

## **A Gendered Assessment of Vulnerability to Brucellosis in Cattle, Sheep and Goat Small-Holder Farmers in Northern Tanzania**

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### **Introduction**

Endemic zoonotic diseases such as anthrax, bovine tuberculosis, Brucellosis, cysticercosis, echinococcosis (hydatid disease), rabies and zoonotic trypanosomiasis (sleeping sickness) occur throughout the African continent where conditions for their maintenance and spread exist (WHO et al, 2007). These diseases perpetuate poverty by attacking not only people's health but also their livelihoods. Unfortunately, these persistent zoonoses remain neglected in most of the African countries where they are endemic because of lack of information and awareness about the extent of the problem, lack of suitable diagnostic and managerial capacity, and lack of appropriate and sustainable strategies for prevention and control. The result is a false perception that the burden of these diseases and their impact on society are low, such that they neither attract the health resources nor the research needed for their control. Yet, control of zoonotic diseases is vital in securing livelihoods and saving lives, and offers an important opportunity for alleviating poverty in remote rural areas and among marginalized peri-urban communities in Africa and elsewhere (WHO, 2005).

In Tanzania, like in many parts of Africa with large numbers of small-holder livestock farmers, livestock play an important role in sustaining livelihoods (FAO, 2005; ILRI, 2014). Zoonotic diseases therefore have a devastating effect in these communities, where potential economic benefits of livestock are lost. Livestock are also used as social status and as cultural symbols, but most importantly, zoonoses can cause serious illnesses in people, sometimes fatal as the case of Rift Valley Fever in Kenya and Tanzania show (Coleman, 2002). Research carried out in pastoral communities in Ngorongoro District in Tanzania shows that frequent migration of livestock in search of pasture, water, salts and markets invariably leads to livestock being at risk of exposure to zoonotic diseases, that are easily passed on to people. Farmers perceived diseases such as anthrax, Brucellosis, hydatid cyst, and tuberculosis as among the leading zoonotic diseases in these communities; mentioned by 21%, 18% 16% and 2% (respectively) of the respondents (Shaw, 2009; Onesmo, 2013).

This study is set to target small-holder livestock farmers in rural and peri-urban systems in northern Tanzania, and it will primarily focus on Brucellosis, a disease that causes abortion and infertility in their primary natural hosts, resulting in severe economic losses for livestock farmers (Aparicio, 2013).

## Problem Statement

Brucellosis, also known as “undulant fever”, “Mediterranean fever” or “Malta fever” is a zoonosis infection that is almost invariably transmitted by direct or indirect contact with infected animals or their products. It affects people of all age groups and of both sexes. The disease usually manifests itself as an acute febrile illness which may persist and progress to a chronically incapacitating disease with severe complications. It is nearly always acquired directly or indirectly from animal sources, of which cattle, sheep, goats and pigs are by far the most important. In these natural hosts, the infection usually establishes itself in the reproductive tract, often resulting in abortions. Excretion in genital discharges and milk is common and is a major source of human infection (WHO, 2006; Aparicio, 2013).

According to World Health Organization, Brucellosis is an important zoonosis affecting many parts of the world especially in East Africa, the Middle East, south and central Asia. It is often unrecognized and frequently goes unreported, and although there has been great progress in controlling the disease in many countries, there still remain regions where the infection persists in domestic animals and, consequently, transmission to the human population frequently occurs (WHO, 2006).

In East Africa for example, Brucellosis affects about 70% of pastoralists livestock farmers (Coleman, 2002; United Republic of Tanzania, 2012). This is due to the insidious nature of the disease whose symptoms may present in many atypical forms. In many patients the symptoms are mild and, therefore, the diagnosis may not be even considered.

However, although Brucellosis has been sufficiently investigated, much of the research has been on epidemiological and clinical interventions, largely focusing on vaccinations and other measures of occupational hygiene in the community, and in the household, as well as on the sequence of actions required to detect and treat patients. None of the studies has so far assessed the socio-economic aspects of the disease, such as how gender roles and power relations at the household level, access to, and control over resources and decision-making impact on the individual’s vulnerability to Brucellosis, nor has there been a systematic study on the gendered impact of the disease on household level poverty. For instance, a study carried out by the International Livestock Research Institute (ILRI) on gender roles and division of labour in small-holder livestock in Tanzania found that; rural women spend between 50-70% of their time performing livestock related activities on a daily basis. These include; feeding animals, milking, preparing animal products (milk, meat, blood), cleaning sheds, caring for sick animals, seeking breeding services, monitoring animal pregnancy and assisting in calving/birthing; while men and boys took livestock to herd outside the home, and were involved in animal slaughter, skinning and tanning processes.

The extent to which gender roles and other social factors lead to differing individual vulnerability to Brucellosis, and, the extent to which the disease impact their individual and collective livelihoods and wellbeing in the household is not yet known. There is no concrete data on the disease occurrence regarding: who it affects, risk management, knowledge of disease and the impact of the disease on poverty. It is not clear for example, on where the diseases’ risk are created; whether it is prior to the farm, on the farm, along the processing chain or during consumption, nor is there sufficient information on how the disease can be best managed and the possible control points to manage risks of transmission and reduce vulnerability (Grace, 2014). It is therefore the aim of this study to determine these extents.

## Study Justification

The number of poor livestock-keepers worldwide is estimated to be between 500 and 900 million, two thirds of which are women in developing countries (Thornton et al., 2002; FAO, 2005; ILRI, 2013). Livestock are a vital component of their survival strategy and, if healthy and well managed, can offer a route out of poverty (FAO, 2005). Livestock, especially smaller animals, are sold to meet emergency expenditures such as treatment and hospitalization of family members or food and thus, form a vital component of poor households' coping strategies (ibid). Smaller livestock tend to be kept by women and they do provide a small but secure income for many rural women in the form of egg or milk sales and contribute to food security and household nutrition (KIT 2012; ILRI 2013).

Therefore emerging and re-emerging zoonotic diseases pose a major threat to the health and livelihoods of many poor rural communities, particularly in developing countries, where the burden of zoonoses is excessively high because of their vulnerability to contracting the diseases. Dealing with zoonoses places a big strain on the household, both in terms of loss of labour or funds, illness or death of a breadwinner, all of which can push the household further into poverty or extreme poverty (Budke et al., 2006 in Coleman, 2002).

It is against this backdrop that this study is vital to increase awareness, and through the research process, interactions with livestock farmers and community extension service providers, contribute to community education on the nature of Brucellosis, mode of transmission and discourage especially, the consumption of raw milk, blood or uncooked meat or offals. Health programmes alone are unlikely to succeed if community participation is not an integral part of the structure and execution of the management and control of zoonoses at local level (Coleman, 2002). This research will prioritize community needs and their participation throughout the data collection process, and it is envisaged to result in a higher level of awareness about Brucellosis, and self-reliance to be able to accept responsibility for protecting their animals and themselves from the disease hazards. The findings of this research will be disseminated, also through mass media as far as possible, to sensitize pastoralist communities on occupational hygiene practices that reduce vulnerability to Brucellosis.

Also, extension service and animal health workers will draw from the findings of this research to train men and women farmers either within their gender accommodative roles or even open up community dialogues on social practices that exacerbate vulnerability to Brucellosis. It is hoped that such awareness and self-reliance will lead to empowerment of women and men in the target groups. Partnerships between the researcher and other actors will be forged and the findings used to scale out targeted interventions to reduce vulnerability.

This study seeks to answer the following three research questions, upon which the objectives of the study are based:

- 1)** Does knowledge on the causes and mode of transmission of Brucellosis differ between men and women, and does this lead to gendered vulnerabilities?
- 2)** What are the gender dynamics of the socio-cultural practices that affect the vulnerability of men and women to Brucellosis?
- 3)** How does resources ownership at household level affect strategies for management and control of Brucellosis?

## **Study objectives**

### **Overall Objective:**

To assess the vulnerability, by gender, to Brucellosis in small-holder cattle, sheep and goat farmers in northern Tanzania

### **The specific objectives are:**

- (i) To assess the gender differences in knowledge of Brucellosis
- (ii) To assess the gender dynamics of the socio-cultural practices that increase the vulnerability of men and women to Brucellosis
- (iii) To determine how resource ownership at household level affect strategies for management and control of Brucellosis

### **Hypothesis**

- (i) There are gender differences in knowledge, regarding the causes, mode of transmission and management of Brucellosis in the target communities
- (ii) There are gender dynamics in the socio-cultural practices that increase the vulnerability of men and women to Brucellosis
- (iii) Resource ownership at household level affects strategies for management and control of Brucellosis

### **Methodology**

This study will follow a cross-sectional research design and field data will be collected at a single point in time, using both qualitative and quantitative data collection methods. The quantitative component will cover a Knowledge, Attitudes and Practice (KAP) survey, which will be used to identify differences by gender and other classes of social differentiation in knowledge, attitudes and practices towards Brucellosis that predispose individuals to the disease. The qualitative study will employ various ethnographic methods such as Focus Group Discussions, life history narratives, key informant interviews and participant observation to complement the survey questionnaires. A mixed methods approach is adopted here to provide for triangulation of results and is expected to result in a comprehensive set of data that will enable the identification of gaps that can then be used to graft potential entry points for improving awareness and practices in the wake of emerging zoonotic disease outbreak in Tanzania.

### **Target population and Sample size**

The target population for this study is tentatively taken to be small-holder cattle, goat and sheep keeping households in Ngorongoro District in northern Tanzania

### **Structure of the dissertation**

This dissertation will proceed as follows: Chapter one will cover the introduction, problem statement, study justification, objectives and the study assumptions. It will conclude by describing the conceptual framework followed through the study. Chapter two will then cover the literature review, and an in-depth description of concepts of poverty, vulnerability, zoonoses,

Brucellosis, and gendered social drivers of Brucellosis such as gender roles and knowledge of the disease, household resources, power relations and control. In chapter three, the study area will be described as well as the research design used to collect the data. The sample size and sampling procedures used will also be explained in detail. The methods of data collection for both primary and secondary data will be expounded on, as well as processing and the analysis of the data. The chapter will conclude by stating the limitations of the study. Study objective one will be covered in chapter four, objective two in chapter five, and objective three in chapter six respectively. Chapter seven will provide a synthesis the findings and the conclusions and recommendations will be explained in chapter eight.

### **Anticipated Impact of the Study**

This research will promote community participation and raise awareness regarding Brucellosis, which will result in more individuals and families accepting responsibility for protecting their animals and themselves from disease hazards transmitted directly, through food of animal origin, or through environmental vectors or fomites. This process will culminate into the empowerment of participants, achieved through the use of ethnographic participatory methods that cause the community members to reflect on the disease, transmission channels, individual vulnerabilities, and impacts on their lives and, to give feedback locally and together with communities discuss actions and strategies for disease control and management. The main objective is to reduce people's vulnerability to prevailing zoonotic diseases, in this specific case, Brucellosis.

Policy-makers in Tanzania, as well as international organizations, will benefit from the evidence base generated by this research to support the development of appropriate and integrated policies that relate to livestock and wildlife systems, as well as human health.

The academic and scientific audience will also benefit from academic papers and presentations generated in the course of writing this dissertation. And finally, new knowledge will be generated from this study that can be scaled out to influence similar research on other zoonoses.

### **References**

**Altheide, D., & Johnson, J. (1994).** Criteria for assessing interpretive validity in qualitative research. In N. Denzin & Y. Lincoln (Eds.), *Handbook of qualitative research* (pp. 485–499). Thousand Oaks, CA: Sage.

**Bryman, A. (2004).** *Social Research Methods. (Second Edition).* Oxford University Press, Oxford. 592pp.

**Coleman, P. (2002).** Zoonotic Diseases and their Impact on the Poor. In: Perry, B. D., Randolph, T. F., McDermott, J. J. and Sones, K. R. Cambridge University Press, Cambridge. 25pp.

**FAO (2005).** EMPRES Trans-boundary Animal Diseases.[[www.fao.org/empres](http://www.fao.org/empres)] site visited on 6/13/2015.

**Grace, D (2014).** Food Safety and Zoonoses. ILRI Discussion Paper no 5. ILRI. ILRI:Nairobi

**ILRI (2013; 2014).** Gender issues in the Tanzania Dairy Value chain. ILRI Report, ILRI: Nairobi

**KIT, Agri-ProFocus and IIRR. (2012).** *Challenging Chains to Change: Gender Equity in Agricultural Value Chain Development.* KIT Publishers, Royal Tropical Institute, Amsterdam.

**Onesmo, N (2013).** Cultural Drivers of Zoonotic Diseases and Impact of the diseases on poverty in ngorongoro district, Tanzania (Diss.). Sokoine Universtity of Agriculture, Morogoro

**Ole-Neselle and Loomu, P. L. (2008).** The Status of Access to Animal Health Service in Ngorongoro District: Stakeholders' Consultations Report. General Policy, Legislation and Institutional Issues. Ministry of Water and Livestock Development, Arusha, Tanzania. 8pp.

**Shaw, A. P. M. (2009).** The Economics of Zoonoses and their Control. In: Rushton, J. (Ed.), The Economics of Animal Health and Production. CAB International, Cambridge USA. 167pp.

**Thornton, P. K. (2002).** Mapping Poverty and Livestock in Developing Countries. Rome, Italy. 51pp.

**URT (2005).** The Livestock Policy of Tanzania. Government Printers, Dar es Salaam, Tanzania. 256pp.

**WHO (2005;2006).** World Health Statistics. WHO, Geneva. 177pp