Dr. Yazan A. M. Elhadi is a citizen of the Republic of the Sudan. He was born on 9th of January 1985. He obtained Bachelors of Science in Agricultural Economics (Honours) in 2008 from The University of Kordofan, Sudan. In 2010, He obtained his Master of Science in Range management (Range economics), from the University of Nairobi. In 2010, he started his PhD in Dryland Resources Management (Resource Economics). Dr. Yazan works with the University of Nairobi as a part time lecturer. His research interest on Resource economics, food security, poverty and socio-economic studies, Marketing, climate variability and change, vulnerability studies, resilience building and sustainable economic growth. He authored more than 5 research articles in recognized peer reviewed journals and many are at advance stage. He participated in many international conferences and workshops. Dr. Yazan is an experienced consultant in East and Central Africa. His contact details are: UoN, Department of Land Resource Management (LARMAT) Tel: +254 7377762762 e-mail: yazanelahdi@yahoo.com or yazan.a.m.elhadi@gimal.com

Thesis Title

ASSESSING THE CONTRIBUTION OF CAMEL MILK AS A LIVELIHOOD STRATEGY FOR BUILDING PASTORAL HOUSEHOLD RESILIENCE IN THE DRYLANDS OF KENYA

Thesis Abstract

Pastoral production system in Kenya is facing many challenges such as high livestock mortality, high incidence of malnutrition and marginalisation. This has been worsened by the impact of climate variability and change which has rendered most of the traditional coping strategies ineffective, leading to vulnerable and insecure pastoral livelihood systems. One of the main pastoral adaptations to the increasingly unpredictable climate and diminishing grazing resources has been adoption of drought tolerant livestock species such as the camel. Despite having the potential to alleviate the vulnerability of pastoral communities to climate variability and change, camel production is yet to be fully exploited. This study was motived by the lack of empirical studies that examined the contribution of camel milk as a livelihood strategy for building pastoral household resilience in Isiolo County. The study use multistage sampling approach to collect data, through a semi-structured questionnaire. The study used the food basket approach to

determine the contribution of camel milk to household food basket. Value chain analysis was used to determine the functionality and profitability of the milk chain. Further, the study used a simultaneous equation model, through a two-stage least squares approach, to determine the factors influencing camel milk production. The choice of camel milk market outlets was modelled using Multinomial Logistic Model. The food basket analysis showed that camel milk contribute significantly ($P \leq 0.05$) to pastoral household food basket and income during wet and dry seasons. Additionally, the value chain results showed that camel milk trade is profitable and thus has the ability to derive pastoral household income. However, actors along the chain were faced with various constraints such as poor hygiene practices, poor infrastructure, high cost of inputs and poor prices. This study found that daily camel milk production was positively significantly ($P \leq 0.05$) affected by camel herd size, education level of the producer, household size, distance to grazing point, labour, and access to climate information and extension services. The same was negatively and significantly ($P \leq 0.05$) affected by the distance to water point. Furthermore, the results indicate that the likelihood of selling milk to bulking centre outlets was negatively significantly ($P \leq 0.05$) influenced by access to market information and, experience of camel milk producer and distance to bulking centre, and, positively influenced by the camel herd size and daily milk production. On the other hand selling to wholesaler marketing outlet was positively and significantly ($P \leq 0.05$) influenced by age of the producer, camel herd size, daily milk production and price offered at the wholesaler outlets, and, negatively and significantly by experience of camel milk producers and distance covered to wholesaler marketing outlets. Based on the food basket analysis, there is need to invest in the camel milk subsector by creating enabling policies that enhance milk production, consumption, marketing and mainstream the use of camel products as a way to strengthen households' resilience to

	climatic variability and change. As suggested by value chain results, there is need for holistic intervention that includes proper marketing development, general infrastructure development and investing in technologies that reduce input and handling cost. Furthermore, to improve camel milk production any efforts must consider investing in herding labour and the camel herd through strategies such as proper breeding, provision of suitable veterinary and extension services and climate information. Moreover, to facilitate the access of camel milk producers to marketing outlets that offers high prices, it is important to invest in integrating the existing subsistence economy into the market in order to open up the remote areas to benefit from participating in the existing established markets. These interventions, among others, will strengthen the ability of the camel milk producers to participate effectively in those markets with higher benefits, which will consequently improve their income security and, therefore, enhance the pastoral household resilience. ***Key words: Climate Variability; Camel Milk Production; Value Chain; Pastoral Livelihoods***