPU is one of several collaborating institutions



**Fredrick Amany**

holds a Diploma in Clinical Medicine and Surgery, and project management and is currently undertaking a

degree in public health. He is a Research clinical officer at ILRI under the Urban Zoo project. At present, he is working on the case control study in Korogocho and Viwandani slums of Nairobi



**Alumasa Lorren.**

holds a Diploma in Clinical Medicine and Surgery. She is a Research Clinical Officer in the Urban Zoo project.

She is currently involved in the case control component of the study looking at children under five presenting with diarrhoea in Korogocho and Viwandani.



**James Kariuki**

**Macharia** is a Veterinarian and a Masters student in Epidemiology and Economics from the University

of Nairobi, attached to the ESEI Project at ILRI.

## PARTNER'S CORNER: ZDU

### Zoonotic Disease Unit -Road map to One Health



The Zoonotic Disease Unit (ZDU) is a collaboration between the animal health and human health ministries in the Government of Kenya

(GoK) whose creation is part of the realization of the One Health (OH) approach in Kenya to the management of zoonoses. The One Health approach has been adopted because of the challenges the country has experienced while addressing the enormous burden of endemic zoonotic diseases, including in the areas of laboratory diagnosis, surveillance and response to outbreaks. The ZDU was created after several zoonotic outbreaks between 2006 and 2010, in response to which a special epidemic response task force was created to manage a co-ordinated response. This task force expanded to form the Zoonoses Technical Working Group (ZTWG) which later recommended the creation of a One Health (OH) office within the government. The OH office was named the Zoonotic Disease Unit (ZDU) and operationalized in October 2012. Its work remains under the oversight of the ZTWG, which itself is made up of a large number of stakeholders.

The vision of the ZDU is to have a country with reduced burden of zoonotic diseases and better able to assess the country's risk and preparedness to emerging infectious diseases. This includes the development of specific disease control strategies as well as contingency plans.

Through the ZDU, the OH approach has gained support and been applied in the response to disease outbreaks of Human African Trypanosomiasis (April 2012), Rabies (March 2012) anthrax (October 2012). Teams from animal and human health participated in the response to Ebola and Marburg haemorrhagic fever outbreaks in a neighbouring country. Prevention and control strategies for rabies and RVF are at advanced stages of development. The ZDU collaborates with research institutions in conducting research on one health. ZDU is currently collaborating with the Urban Zoo project whose overall objective is to understand the mechanisms leading to the introduction of pathogens into urban populations, and their subsequent spread.

#### Contact us:

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## VALUE CHAIN - Field Work Update

The Value Chain team is comprised of four people- James Ako-ko, Maurice Karani, Patrick Muinde (ILRI) and Pablo Alarcon (RVC) who have, since the last newsletter, been involved in quantitative data collection from retailers and livestock holders in Nairobi. The aim is to understand what are the livestock food systems in different areas of Nairobi, and what are the main food safety practices. We work closely with APHRC and the Department of Veterinary Services.

So far interviews have been carried out in three areas of the city, administering questionnaires to shop owners, retailers dealing with livestock and livestock products (Table 1) and animal owners. Work in other areas of the value chains is ongoing.

Table 1. Retailers visited as from the 10<sup>th</sup> of February 2014.

	Dagoretti	Korogocho	Viwandani <sup>1</sup>
Beef/Goat/Sheep Butcheries	23	7	4
Pork Butchery	7	2	1
Chicken Butchery	7	1	1
Hotels	15	5	2
Offal butchery	6	1	6
Milk Bars <sup>2</sup>	18	2	1
Kiosk/shops	22	7	2
Supermarkets <sup>3</sup>	6	0	0
Road side vendors	10	14	6
Milk Hawker	1	0	0
Egg hawker	0	0	1
Egg Depot	2	2	0
Live poultry sellers	3	0	0
Snack shop	2	0	0
Sausages depot	1	0	0
<b>Total</b>	<b>128</b>	<b>41</b>	<b>24</b>

<sup>1</sup> Visits are still ongoing

<sup>2</sup> Road-side vendors are the ones selling most milk in Korogocho

<sup>3</sup> There are no supermarkets in Korogocho

### UPCOMING EVENTS:

- The International Conference on Urban Health, Manchester, United Kingdom, March 4-7th 2014 <https://www.icuh2014.com/>
- Kenya Veterinary Association Annual Scientific Conference, Eldoret, April 23-26th 2014
- 2nd International Conference on Animal Health Surveillance Havana (Cuba) May 7-9, 2014 <http://www.animalhealthsurveillance.org/>
- Regional Conference on Zoonotic Diseases in Eastern Africa, Naivasha, Kenya. 26th - 30th May, 2014 [www.eazoonosis.org](http://www.eazoonosis.org)
- Ecohealth 2014 Conference. "Connections for health, ecosystems and society" Montreal, North America. August 11-15, 2014 <http://ecohealth2014.uqam.ca>