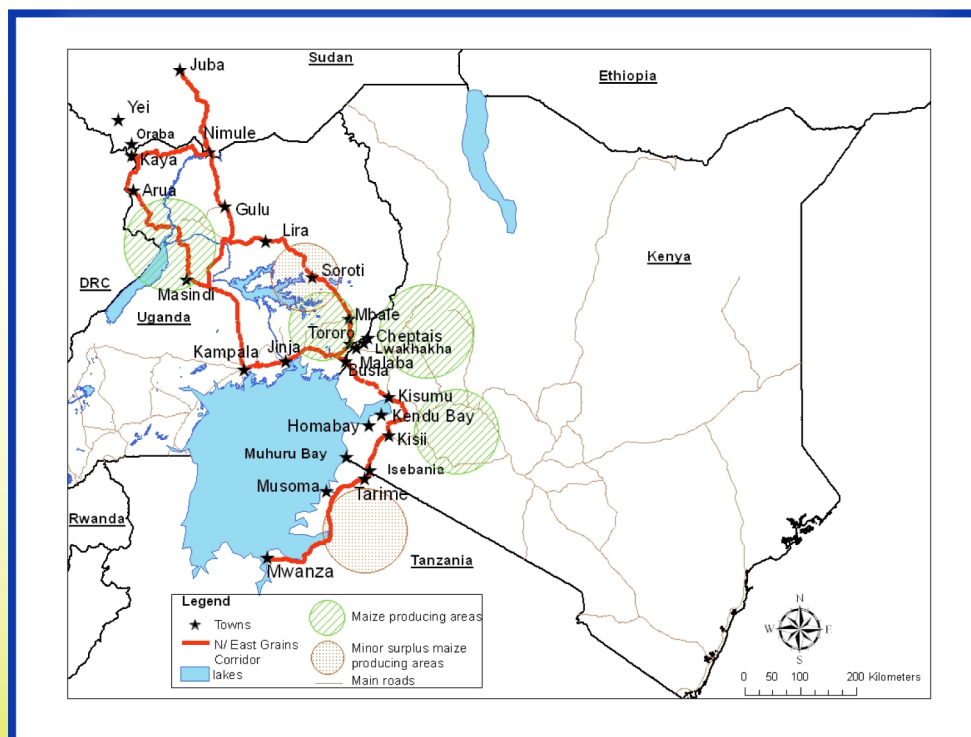




## Nile Basin Initiative

# ANALYSIS OF CROSS BORDER TRADE IN AGRICULTURAL PRODUCTS ALONG SELECTED CORRIDORS OF THE NILE BASIN

### *Research Policy Briefs*





**NILE BASIN INITIATIVE**  
Initiative du Bassin du Nil

## **NILE BASIN INITIATIVE**

*Regional Agricultural Trade and  
Productivity (RATP2) Project of the  
Nile Equatorial Lakes Subsidiary  
Action Program (NELSAP)*

**NBI RESEARCH BRIEF**

**HOW CAN CORRIDOR COUNTRIES ENHANCE PRODUCTION AND TRADE TO IMPROVE FOOD SECURITY, ENHANCE  
EMPLOYMENT WHILE ENSURING SUSTAINABLE USE OF NILE WATER?**

## **Cross-border trade in live livestock in the Nile Basin**

*Patrick Irungu, John Mburu and Chris Ackello-Ogutu<sup>1</sup>*

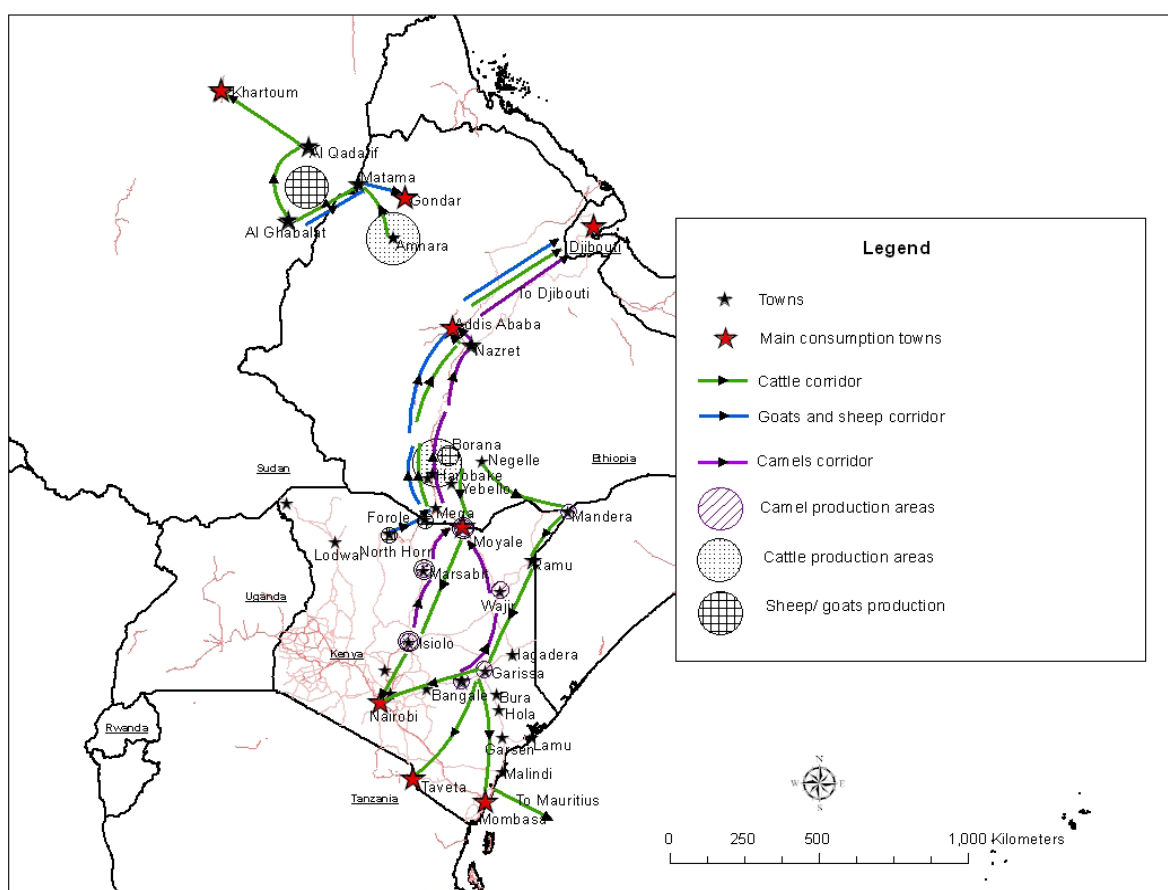
Livestock are the single most important economic asset in the arid and semi-arid areas of Nile Basin countries where, in addition to providing food security, they also store wealth on hoof, serve as insurance and saving instruments, and are used to fulfill sacrosocial rites and obligations. Owing to poor rural infrastructure, low demand *in situ*, inhabitation by similar communities along contiguous borders of Nile Basin countries, cross-border trade (CBT) in live livestock has for centuries proliferated the region. FEWS-Net (2010) estimates that CBT in the Nile Basin supports about 17 million people – including livestock producers, traders, middlemen and other value chain actors – who directly or indirectly derive their entitlements from livestock production and trade. Revenues from CBT contribute to household food security in an area that is perpetually deficient in foodstuffs of crop origin. At the national level, CBT contributes about US\$64 million annually to the regional economy (COMESA/CAADP, 2009) with the livestock sector as a whole contributing between 10 and 40 percent of the Nile Basin countries' gross domestic product (GDP).

The prospects for expanding the contribution of livestock to GDP are enormous especially considering increasing demand for livestock products fuelled by increases in population, income, urbanization and lifestyle changes (Delgado et al, 1999). In addition, many governments in the Basin have shown renewed interest not just in agriculture as a whole, spurred by the Comprehensive African Agricultural Development Program (CAADP), but also in the livestock sector by recognizing its role in food security provision, employment creation and poverty reduction. Thus, many governments in the region are in the process of reviewing constraining policy, legal and regulatory frameworks and making investments needed to revamp the sector. Such initiatives undoubtedly need to be evidence-based.

This study applied the value chain methodology to map out and document constraints and opportunities in cross-border trade in live livestock along two corridors: Corridor 1 comprising Kenya-southern Ethiopia and south-western Ethiopia/Sudan, and Corridor 2 involving Sudan and Egypt. Both corridors focused on cattle, sheep, goats and camels. The goal was to identify impediments to trade and the potential investments needed reduce impediments and accelerate growth of interregional trade in live livestock in the Nile Basin.

### **Production and cross-border trade patterns along Kenya-Ethiopia-Sudan corridor**

In Corridor 1, the cattle sold on the Kenyan side mainly come from southern Ethiopian districts of Didhara, Yabello, Mega, Iddi Lola Arero, Web, Das, Dubluq and Madacho (Map 1). They crossed into Kenya via Sololo and Moyale border points and were then trucked to Nairobi and Thika through Isiolo; a few cattle ended up in Nanyuki farms for fattening. Some cattle also come from northern Kenya (mainly Isiolo, Marsabit and Moyale) and crossed the border through Moyale and are trekked to various markets in southern Ethiopia before entering Nazaret for fattening. Some of these cattle ended up either in Addis Ababa (for consumption) or Djibouti (for export). The cattle from the Somali region (around Negelle area) of southern Ethiopia crossed the border at Ramu and were sold in Mandera and subsequently ending up at the Garissa livestock market. Some of these cattle were trucked to Nairobi for consumption while some were taken to Taita ranches in Coast Province and eventually trucked to Mombasa for export (mainly to Mauritius). The net flow of cattle was however from Ethiopia to Kenya as shown in Map 1 and Table 1).



**Map 1: Movement of live livestock in Corridor 1**

Goats and sheep flowed in both directions between Kenya and Ethiopia. Those originating from northern Kenya (mainly around Forole) crossed the border around Elewaiye and Mega in southern Ethiopia (Map 1). They were then trucked via a series of sales in various markets to either Addis Ababa (for consumption) or to Djibouti for export. Those originating from southern Ethiopia (around Mega) crossed the border at the Sololo border point into Kenya from where they were trucked to Nairobi for sale. The net flow of sheep and goats was from Kenya into Ethiopia (Table 1).

Camels traded in Moyale (Ethiopia) mainly come from Mandera, Wajir, Garissa, Bangale, Isiolo, Marsabit and Moyale in Kenya (Map 1). They crossed the border through the Moyale border crossing from where they were trucked to Nazret (Agre Mariam) for fattening and later trucked to Djibouti for export.

Camels were not traded between the Sudan/south-western Ethiopia border. Cattle flowed from the Amhara Region in western Ethiopia into Sudan through Matama (in Ethiopia)/Galabat (in Sudan) border crossing (Map 1). Some of these cattle were consumed around Al Qadarif town in Sudan while the rest were trekked to Khartoum for slaughter. No cattle originating from Ethiopia into Sudan were exported to Egypt because Egyptian consumers prefer the Sudanese small desert zebu breed because of its good taste. The net cattle flow was from Ethiopia into Sudan.

**Table 1. Sixty-day trade flow in Corridor 1**

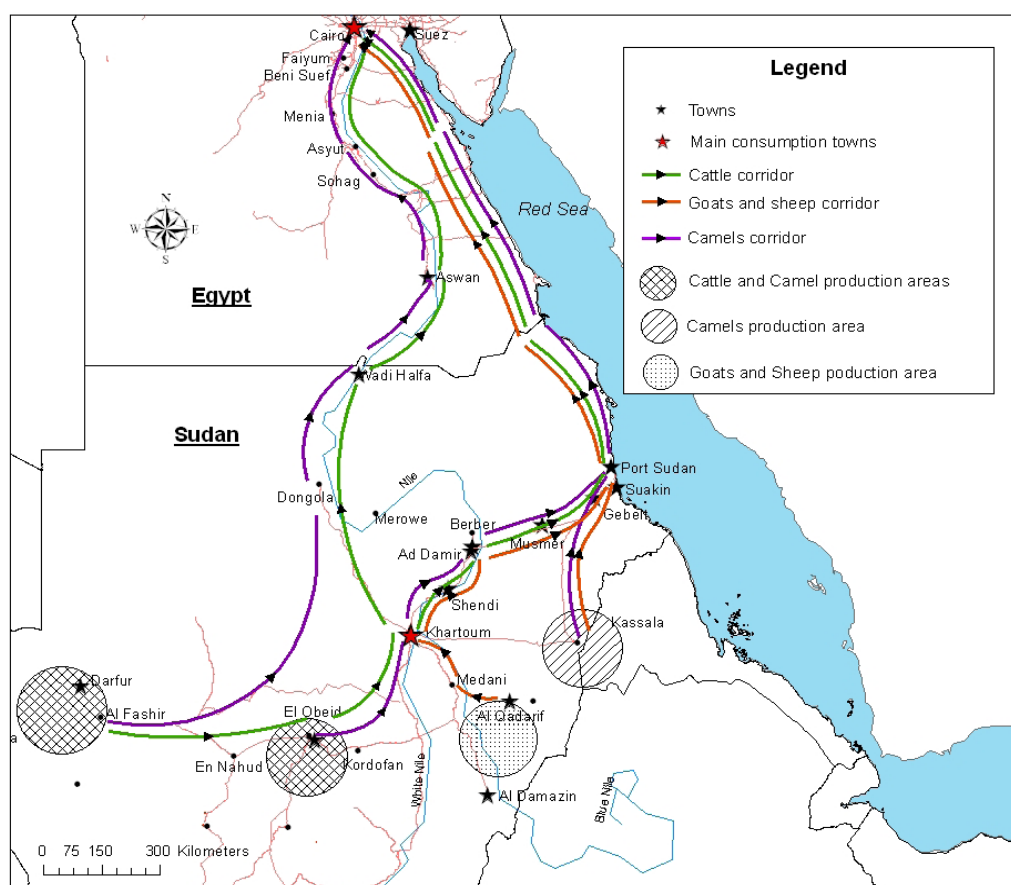
Commodity	Border point	Trade flow	Trade volume (Head)	Value (USD)
Camel	Moyale	Kenya→ Ethiopia	891	260,181
Camel	Buladi	Kenya→ Ethiopia	5,775	2,737,863
Camel	Rhamu	Ethiopia→Kenya	1,470	696,912
Cattle	Moyale	Ethiopia→Kenya	192	29,151
Cattle	Rhamu	Ethiopia→Kenya	3,576	542,955
Cattle	Sololo	Ethiopia→Kenya	2,124	322,494

Cattle	Gurumesa	Ethiopia→Kenya	5,355	813,069
Goats	Moyale	Ethiopia→Kenya	291	12,282
Goats	Rhamu	Ethiopia→Kenya	14,274	602,520
Goats	Sololo	Ethiopia→Kenya	387	16,335
Goats	Gurumesa	Ethiopia→Kenya	5,139	216,924
Sheep	Rhamu	Ethiopia→Kenya	4,587	189,597
Sheep	Sololo	Ethiopia→Kenya	309	12,771
Sheep	Gurumesa	Ethiopia→Kenya	3,615	149,421
<b>Total</b>			<b>47,985</b>	<b>6,602,475</b>

Goats and sheep, on the other hand, came from the Blue Nile State around Ad-Damazin and Al Qadarif towns (Map 1). These were trekked into Ethiopia through Matama and some were sold in Gondar town in Amhara and the rest were trucked to Addis Ababa for slaughter. The net flow of sheep and goats was from Sudan to Ethiopia.

### Production and cross-border trade patterns along Sudan-Egypt corridor

In Corridor 2, cattle originated from the Darfur region and in the South and North Kordofan States and were trekked to Khartoum (Map 2). Some were slaughtered in Khartoum while others were trucked to Wadi Halfa town and then transported by steamer to Aswan and then to Cairo by road; the rest were transported to Port Sudan and then to Cairo by the Red Sea road (Map 2).



**Map 2: Movement of live livestock in Corridor 2**

Sheep and goats mainly originated in the Blue Nile State from where they were trucked to Khartoum for slaughter (Map 2). Others were slaughtered in Khartoum and transported by air to Cairo; yet others were trucked to Port Sudan via the Red Sea road to Cairo.

Camels originated from three main areas: (i) around Geneina in Al Junaynah, Nyala and Al-Fashir in Darfur region bordering Chad, (ii) around Kaduqli and El Obeid areas in South and North Kordofan in southern central Sudan and (iii) around Kassala located to the east of Khartoum (Map 2). Camels from

the Darfur region were trekked via the '40 road' to Wadi Halfa town which borders Egypt, and thereafter they crossed the Aswan dam by steamer and were finally trucked to Cairo by road. Some of the camels originating from El Obeid were trekked to Khartoum for slaughter. Others are trucked to Port Sudan and then to Cairo via the Red Sea road. The camels from Kassala area were trucked to Port Sudan and then transported to Cairo via the Red Sea road.

### Production and trade constraints

The main production constraints identified in the two corridors included:

- Frequent drought
- High disease incidence
- Low animal genetics hence low productivity
- Inadequate veterinary services
- Livestock rustling

The main marketing/trade constraints included:

- Poor road and telecommunication infrastructure (Plate 1), as well as lack of holding grounds, loading rumps, watering and feeding facilities in markets and along the trade routes
- Inadequate trade related services such as market information and specialized vehicles for transporting live livestock
- High marketing and brokerage costs
- Low levels of collective action in marketing
- Rent-seeking along the marketing/trade routes
- Regulatory constraints such as harassment of informal traders (some countries considered CBT as illegal); multiple taxation of live livestock in different markets/towns/States; multiple veterinary certification requirements (e.g. movement permits and vaccination certificates)
- Multiple currencies
- General insecurity and livestock rustling along the marketing/trade routes

Regionally, there is lack of a synchronized approach to animal health. The live livestock value chain is poorly coordinated and governed as there are no lead actors; often, livestock producers lose out to other value chain actors as they have no 'voice'. At the same time, the livestock sector is generally underfunded. Low investment in the sector has led to understaffing and associated poor service delivery (extension service, disease control, and epidemio-surveillance), a weak regulatory and implementation environment, and inadequate provision of public good-type services such as vaccination and livestock research.



**Plate 1: A section of Marsabit-Moyale road**



## Engagement with Regional Commodity Groups (RCGs)

During the implementation of the study, the InterAfrica Bureau for Animal Resources of African Union (AU-IBAR) and the Kenya Livestock Marketing Council were engaged in the formulation of the field data collection instruments and in the formation of the North Eastern Africa Livestock Council (NEALCO). NEALCO is to be one of the Pillars anchored on the AU-IBAR's Pan African Forum for Livestock Exporting & Importing Countries (PAFLEC) The capacity of the two RCGs was enhanced through training on data handling and research methodology.

## Potential investments in the live livestock trade corridors

The following investments were identified as having potential to increase livestock production and trade in the two corridors:

1. Development of water resources – this can be done through the construction of earth dams and development of water-harvesting reservoirs.
2. Supporting ventures aimed at increased fodder production/bulking through irrigation and re-seeding of rangelands and linking them to feedlots and value addition interventions.
3. Improving market access for example through: a) telecommunication and price bulletins posted at livestock markets; b) strengthening research and extension services to improve livestock productivity and quality; and c) removing barriers to cross-border trade.
4. Building capacity on environmental conservation e.g., destocking, reseeded, range management, bush clearing, etc
5. Disease control through increased funding to animal vaccination, branding and improved vet capacity for surveillance and control of notifiable diseases such as foot and mouth disease; early warning systems; and, regionally harmonized disaster management.

<sup>1</sup>The authors generated this brief from a study conducted by MA Consulting Group and Resource Management and Policy Analysis Institute (REMPAI) with technical support from Hellen Natu NBI | NELSAP | RATP Project Trade & Policy Officer, on behalf of the Nile Basin Initiative (NBI)



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**NBI RESEARCH BRIEF**

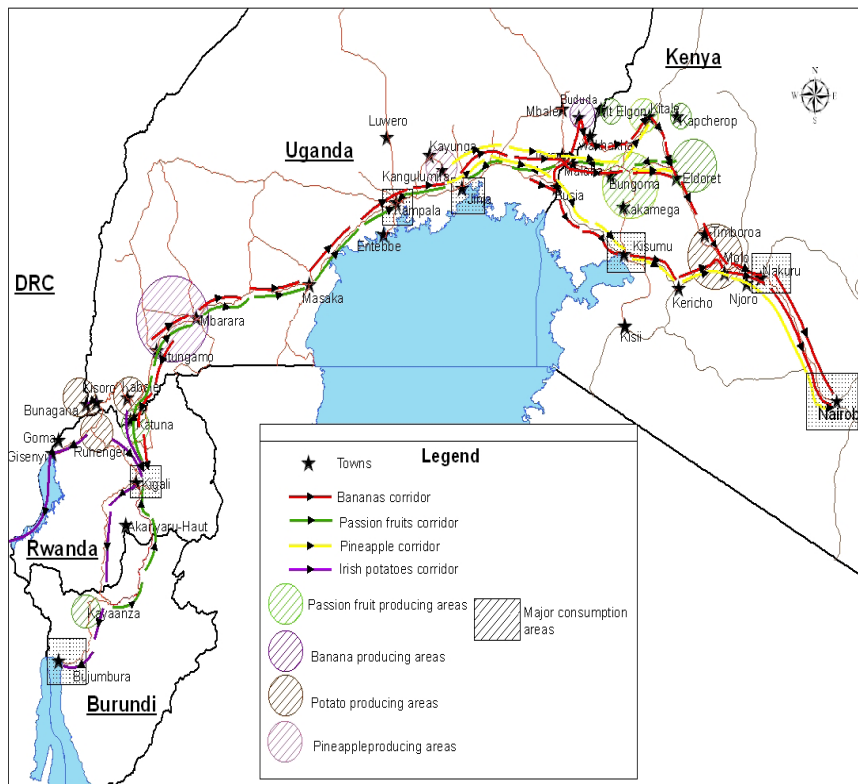
**HOW CAN CORRIDOR COUNTRIES ENHANCE PRODUCTION AND TRADE TO IMPROVE FOOD SECURITY, ENHANCE EMPLOYMENT WHILE ENSURING SUSTAINABLE USE OF NILE WATER?**

### **Production and trade in selected fruits and vegetables along the Kenya, Uganda, DR Congo, Rwanda and Burundi Corridor**

*John Mburu and Chris Ackello-Ogutu<sup>1</sup>*



**A**chieving food security and poverty reduction, while conserving the environment and scarce natural resources such as water in the Nile River, are unequivocally the common policy goals in the Nile Basin region. One of the critical sub-sectors dependent on water from Nile is horticulture. This sub-sector in most countries in the region has grown tremendously in the last decade, attracting a lot of interest from a wide range of stakeholders including governments, private sector entrepreneurs, donors and non-governmental organizations (NGOs). However, in reality, the potential contribution of the sub-sector in terms of overcoming poverty, food insecurity and unemployment has been underexploited and there is still scope for member states to benefit from increased interregional trade in fruits and vegetables. Given important challenges such as rapid population growth, climate change, water scarcity, non-tariff trade barriers, and the volatility of food prices, policy makers are now increasingly recognizing that investment in horticulture is essential for increasing the welfare of rural households.



**Map 1: Flow of fruits and vegetables in the study corridor**

### Production, consumption and trade patterns along the corridor

Production of fruits and vegetables in the Nile Basin region is generally favoured by attractive international prices and changes of consumption behavior/patterns among the working class. Banana production in the corridor is dominated by Uganda whose 2010 production was above 10 million tons. For the passion fruits, Kenya is the dominant producer followed by Burundi and Rwanda. The fruits are mainly consumed in Uganda though some are already being exported to Europe. In the last ten years, Kenya has been the leading producer of

pineapples in the region accounting, on average, for about 61% of total regional output; the bulk of the country's production comes from plantations. Kenya is followed by the D.R. Congo with an average share of 26%. However, in terms of small-scale production, D.R. Congo leads followed by Uganda which is a leading exporter of the commodity to Kenya (the leading consumer in the Basin). The main producer of Irish potatoes in the corridor was Rwanda.

Most of the Irish potatoes produced in this country were consumed at home though some were exported through cross-border trade mainly to Uganda and South Sudan. The study found that women dominate the retailing businesses of fruits and vegetables in all the markets of the corridor. However brokers were mainly young men in all the corridor markets and transport was mainly done by male youths aged 25-35 years.

### Production and trade constraints

The production constraints and trade impediments identified in the corridor were similar across the study commodities. The key production constraints were lack of certified seeds or planting materials, diseases such as potato blight, lack of storage facilities in the farms and markets (Photo 1), poor roads, expensive inputs such as seeds and fertilizers, lack of agro-processing capacity, lack of access to loans, price fluctuations between seasons, and lack of standards leading to legitimization of opportunism by brokers and traders. Key trade impediments among the cross-border traders included poor road and market infrastructure, lack of packaging standards, and lack of storage facilities in the market centers.



**Photo 1: Poor storage infrastructure in the corridor**

The adverse effect of these trade impediments was exacerbated by numerous and persistent tariff and non-tariff barriers which included high levels of taxation (lack of common tariffs on both sides of a particular border); multiple tax collectors who do not issue (genuine) receipts; local taxes instituted at unofficial crossing points (e.g. the local councils' barrier points); 'facilitation' fees (bribery) paid to government officials; and women being subjected to violence, threats and sexual harassment.

### Benefits of cross-border trade

Despite the presence of various production and trade constraints in the corridor, informal and formal cross border trade creates employment opportunities to local border communities: for example, it enables them to work as brokers, retailers, and transporters. Cross-border trade is a source of income for purchasing food commodities that are not available in a particular country at different times of the year thus improving food security. Trade also offers opportunities for promoting efficient use of Nile water in terms of supporting transport, irrigation and wet agro-processing but the potential is yet to be tapped fully due to lack of equipment, infrastructure and technical skills.

### Capacity building for enhanced production and interregional trade

The mode of conducting this study was innovatively geared towards strengthening the capacity of a regional commodity group, Horticultural Council for Africa (HCA). This was accomplished through: a) participation in the design of field work and data collection methods and instruments; b) participation in field data collection and analysis as well as in the workshops for experts, stakeholders and RATP/Steering Committee Members; c) sharing of research documents and data; d) joint preparation of potential investment profiles in the region; and, e) participation in the preparation of dissemination and policy advocacy materials.

### Recommendations on potential investments

The study generated important results that will help policy makers and other relevant stakeholders in the corridor to remove bottlenecks of production and trade, and structure 'smart' investments that are geared towards driving local populations' income a notch higher in future through increased benefits of interregional trade. Some of the investments recommended include establishment of wet agro-processing hubs (Photo 2) and regional seed multiplication centres, and implementation of Good Agricultural Practices (GAP) standards for fruits and vegetables in order to attract premium prices.



**Photo 2: Prospects for wet agro-processing are high in vegetables & fruits in the study corridor.**

<sup>1</sup> The authors generated this brief from a study conducted by MA Consulting Group and Resource Management and Policy Analysis Institute (REMPAI), with technical support from Hellen Natu, the NBI | NELSAP | RATP Project Trade & Policy Officer, on behalf of the Nile Basin Initiative (NBI)





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**HOW CAN CORRIDOR COUNTRIES ENHANCE PRODUCTION AND TRADE TO IMPROVE FOOD SECURITY, ENHANCE EMPLOYMENT WHILE ENSURING SUSTAINABLE USE OF NILE WATER?**

### **Production and Trade of Maize, Rice and Beans along the Tanzania-Kenya-Uganda-South Sudan and Tanzania-Burundi-Eastern D. R. Congo Corridors**

*John Mburu and Chris Ackello-Ogutu<sup>1</sup>*

**P**roduction of the major grains and pulses in the Nile riparian countries stagnated in the last two decades and only in the past five years some degree of growth started to emerge. In particular, the Eastern Africa region continues to experience deficits in most of the food commodities. Crop production is predominated by smallholders whose productivity has been severely affected by their over-reliance on rain-fed agriculture (rather than irrigation), increasing costs of off-farm inputs, poor infrastructure and rapid depletion of soil nutrients due to shortening of fallow periods.

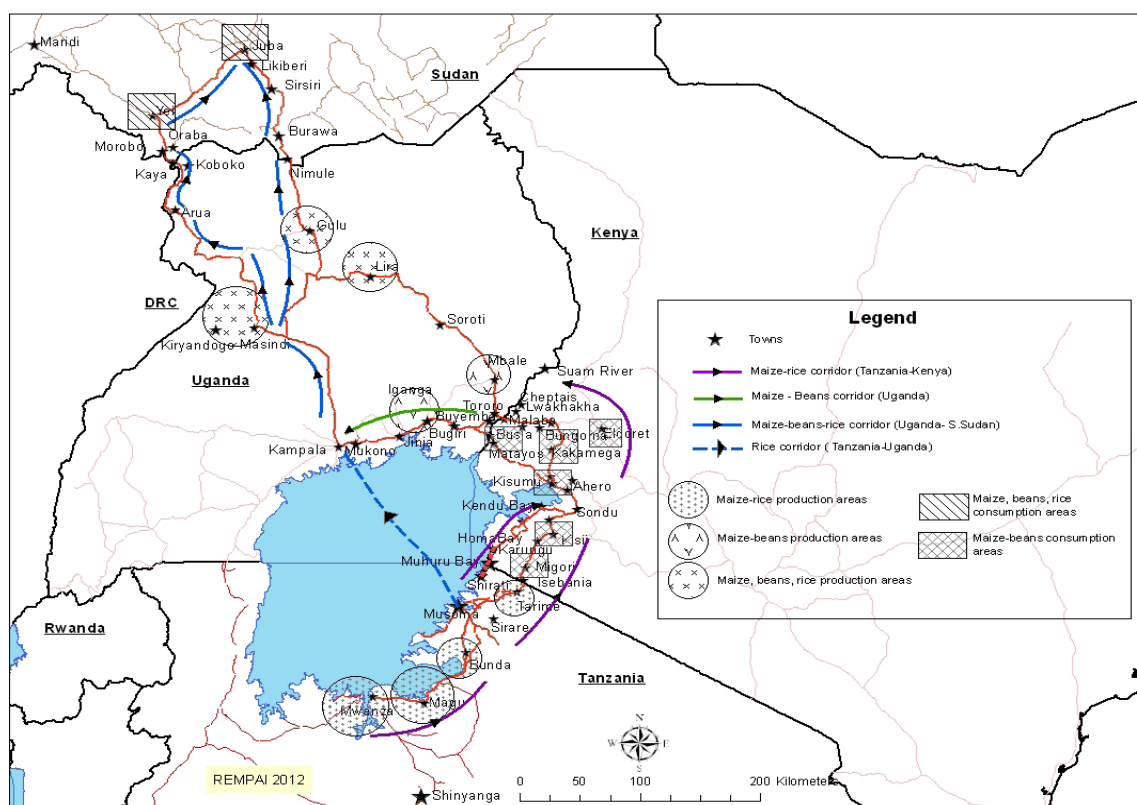
**Table 1: Yields of selected commodities**  
tons per ha - (FAO, 2004)

Commodity	Eastern Africa	Africa	Global
Maize	1.39	1.16	4.47
Wheat	1.28	2.03	2.66
Rice	1.12	1.87	3.84
Beans	0.60	0.62	0.70

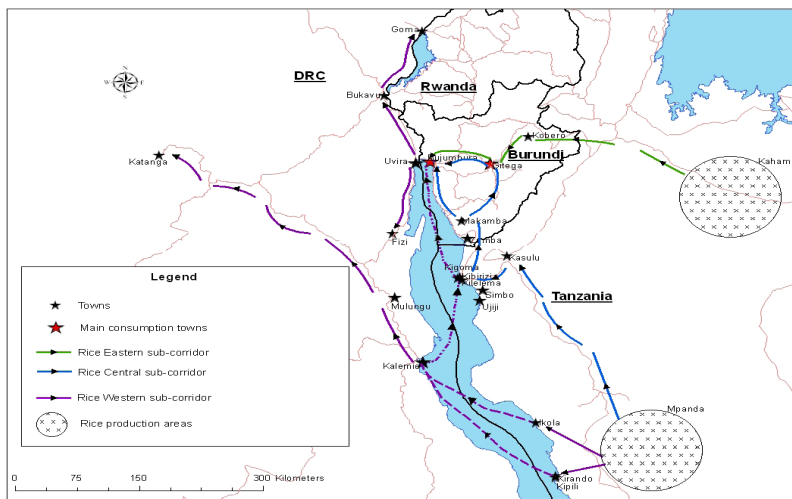
Although some of the Nile Basin countries, notably Kenya, Uganda, and Ethiopia had exemplary post-independence records in agricultural research and extension services aimed at promoting adoption of high yielding seed varieties and fertilizer (especially in the production of commercial crops such as tea, coffee, tobacco and horticulture), the adoption of these improved technologies by producers of grains and pulses has been singularly

disappointing. The yields of grains and pulses in Eastern Africa are below the averages for Africa, except in the case of maize; they also compare quite poorly with global averages (Table 1). The region's yields for the major cereals (maize, wheat and rice) are only 13, 10 and 20 percent of their potentials, at the research stations, respectively. Given important challenges such as rapid population growth, climate change, water scarcity, non-tariff barriers, and the volatility of food prices, policy makers are now increasingly recognizing that investment in production and trade of grains and pulses is essential for increasing the welfare of rural households.

This brief summarizes the main results of a RATP study that examined production and cross-border trade opportunities and constraints for grains and pulses, as well as investments and policy actions that can accelerate growth of interregional trade in two study corridors covering Tanzania-Kenya-Uganda-South Sudan (North East corridor) and Tanzania-Burundi-Eastern Democratic Republic of Congo (DRC) - Western corridor. The commodities considered were maize, rice and beans (Maps 1 and 2).



**Map 1: Flow of maize, beans and rice in NE Corridor**



**Map 2: Flow of rice along the Western Corridor**

**Production, consumption and trade patterns along the corridor**

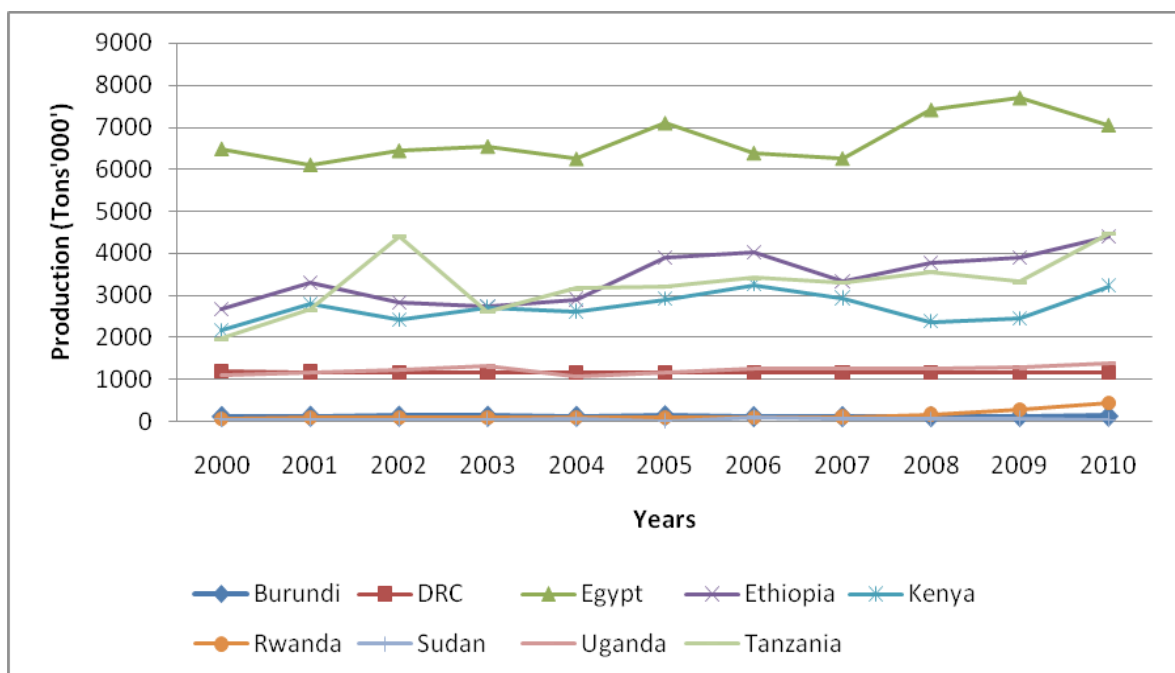
Output of maize in the study corridors was highly erratic and susceptible to weather patterns. Although the harvested area of maize in the corridor had generally been on the rise, productivity remained low due to sub-optimal application of fertilizers, low quality seed and a lack of improved husbandry practices that would enable the achievement of 7-8 tons/ha already being experienced in Egypt (Figure 1). Despite

efforts made to ensure food security in the region, production of cereals, generally, and maize supply in particular, continues to fall short of consumer demands thus necessitating imports. Egypt is the largest consumer of maize in the Nile Basin followed by Ethiopia and Kenya.

Although Egypt is by far the largest rice producer in the Nile Basin, Tanzania, Uganda, Burundi and Rwanda are the leading producers in the selected grains corridors. Production in Kenya, which is currently a net importer of rice, stagnated at an average of about 45 thousand tons between 1990 and 2004 but the period 2005-2007 saw some marginal increase in production to an average of 60 thousand. However still this is not able to meet the demand in the corridors. Rice consumption in the region is growing at fast rates and the commodity is becoming a strong substitute for the more traditional crops due to changing dietary trends, especially among rapidly increasing urban populations. The major rice consumers in order of magnitudes are Egypt, Tanzania and DRC.

The FAO statistics indicate that the production of dry beans in the Nile Basin is dominated by Tanzania (over 800,000 tons per year) followed by Uganda, Burundi, Rwanda, Kenya and Ethiopia. Egypt is the largest consumer of beans, followed by Kenya.

**Figure 1: Maize production in the Nile Basin**





**Photo 1: Poor post-harvest storage infrastructure**

## Production and trade constraints

In both corridors, the key production constraints are poor market infrastructure, lack of post harvest handling and storage facilities (Photo 1), and expensive fertilizers and other inputs. Some of the main reasons for the dismal production of maize, rice and beans in most of the countries in the corridors are high costs of inputs, mismanagement of large scale irrigation schemes (for rice) and lack of competitive markets in production areas.

The trade constraints include high tax rates (different countries with different taxes), official corruption and many road blocks (see section on NTBs), lack of market information and information centers, lack of standard units of measurement of bags, frequent government bans and lengthy process in obtaining trade permits (particularly in Tanzania), differences in axle load limit requirements, multiple and independent regulating institutions, harassment by policemen especially when they are not bribed, and high costs of transport.

### Non-tariff barriers (NTBs) to trade

Cross-border trade in grains and pulses in the both corridors is affected by the following typical NTBs that continue to persist in the Nile Basin despite efforts of the regional economic corporations (RECs) aimed at fast-tracking customs unions as a means of freeing movement of goods and services: i) physical barriers (poor road and storage infrastructure, poor market infrastructure, poor customs infrastructure especially along the South Sudan border points, lack of telecommunication services; ii) cumbersome administrative procedures; iii) non-tariff fees and taxes; iv) insecurity and movement restrictions; and, v) lack of harmonization of sanitary and phyto-sanitary requirements and other food safety and quality standards.

It is estimated that the cost implications for these NTBs for different commodities and the borders are a reality and hinder trade. The NTBs together with other constraints relating to weak institutional capacity, corruption and recurrent civil strife constitute a major hindrance to formal cross-border trade of grains and pulses in the region. Other consequences of these constraints are poor producer motivation resulting from limited market access and remuneration; low agri-business competitiveness due to unreliable supply of locally sourced raw materials; high transaction costs; and poor integration between deficit and surplus markets within the region that lead to inability to effectively manage price volatility.

### Benefits of cross-border trade

The study shows that cross border trade plays a crucial role in fighting food insecurity, creating employment and reducing supply variability in the deficit countries (e.g. in Kenya and South Sudan in the case of maize). Production and trade in rice and maize is mostly done by both adult male and female persons whereas trade in beans was dominated by women. This creates employment for these groups of local populations. In the markets, for instance, young women constituted the largest proportion of informal traders of grains and pulses but they did not own the businesses. The current state of affairs (increasing demand and the fact that South Sudan has not started rice production as a form of import substitution) offers opportunities for increased investments on irrigated rice in the corridors. However, irrigation has to be done in a sustainable way to avoid denying water to other users of the Nile River.

### Capacity building for enhanced production and inter-regional trade

The study employed peer learning and learning-by-doing methods to ensure the capacity of a Regional



Commodity Group, the Eastern Africa Grain Council (EAGC), was built mainly through the following efforts: a) participation in the design of field work and data collection methods and instruments; b) participation in field data collection and analysis as well as in the workshops for experts, stakeholders and RATP/Steering Committee Members; c) sharing of research documents and data; d) joint preparation of potential investments in the region; and, e) participation in the preparation of dissemination and policy advocacy materials. EAGC will also have access to the value chain approach and cross-border trade monitoring instruments developed by the MA and REMPPI team of experts.

### **Conclusions and recommendations on potential investments**

The corridors have abundant land and water resources making production of grains and pulses a priority area in strategies aiming at poverty reduction. Thus the governments should direct more resources towards achieving higher crop productivity by increasing use of fertilizer and high yielding seed varieties and by expanding irrigated crop area. Other policy actions would include overcoming post-harvest storage related problems and promotion of competitiveness and access to agricultural markets by smallholders: promoting market access by using innovative ICT-based approaches, providing financial resources, adding value and seeking new markets (within the region and abroad) and taking advantage of the agro-climatic diversity and abundant natural resources in the region.

The study identified two different categories of potential investments to address the constraints to cross-border trade in grains and pulses. The first category comprises investments that the Nile Basin Initiative (NBI) Secretariat could prioritize for immediate enhancement of inter-regional trade, namely: i) Improving Lake Victoria water transport and landing sites; ii) Supporting the private sector to construct storage facilities for grains and pulses located strategically along the borders; iii) Developing a regional agricultural trade training centre (administered by the Eastern African Grain Council - EAGC); and iv) Supporting development of wet agro-processing infrastructure for grains.

The second category of investments requires NBI Secretariat to initiate debate on their harmonization and, where pilot projects are already underway, a discussion of how they could be scaled up to benefit more stakeholders in the region. These investments include development of Grains e-market and Maize Standards 2013 whose implementation could be facilitated by EAGC.

<sup>1</sup> The authors generated this brief from a study conducted by MA Consulting Group and Resource Management and Policy Analysis Institute (REMPPI) with technical support from Hellen Natu the NBI | NELSAP | RATP Project Trade & Policy Officer, on behalf of the Nile Basin Initiative (NBI)



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**HOW CAN CORRIDOR COUNTRIES ENHANCE PRODUCTION AND TRADE TO IMPROVE FOOD SECURITY, ENHANCE EMPLOYMENT WHILE ENSURING SUSTAINABLE USE OF NILE WATER?**

### **Methodology for Estimating Structure and Nature of Marketing Costs of different Actors along a Value Chain in Trade Corridors**

*John Mburu, Patrick Irungu and Chris Ackello-Ogutu<sup>1</sup>*

**R**egional trade is premised on 'gains' to both exporter and importer but this often masks the reality that trade invariably creates short term losers who may require a helping hand from government. It is these fears of short term 'static' losses from trade that influence trade policies such as tariffs and non-tariff barriers whose aim is usually to protect potential domestic losers, comprising largely consumers and import competing producers.

In a marketing system, marketing costs arise through the value chain of the commodity – from post-harvest storage, processing and value addition, and movement from production areas to consumption points. These costs can sometimes be very large thus increasing the overall costs and risks of engaging in trade. The main challenge in most trade studies is to identify the losers and gainers, and their actual losses which can be proxied by their marketing costs. Studies estimating such costs are often rare due to lack of an appropriate methodological approach. This contributes to increased ignorance among policy makers on marketing costs of the value chain players, making it difficult to develop policies that can support intra- and inter-regional trade.

This brief summarizes the main insights into the methodology used in the RATP study to estimate the structure and nature of marketing costs faced by various players of supply and value chains. The methodology could be utilized by the Nile Basin Initiative (NBI) Secretariat, country governments, private sector, regional commodity groups (RECs) such as HCA, EAGC and the upcoming North Eastern Africa Livestock Council (NEALCO) to update their databases or in conducting fresh studies to estimate trade volumes and costs.

The methodology entails two main steps: 1) mapping commodity corridors to describe major value chains and main players, as well as to assess traded volumes and directions of flow; and, 2) collecting quantitative data (costs, volumes traded, prices, etc) from individual value chain actors.

## Mapping production and trade corridors

The mapping of trade corridors normally starts by collecting information on the source of the commodity crossing the border. This can only be done at the country border points of the commodity corridor. Once the direction of flow of the commodity is known, a value-chain<sup>1</sup> analysis is applied in mapping major chains and actors along the corridor. The cereals, fruits and vegetables, and livestock value chains usually have four stages: production, marketing, processing<sup>2</sup>, and distribution. Each of these stages has actors that directly handle the product from the 'farm to fork', such as farmers, traders/exporters, processors, and retailers. Other indirect actors that contribute to the successful flow of product through the value chain such as government officials, researchers, extensionists, and credit institutions also need to be identified.

<sup>1</sup> A "value chain" consists of the set of activities undertaken in the management of the flow of goods and services along the value-added chain of agricultural and/or food products, in order to realize superior customer value at the lowest possible cost (Genova et al., 2006).

<sup>2</sup> The RATP study focused on live livestock and therefore the processing stage did not feature.

This mapping exercise starts with conducting participatory rural appraisals at the production areas (Photo 1). Here, qualitative techniques such as focus group discussions, key informant interviews, extended case studies and participant observation are employed (see the full report for details of these techniques).

The researchers then follow the commodity as it flows through various towns within the corridor to the border points. In each town, key informant interviews guided by various checklists are conducted. Checklists to be used to elicit information on trade activities should target: wholesale and retail traders, transporters, processors, and other indirect actors such as government officials/regulators and leaders of organizations of producers/traders/processors.

The mapping is done to establish key market centres/towns in both surplus and deficit areas of the different commodities being studied. Further, it is used to establish the number of market actors for each commodity in order to facilitate sampling. To eliminate small and *ad hoc* trading markets from the survey, only formal (licensed) markets which have designated market days are considered. However, the condition of 'having market days' has to be relaxed for big towns and cities which have large markets that are active on a daily basis.

**Photo 1: Focus Group Discussion in a PRA**



**Collecting quantitative data (costs, volumes traded, prices, etc) from individual market actors**

Quantitative data are generated through personal interviews using a semi-structured questionnaire. This questionnaire targets randomly selected market actors in identified key markets in towns, cities and peri-urban areas, along the corridors. The questionnaire has to be carefully

pre-tested and revised before administration. Trained enumerators can then be used to conduct personal interviews with randomly selected market actors.

**Sampling procedure and conducting of trader interviews**

Having selected the survey markets during the mapping exercise, the sampling frame for different chain actors in each market is established by conducting a head account which is then authenticated or validated by key informants, regular traders and licensing officers or 'market *askaris*' by asking them to confirm the number of suppliers who 'normally' frequent the market. A probability proportional-to-size systematic random sampling is used to select the interviewees out of which a sample of about 20% from each category of actors in every market is selected. This implies that markets with many actors for a particular category will get a larger representation. Also, small markets with less than five actors for a particular category shall not be considered for the quantitative survey. Efforts must be made to avoid double counting of actors that move from one market to another (mobile actors) though such actors can be used as

key informants when tracking origin and destination of commodities.

Both formal and informal traders have to be interviewed, using a semi-structured questionnaire. Key sections of this questionnaire should include, among others:

- Socioeconomic and demographic data of men, women, male and female youths involved as market actors, e.g., gender, age, education, etc
- Key functions of actors (formal and informal) and agricultural commodities involved and approximate amounts
- Details of respondents' businesses, including financial aspects, and legal requirements
- Post-harvest technologies, transport modes, their costs (charges), advantages, disadvantages and reasons for preference
- Post-harvest losses, magnitude/extent of losses and reasons for losses, possible solutions to curb the losses
- Cost of production, storage, transport, market transactions; operating costs, depreciations, maintenance and repair, organizational/managerial costs; costs of institutional arrangements (e.g., contracts), waiting times for transactions, and costs (losses) due to breach of contracts, etc
- Local taxes, fees and regulatory measures, roadblocks, expenses at weighing bridges, bribes to public officials, costs (losses) due to pilferage in storage or transit, costs arising from poor road conditions, costs of poor policy harmonization across the border, etc
- Cost of commercial transaction arrangements; regulations and their associated costs, reservation and their associated costs, time wastage and other expenses, cost implications from terms and conditions and the payment methods used, etc, and
- Labour allocation among adult women, adult men, female youth and male youths, etc.

The above sampling and interviewing processes shall be repeated in all selected markets within the corridors; whether they shall be mainly primary producer markets, secondary producer markets or consumer markets. The data collected are then entered into a computer and analyzed using reliable statistical software.

The methodology for cross-border trade monitoring is given in Ackello-Ogutu and Echessah (1998). Basically, border monitoring is done along established crossing points with basic infrastructure such as roads, electricity, telephone, storage, resident commercial population and some form of public security. Site selection should be guided by the volume of trade across the border, security, communication, transport links and availability of supporting institutions and recruitable personnel. Because border monitoring is not meant to record contraband, it should not be done at odd hours or in places with compromised security. Border monitoring uses a previously designed data recording sheet that shows the date, country where the monitoring is

being done, border point, name of the border monitor, nearest border town, quantity traded per day and the unit commodity price in the local currency.

### **Challenges in sampling and estimating costs among commodity corridor actors**

The sampling and cost estimation are not without challenges. In the live livestock corridor for example, the following challenges were experienced:

1. High mobility of value chain actors – most of the actors (producers, traders, middlemen, transporters, etc) had no established operating stations in the markets. Hence, sampling and administration of survey instruments were challenging.
2. Language barrier – this was especially true in Ethiopia and Sudan although it is expected wherever the literacy levels are low and analyst speaks a different language from that of the respondents.
3. Multiple roles – some actors combined the roles of brokers and traders at the same time. This made it difficult to delineate their real market function.
4. Outright refusal to take the interview – some actors were reluctant to participate in the interview citing prior commitment. Some wanted to know how the study would benefit them personally.
5. Difficulty of value chain actors in recalling quantitative information especially that with a time element such as seasonal prices, traded volumes, costs, etc. This was exacerbated by lack of records for business transactions and the fact that many of the actors could not read or write.
6. Lack of a standardized measure of size/body condition of animal, which makes it difficult to compare prices across the borders.
7. Exaggerated responses – it is a common practice among the inhabitants of marginal areas to exaggerate costs and challenges they face in anticipation of getting help from external agents.

### **Prospects for use of the methodology by Regional Commodity Groups and other actors**

It is expected that the methodology developed by this study will be adopted by RCGs such as HCA, EAGC and the NEALCO, as well as other actors interested in cross-border trade analysis. While the HCA and EAGC have already been trained, NEALCO has not. There is therefore need to train its members on the methodology to enable them conduct cross-border trade analysis on their own. There is also potential for the methodology being used in monitoring cross-border trade across water bodies such as Lakes Tanganyika, Victoria and Aswan.

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