



# Note

## **Environment related Standards in Maize Value Chains and their coherence to Existing Policy Frameworks in East Africa Community**

By Nathan Gashayija

### **Summary**

This note explores the environmental standards for the maize value chain within the East African Community (EAC). It begins by defining environmental standards and compliance, and what that means for the maize value chain. Within the EAC there are many environmental policy frameworks in place such as the EAC treaty and EAC vision 2050 to promote a common objective for the betterment of the environment. Despite that at a national level there is a gap between the implementation and the set policy framework concerning the maize value chain that need to be addressed.

## Introduction

Environmental law is an essential tool for the governance and management of the environment and natural resources. It should be the foundation of national and regional policies & actions to ensure that the use of natural resources is done equitably and sustainably.

In the East African Community, since 1995, partner states of Kenya, Tanzania, Rwanda, Burundi, South Sudan and Uganda have been developing and harmonizing various environmental laws in selected sectors. The process of developing and harmonizing environmental laws is intended to lead to the enactment or amendment of the internal legislative, regulatory and administrative framework of each country. Environmental standards are set by both the governments and private individual companies and can include prohibition of specific activities, mandating the frequency and methods of monitoring, and requiring permits for the use of land or water.

Environment related standards have increasingly become the tool of choice in international value chains, covering products from crops to electronics and services. Major global brands have integrated their sustainable sourcing commitments into their corporate strategies.

The development of East African Standards (EAS 2:2011 ICS 67.060) has been necessitated by the need for harmonizing requirements governing quality of products and services in East Africa. It is envisaged that through

harmonized standardization, trade barriers which are encountered when goods and services are exchanged within the Community will be removed.

In order to meet the above objectives, the EAC partner states have enacted an East African Standardization, Quality Assurance, Metrology and Test Act, 2006 (EAC SQMT Act, 2006) to make provisions for ensuring standardization, quality assurance, metrology and testing of products produced or originating in a third country and traded in the Community; in order to facilitate industrial development and trade as well as helping to protect the health, safety of society and the environment in the Community.

In line with above, the EAC further adopted East African Standards for staple foods. The nine priority product standards reviewed were for maize (grain), wheat, milled rice, dry beans, dry soybeans, maize flour, wheat flour, sorghum flour and millet flour. The nine product standards for staple foods and two standards for sampling and test methods are expected to become legally binding in all EAC partner state since June 2018 and this is supposed to impact grain trade where by farmers accessing better and greater markets within the region, while consumers would be provided with safe and high-quality food grain products.

A value chain is a set of linked activities that work to add value to a product; it consists of actors and actions that improve a product while linking commodity producers to processors and markets. A number of environment standards have been developed along agro value chain to

ensure environment management while ensuring productivity

## Conceptual Framework

Environmental standards in environmental management are an important tool which ensures all people living on this earth the right to a clean and healthy environment. East African countries are undergoing a high level of socioeconomic transformation which tends to have an impact on the environment in terms of threatening the carrying capacity of the natural resources available. Use of environmental standards by these countries will therefore ensure that for example. While countries produce, sell and consume maize, they do not adversely and significantly harm the environment and natural resources. The environmental standards, when applied in East Africa Community could ensure efficiency, and competitiveness in agricultural value chains, including maize.

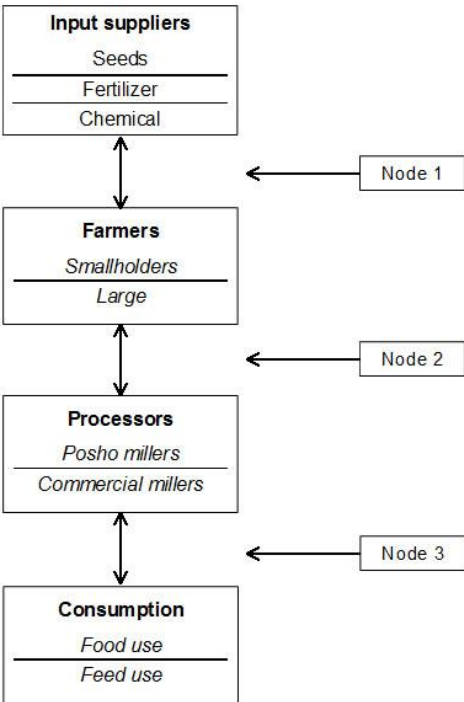
Value chains provide an analytical and diagnostic tool for identifying viable, remunerative income-earning opportunities for poor households in the rural developing world. Value chains are found at the core of high-impact and sustainable initiatives focused on improving productivity, competitiveness, entrepreneurship, and SME growth. Value chain

approaches are revolutionizing agriculture and the food industry. The focus has shifted from agricultural production to consumer demand, marketing and, the coordination of product flows from producers to consumers. The value chain concept acknowledges that production must be linked to demand and the critical role of organizing the flow from farmer to consumer opportunities.

Standards could be used for different environmental objectives and put in place through different methods. It is important that the correct principles are used to ensure full protection of the natural environment. Standard setting could be an important contribution to establishing strategies to achieve sustainable development

Considering the example of the Kenyan maize supply chain, which has been described and mapped by Chemonics (2010) and Kirimi et al. (2011). The keys stages are production, collection, transport, trading, processing, retail, and final consumption. In most years, Kenya is able to meet its domestic maize requirement. However, in years when there is a major deficit, demand has to be met by imports, which requires a greater role for importers, large processors, and the National Cereals and Produce Board

**Figure 1: Stylized value chain for Kenya Maize sector**



Source: Report of the political economy of maize in Kenya, Latha Nagarajan, International Fertilizer Development Center, 2012

**Definition of key concepts and issues**

● *Environmental Related Standards*

Environmental regulation and standards refer to a set of specific rules that authorize and control a given firm’s activities so that it operates within legally and socially acceptable parameters. They produce quantifiable and enforceable laws that promote environmental protection.

Environmental standards are administrative regulations or civil law rules implemented for the treatment and maintenance of the environment. Environmental standards are set by governments and individual private companies and can include prohibiting specific activities, mandating the frequency and methods of monitoring, and requiring permits for the use of land or water. Standards differ depending on the type of environmental/commercial activity.

The basis for the standards could be determined by scientific opinions from varying disciplines, the views of the general population, and social context. As a result, the process of determining and implementing the standards is complex and is usually set within legal, administrative or private contexts. Environmental standards should preserve nature and biodiversity protect them against damages, and repair past damage caused by human activity.

● *Environmental Compliance*

It means conforming to environmental laws, regulations, standards and other requirements such as site permits to operate. In recent years, environmental concerns have led to a significant increase in the number and scope of compliance imperatives across all global regulatory environments. Being closely related, environmental concerns and compliance activities are increasingly being aligned with corporate performance goals and being

integrated to some extent to avoid conflicts, wasteful overlaps, and gaps.

Compliance with the above requirements and obligations requires meeting certain conditions. Typically, these include:

- Managing monitoring programs or schedules, ensuring that the required regulations for the permit have been met, at the correct locations parameters, and frequency
- Pre-processing, performing calculations and validating the data for compliance with any alert or reporting levels
- Generating routine compliance reports for authorities.

Environmental standards should preserve nature and the environment, protect against damages, and repair past damage caused by human activity. Monitoring the firm's compliance with these regulations and standards is of vital importance, as this yields information for both the regulated agent and authorities. While enforcing environmental compliance, the application of appropriate economic instruments for environmental conservation by governments has proven elsewhere to be more effective than the use of orthodox command and control regulation. Advantages of using market based approaches for environmental conservation include potential for attaining a specified level of environmental protection at a minimum cost; the ability to directly involve key players in the market circle, namely, the producer and the consumer, by making the two pay directly for environmental damages emanating from the production process and consumption of goods and services.

Inspection should ideally be a mere cross-check on monitoring, to confirm whether agents are in compliance. However, achieving compliance quite often requires enforcement of regulations and standards. The monitoring of activities or agents that have to meet environmental standards is as important as the nature and quality of the standard itself. If limits are not clearly measurable, the compliance with standards that cannot be easily monitored by the agents themselves or by authorities renders the tool virtually useless. Thus, methods to verify compliance with standards must be as clear and as simple as possible in order for agents to know how they must perform and whether they can prevent actions that might put compliance at risk. Similarly, authorities should be able to determine accurately and rapidly if the agents are compliant

## **Environmental compliance in maize value chains of EAC**

The major forces putting pressure on maize production include a high population density that is heavily dependent on the limited land resource, and the ecological unsustainability of increased agricultural production. This has led to land fragmentation and reduction of maize farm sizes with continuous cultivation of land with little or no fallow, leading to soil erosion and many other negative environmental consequences.

Such situation is exacerbated by the weak extension and research services and, the increasingly erratic weather including frequent floods in some areas of these countries and/or prolonged drought with occasional heavy rains.

Another environmental issue is the increased focus on wetlands (marshlands) in search for

cultivable land for maize in the EAC. This reduces the ecological role of the wetlands in maintaining and renewing the production capacity of maize farm land.

The need to bring all stakeholders in the agricultural production value chain on board in regards to the role of natural and agro ecosystems in sustaining production, and what the respective stakeholders can do to manage the ecosystems better, is a critical issue for efficient and effective environmental compliance in maize production in the EAC.

### **Entities in charge of environmental compliance in East Africa Community**

The section mentions the responsible entity in terms of environmental compliance in 5 East African countries. Going further, it also briefly describes how this entity supports the government's environmental compliance at national level, using the example of the ban of plastic bag

**Table 1: Environmental Compliance regarding the ban on plastic bags**

Country	Responsible Entity	Case study on the ban of plastic bags
Rwanda	Rwanda Environment Management Authority	Rwanda’s mission to maintain a clean and healthy environment has been going since 2008 when it banned the use of non-biodegradable plastic bags and packaging materials. To date, Rwandans use only bags made from paper, cloth, banana leaves and papyrus, among other biodegradable materials.
Uganda	National Environment Management Authority	<p>2007: Uganda announces a ban on plastic bags.</p> <p>2009: The Finance Act of 2009 prohibits the manufacture, sale and use of plastic bags that are less than 30 microns. The ban is set to take effect on March 31, 2010, but traders and manufacturers protest and impede implementation. Production continues.</p> <p>2015: Uganda’s National Environment Management Authority tries to implement a ban on the manufacture and use of polythene bags less than 30 microns. Uganda postpones the ban, saying that stakeholders and other ministries need to discuss. In Kampala, women create woven, reusable bags, part of a new industry for creating alternatives to plastic.</p> <p>2017: The East African Legislative Assembly passes the EAC Polythene Materials Control Bill, which aims to stop the manufacture, importation, sale and use of “polythene materials.”</p> <p>2018: Uganda announces intentions to enforce a ban on plastic bags. Calls for a gradual phase-out of production. Advocates for recycling in lieu of a ban. In November, the Ugandan Parliament passes the National Environment Bill, banning plastic bags less than 30 microns.</p> <p>2019: In January, Uganda announces a ban on all plastic bags in schools and universities. In February, Uganda assents to the National Environment Act 2019, which prohibits the use of plastics less than 30 microns.</p>
Tanzania	National Environment Management Council	<p>Tanzania announced a nationwide ban of plastic bags starting from 1st June 2019.</p> <p>Plastic carrier bags regardless of thickness were prohibited from being imported, exported, manufacture, sold, stored or supplied for use in the country</p>
Kenya	National Environment Management Authority of Kenya	<p>Kenya banned the use, manufacture and sale of environmentally harmful plastics, polythene bags and packaging materials.</p> <p>In 2017, Kenya introduced one of the world’s toughest bans on plastics — just using one can be punished with up to four years in prison or a fine of \$38,000</p>
Burundi	National Institute for Environment and Nature Conservation	<p>The government banned the use of plastic bags in August, 2019 allowing an 18-month period for consumers and retailers to finish their stock.</p> <p>Presidential decree on August 13, 2018 signed by President prohibiting the “manufacture, import, storage, sale and use of all plastic bags and other plastic packaging</p>

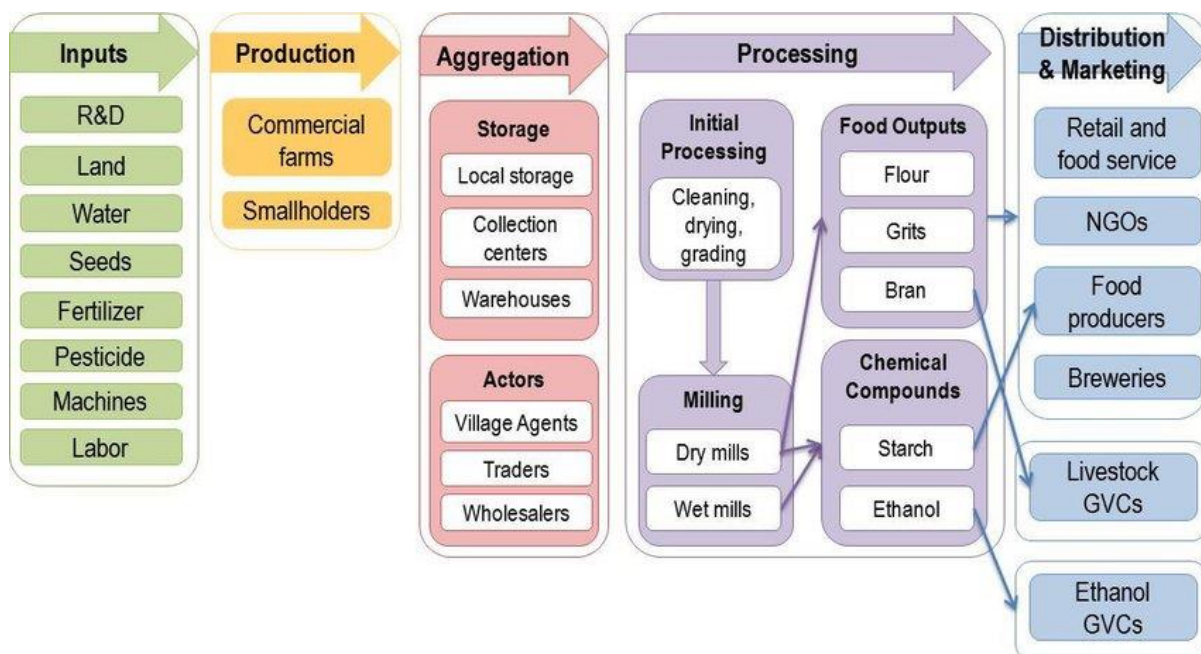
## A closer look at the maize value chain

The main actors in the maize value chain are input providers, farmers, traders/aggregators, processors (mills) and downstream participants in activities such as retail, food manufacturing, brewing, and animal production. The primary actors, along with their position in the value chain, are identified in Figure 2 below. The section that follows offers short descriptions of key actors in the chain.

**INPUTS:** These are basic requirements

necessary for production of maize. The most important inputs in agricultural value chains are typically land, seeds, fertilizers, agrochemicals (herbicides, fungicides and pesticides), farm equipment and, water and irrigation equipment. Other services in the pre-production phase include extension services, market information, credit, and certifications for production in niche organic or other high-value markets. Poorly developed input markets inhibit the use of fertilizers, drought and disease resistant seeds, and increased mechanization, contributing to low productivity, which is an important problem in many countries across Africa (AGRA, 2013).

**Figure 2: Key actors in Maize value chain**



Source: Maize value chain in East Africa report, May 2017

**PRODUCTION:** This is the second stage in agro value chains that refers to growing of a particular crop by commercial farmers on large scale for commercial purposes or by smallholders for home consumption. Geographic, environmental, social and political characteristics are important contextual drivers of competitiveness in production. Soil types,

rainfall or access to water, temperature variations, as well as land ownership structures significantly affect maize cultivation. For the global industry, cereal crops tend to have lower margins at the production level and success often depends on economies of scale; competitive production of these crops is thus often concentrated in large scale, modern



production operations with heavy mechanization and low labor engagement (Murphey et al., 2012).

**AGGREGATION:** This refers to the work of middle men in the value chain, whereby village agents, traders and wholesalers buy for storage and selling later when demand of the produce increases. This segment of the chain is more prominent in markets that do not rely on large-scale modern production. In many developing countries, the major aggregators are producer cooperatives, small- and medium-sized traders, or processors that have vertically integrated into this stage of the chain (da Silva et al., 2009). In informal maize value chains, aggregation occurs through multiple layers of small traders, who sell to small-scale processors or exporters. In both formal and informal chains, some degree of aggregation occurs to achieve economies of scale. Village agents are the traders who generally work most closely with farmers

**PROCESSING:** This refers to activity of transforming the raw produce into finished products ready for consumption. Cereal products must be processed before being incorporated into a range of end products. Initial tasks include cleaning, drying, and grading. There are two primary milling techniques that follow for maize: dry milling and wet milling. Both processes break down maize into a range of outputs; however, there are also costs and benefits for each. Dry milling, which describes the grinding of the entire kernel in hammer or rolling mills, is less capital intensive and yields a greater array of inexpensive food outputs, including flour. While the maize in wet milling is separated from its nutritional content and therefore not used for direct human consumption, the process produces an increased

range of chemical by-products (Peña-Rosas et al., 2014; Gwartz & Garcia-Casal, 2014; OHSA, 2014). While dry mills are more common globally because of the dietary benefits and lower investment costs, major companies have recently constructed wet mills in emerging nations to produce a range of food additives.

**MARKETING AND DISTRIBUTION:** This refers to the activity of taking the final finished products to consumers. Maize's end uses can be divided into three primary categories: (1) human consumption; (2) ethanol for fuel; and (3) animal feed. Prominent outputs of the milling segment that are destined for human consumption are categorized by particle size and include flour, grits, meal, bran and kernels. All can be used for a variety of staple products, including bread, porridges, tortillas, arepas, cornbread, and couscous. Grits or flour are common inputs for breweries. Other food products include corn oil, corn starch and sweeteners among the final products.

## **The nexus between environmental standards and agricultural value chains**

Value chains tend to be more complex, to involve numerous interlinked activities and industries with multiple types of firms operating in different regions of one country or in different countries around the globe. For instance, agro-food value chains encompass activities that take place at the farm as well as in rural settlements and urban areas. They require input supplies (seeds, fertilizers, pesticides, etc.), agricultural machinery, irrigation equipment and manufacturing facilities, and continue with handling, storage, processing, packaging and, distribution activities which affect the

environment in areas of locality.

Policy-makers focus increasingly on the development of agro-industries with emphasis on promoting sustainable agro-value chains as a means of further expanding the leading role played by agriculture in economic growth and poverty reduction. Their development has a positive impact on employment in both rural and urban areas (off-farm processing and income diversification), offers market access to smallholders, and creates business linkages to SMEs. It also builds up responsible and sustainable relationships among chain actors and enhances food security by reducing post-harvest losses and by extending the shelf life of food and fibers for rapidly growing urban populations. With their combined effects of employment gains and food security, efficient agro-value chains can play a key role in reducing poverty in the developing world. However, to participate successfully in sustainable agro-value chains, developing countries must cope with the numerous challenges and constraints posed by continuously changing environmental use. Most noteworthy among these challenges are the impact of the irrational use of artificial fertilizers and pesticides to increase agricultural output, intense pollution caused by agro-industry processing and, the choice of packaging materials used (some are hazardous to the environment like plastic bags).

The effect on the environment along the agro value chains is normally evidenced during pre-production and partly in post-production stages of the value chain. This is simply because of fertilizer application and tillage activities which may be done in an irrational way thus affecting the environment.

## **Environmental Policy frameworks and Agricultural value chains in EAC**

### **Environment policy frameworks in EAC**

This section highlights key important policy frameworks (i.e. part of those frameworks) that guide environment management/compliance in the EAC. These range from the EAC Treaty, protocols, legislative laws, the mutual recognition of international agreements, EAC Policies and, strategies and regulations. Some of these include the Treaty establishing EAC, Protocol on Natural Resources and Environment Management, EAC Vision 2050, International environment agreements, EAC Industrialization Policy and Strategy, protocol establishing Lake Victoria basin commission and many others. These in general have been agreed upon by EAC Partner States to guide environment management and promote a common agenda on environment.

### **EAC Treaty**

Article 111 of the EAC treaty provides that partner states recognize that development activities may have negative impacts on the environment leading to degradation and depletion of natural resource. Art.112 obligates Partner States to take measures to control trans boundary air, land and water pollution arising from developmental activities and urges. Partner states are to adopt Common Environment control regulations, incentives and standards encourage the manufacture and use of biodegradable, pesticides, herbicides and packaging materials and to adopt common environmental standards for the control of atmospheric,

terrestrial and water pollution arising from urban and industrial development activities.

### **EAC Protocol on Environment and Natural Resources Management**

This was initially signed by the Republic of Kenya, Republic of Uganda and United Republic of Tanzania on the 3rd of April 2006. The Protocol has since been ratified by the Republic of Uganda and the Republic of Kenya in 2010 and 2011 respectively.

The Republic of Rwanda and the Republic of Burundi were not yet EAC partner states at the time the protocol was negotiated and signed but latter acceded. This protocol provided a framework for the harmonization of environmental and natural resource management in the EAC mainly in the areas of Management of Trans boundary Resources, Management of Biological Diversity, Management of Forest and Tree Resources, Management of Wildlife Resources, Management of Water Resources, Sustainable Management and Wise Use of Wetland Resources, Management of Coastal and Marine Resources, Management of Fisheries Resources, Management of Genetic Resources, Management of Mineral Resources Management Energy Resources, Management of Mountain Ecosystems, Soil and Land Use Management, Management of Rangelands, Combating Desertification and Mitigating Effects of Drought ,Mitigating the Effects of Climate Change , Protection of the Ozone Layer ,Tourism Development, Biosafety and Biotechnology, Management of Chemicals, Management of Wastes and Hazardous Wastes, pollution Control and Management.

### **EAC Vision 2050**

Natural resource management will encompass forestry, wildlife and mineral resources and other natural resources. This envisions realization of effective natural resources, environment management and, conservation with enhanced value addition.

### **EAC Industrialization policy and strategy**

This is a five year medium term development plan that stipulates the priority development initiatives of the EAC including natural resources and environment management and, food security among others.

### **EAC Environment Agenda**

The East African Community is endowed with various natural resources such as forests, water, wildlife, mountains, minerals and energy resources. The natural resources are the drivers of national and regional economic development. The objective of the Environment and Natural Resources Management sector in EAC is to promote sustainable use and management of natural resources and promote adaptation to climate change.

The EAC Treaty provide for co-operation in environment and natural resources. The EAC Partner States have agreed to take joint effort to co-operate in efficient management of these resources.

Key priorities of the sector include Climate Change adaptation and mitigation, natural resource management and biodiversity conservation, disaster risk reduction and management and, pollution control and waste

management.

The sector is strengthening the resilience and sustainable management of biologically significant trans-boundary freshwater ecosystems; supporting adaptive capacities and resilience to the negative impacts of Climate Change; developing and harmonizing standards, framework and regulation on pollution control and waste management; and, strengthening Disaster Risk Reduction management and policy.

The Environment and Natural Resources Sector highlights the following:

- Natural resources Management and Biodiversity
- Climate change adaptation and Mitigation.
- Disaster risk management
- Pollution and waste management.

## Maize value chains in EAC

Agriculture is of paramount importance to the economies of EAC countries, accounting for over 80% of total employment in 2014. However, agricultural exports are quite limited and constrained by a large informal sector. This is also the case for maize: between 70-80% of EAC maize is accessed through untaxed and unregulated channels. Globally, maize generates USD \$219.5 billion in revenue, making it the world's third most dominant crop, next to rice and wheat. End uses depend on geographical location and food security considerations. While developed countries focus on animal feed and ethanol production, maize is mainly used for

home consumption in developing countries.<sup>1</sup>

The four leading grain traders (the “ABCDs”) control 70-90% of globally traded grain, buying and selling grain to food manufacturers, biofuel companies, and animal feed corporations. Africa's share in global maize trade was 1.5-3.5% by volume and 20% by revenue in 2013.

From 2004 to 2013, the biggest maize importers in Sub-Saharan Africa were Zimbabwe and Kenya. Kenya is a big maize consumer with a production deficit. Its processors thus have the power to lead regional chains and demand high quality commensurate with EAC or Kenyan standards. Uganda has favorable production conditions and is not a major consumer. The specificity of the Ugandan diet implies that maize is grown mostly as a cash crop. These conditions imply Uganda's potential role as a maize supplier for Kenya and other markets. Uganda and Rwanda both have a sizeable market shares in maize flour exports, but price fluctuations impair competitiveness. This has left trade to be predominantly between countries of geographical proximity. Uganda has a larger share of formal processors and traders, and surplus maize flour from Uganda is exported to the DRC and South Sudan, while Rwanda exports lower-quality flour to the DRC

Both Rwanda and Uganda enjoy widespread maize farming, with recent increases in production and export volumes. Uganda's maize production increased from 1.3 million MT in 2004 to 2.7 million MT in 2013; within the same period Rwanda increased from 88,000 MT to 667,000 MT. Both countries also have

---

<sup>1</sup> Maize Value chains Report Number F-38202-RWA-1  
IGC, 2016

opportunities for further development, although the profile of each may influence the focus of future policies. Favourable growing conditions present potential for increased foreign and domestic investments in Uganda, which has natural comparative advantages for growing maize and may benefit from upgrading to more large-scale production to take advantage of economies of scale. Land-constrained Rwanda is an exporter of maize flour and can assess possibilities for further investments in downstream segments of the chain.

The sector has received considerable policy support in both countries in terms of input subsidization under the Crop Intensification Program in Rwanda and the identification of maize as priority crop in Uganda's Development Strategy and Implementation Plan (DSIP). There is likely potential for increased exports to Kenya, as the major regional consumer of maize. However, in spite of identification of maize as a priority crop in DSIP, there has been little, if any, follow up in terms of implementation.

## Maize production, marketing and consumption process in EAC

### ● *Status of production*

In 2015, EAC produced 9.89 MT of maize, although collectively EAC is a maize surplus region, the deficit status is caused by the export of maize to more lucrative markets outside EAC such as DRC and South Sudan for Uganda, high post-harvest handling losses (close to 30%) and increasing demand for maize in animal feeds industry. In the period 2011-2015, Tanzania followed by Kenya were consistently the biggest producers of maize in the region with the former

producing 6 million MT and the latter 2.85 Million MT in 2015.

Maize production in Uganda's Eastern region accounts for 47% of total maize produced, while the Western, Central, and Northern regions produce 21%, 19%, and 13%, respectively. Maize is produced by 2.5-3 million smallholder farmers, operating plots less than 0.5 hectares on average and with weak access to finance. Recently, foreign companies have made investments and initiated strategies like contract farming to address the inefficiency of small plots.

Rwandan maize plots are slightly larger but still small, at 0.6 hectares on average. Cooperatives pool farmers' produce; these constitute 40% of the total maize bought by the National Strategic Grain Reserve.

### ● *Status of marketing*

For Uganda, harvested maize ends in five uses: post-harvest losses (30%), on-farm consumption (18%), domestic market (28%), export market (22%), and seed savings (2%). For the domestic market, 60% is processed into flour, 37% into animal feed, and 3% sold to breweries. There is no evidence of meaningful ethanol production. Buyers are categorized into four tiers: Tier 1 buyers are largescale millers in Kenya who buy 20-30% of total volume. These demand high EAC/Kenyan standards, some paying as high premiums as 30%. Tier 2 buyers are major institutional food programs (dominated by World Food Program-Uganda) which buy 50% of total volumes and pay lower margins than Kenyan buyers. Tier 3 buyers are regional customers in Rwanda, South Sudan, or smaller mills in Kenya (this tier accounts for 10-20% of total volume). Tier 4 buyers are less

formal buyers with no quality demands, constituting less than 5% of total volume.

In Rwanda, distribution estimates are limited by data, but rough estimates indicate 35% of maize is consumed on-farm, 24% is traded informally, 20% is lost to post-harvest handling, 9% is sold to Minimex, 6% to prisons, 2% to WFP, 2% to the National Strategic Grain Reserve, and 2% to other buyers. Interviews with actors revealed four institutional buyers (NGOs, RGCC, NSGR, and WFP) and one non-institutional buyer, Minimex. Exports go to DRC and Burundi (99%); 69% of exports were sold to DRC between 2009-2012, where 61% was informally traded. The DRC market is growing; export revenues from maize sales to the DRC increased from \$75,000 in 2008 to \$6.2 million in 2013 (FAOSTAT estimates)

### ► Status of consumption

Maize demand in EAC stood at 12.6 Million MT in 2015 and expected to increase by 28% (16 million MT) by 2020. Current maize consumption is mainly concentrated in Tanzania, Kenya and Uganda. In 2015 EAC had a maize deficit of 2.7 Million MT driven largely by Kenya which accounted for 82% of the deficit, Rwanda and Burundi to a smaller extent. The current and projected increase in maize demand is mainly driven by overall population increase in the region coupled with dietary composition. While considering the segmentation of maize consumers in the EAC, over 85% of maize buyers are individual consumer but at the same time causing demand for maize from animal feeds is rapidly increasing.

The table below indicates different countries of East Africa and how they consume maize.

**Table 2: Maize consumption patterns**

Kenya	<ul style="list-style-type: none"> <li>▪ Maize is the staple food in Kenya accounting 65% of the total staple food caloric intake and 36% of the total food caloric intake. Nairobi, Mombasa and their environs are the biggest maize market</li> <li>▪ It is estimated that close to 25-30% of the maize produced is bought by National Cereals and Produce Board. This is later sold to individual consumers, schools, prisons and other institutions during the deficit season</li> <li>▪ Smaller holder farmers who produce 70% of maize in Kenya retain 58% of their harvest for home consumption.</li> <li>▪ Maize accounts for nearly 20% of total food expenditures among the poorest .20% of the urban households of total food expenditures among the wealthier</li> </ul>
Tanzania	<ul style="list-style-type: none"> <li>▪ Maize is a staple food for about 40 Million people, between 85-90% of the Tanzanian population. The crop provides 60% of the dietary calories and more than 35 % of the utilizable proteins</li> <li>▪ Around 60-85% of the maize produced is consumed at household level. Surplus is bought by other farmers, urban dwellers, and market deficient regions, such as Dar Es Salam, Singinda, Lindi, Coast, Kigoma. Other markets for maize include Schools, Prisons and other institutions</li> <li>▪ 20% of the maize consumed is utilized by Animal feeds industry</li> </ul>

Rwanda	<ul style="list-style-type: none"> <li>▪ Between 50-52% of maize produced in Rwanda is consumed by producers</li> <li>▪ Most of the maize products are consumed in urban centers like Nyabugogo, Kigali and Rubavu</li> <li>▪ Maize flour produced in rural mills is consumed by individual consumers due to its poor quality</li> </ul>
Uganda	<ul style="list-style-type: none"> <li>▪ Maize in Uganda unlike her EAC counterpart is not part of population diet. Only about 20% of the maize produced is retained for consumption. However due to ever increasing cost of other staple foods like Bananas(Matooke) maize is gaining popularity especially in urban centers</li> <li>▪ About 10;12% is used in animal feeds</li> </ul>

## State of implementation of environmental standards contained in EAC policy framework at regional or national level

Environmental issues have no political boundaries. Air and water pollution do often have trans frontier effects, a phenomenon that makes a definite case for countries to collaborate and co-operate in the search for mechanisms to manage them.

Kenya, Tanzania and Uganda share the largest fresh-water lake in Africa; Lake Victoria, whose water quality depends on regional initiatives that must complement the disparate national ones aimed at the management of the polluting riparian activities. National policies, legislation and institutions are by themselves incapable of achieving the best results in air and water quality management, in the absence of co-operative regional initiatives.

It is observed that where environmental standards exist, still there is incoherence with

the existing policy frameworks at national and regional levels, as well as a gap with the implementation stage on the ground. This is because of failure to domesticate and implement the ones already available, as well as a lack of information sharing mechanisms between governments, private sector, standards' authorities etc.

### Existing Gaps (incoherence) in line with national and EAC policy framework

While analyzing the existing EAC policy frameworks and their implementation at national level, relevant for the maize value chains, the following gaps have been noted:

#### ● *Lack of implementation & harmonization of environmental standards.*

The EAC protocol on environment was signed and ratified to guide the management of environment and natural resources in East Africa. EAC protocol on environment has provided for implementation of sound practices of environment management and sustainable utilization of natural resources, but there are no

adequate specific policies and efforts at national level to combat desertification and the effects of drought.

Partner States like Rwanda, Kenya and Burundi have acceded, ratified and domesticated this protocol. However, Tanzania not ratifying the protocol on environment shows that its existing environmental practices are not coherent with this protocol. This has negatively impacted on cross border environment challenges simply because there are no a common binding legal instrument to guide all partner states.

Even though EAC has adopted the ban of Polythene and plastic bags, there are differences at country level either to domesticate it or implement it. Non coherence on this legal instrument on ban of polythene bags is seen in In Uganda, Burundi and South Sudan, Even if it has been proved that these plastic materials are detrimental on soil and environment thus impacting on productivity of either maize or any other crop.

It continues with the EAC Polythene Materials Control Bill, 2016, which came to harmonize environmental management practices that are existing in different EAC Partner States. Some (Rwanda, Kenya and later Tanzania) had their country specific laws on ban of plastic bags. The regional legal instrument was to provide a common approach and coherence on these practices. This therefore indicates incoherencies between partner states policies on environment related standards.

❶ *Lack of standards' harmonization leading to trade barriers*

Currently EAC region has few harmonized standards, lengthy harmonization process as

well as low adoption rate of harmonized regional standards coupled with varying frameworks of technical regulations across the Partner States. This has led to standards related Non-Tariff Barriers (NTBs) such as costly and time-consuming re-testing processes or denial of market access for certain products. It is envisaged that through harmonized standardization, trade barriers which are encountered when goods and services are exchanged within the Community will be removed.

Harmonization of East African Standards should be prioritized based on the most traded goods across EAC region. Maize is among the 20 most tradable products in East Africa. In 2017, production rose by 13% in Kenya, 3.6% in Uganda, 3.4% in Tanzania and 2% in Rwanda.

❷ *Lack of standards specific to maize value chains*

EAC Partner states have not adopted post-harvest handling policy and standards. It is estimated that 30% of maize produce is lost and other become toxic. EAC partner states have not yet implemented the recently developed EAC aflatoxins policy. Some environment related standards of maize value chains are not yet developed, such as ones on maize harvesting and post-harvest handling facilities.

EAC partner States have common water bodies, lakes and rivers. This should require them to agree on how to improve water catchment management; and promote rain harvesting, protection of wells and springs and other water sources. The partner states shall harmonize their national policies, laws and enforce programs to promote sustainable forest management



Along the maize value chains in East Africa, there are noticeable maize milling, processors and factories in non gazetted areas with no required infrastructures & processes to be adopted. These factories and the production activities have affected the surrounding environment especially wetlands. This is due to failure to manage sewerage and wastes from these industries. This has in turn affected the capacity for sustainable management of environment and natural resources throughout the community.

*Overall it can be noted that capacities for Climate Change Adaptation and Mitigation, risks assessment and policy making of policy makers and practitioners are very limited across EAC.*

## Conclusion and Recommendations

### What should be done in the region?

**Process upgrading in Uganda, Rwanda, Kenya, Tanzania, Burundi and South Sudan to ensure adherence to EAC standards.**

In this analysis of EAC trade policy regimes, Keyser (2012) outlines the unintended negative consequences of strict harmonization standards that are not suited to African context— namely, driving up costs for smallholders—and advocates for simplified regulations. Building off his recommendations, maize stakeholders can focus on two parallel tracks:

**a). Increase certification capacity.** Processors from EAC partner states act as leaders in the regional value chain and demand high-quality maize. For example, given the importance of the

Kenyan market for Ugandan producers and traders, there should be more incentive to ensure compliance with EAC and Kenya protocols. In addition, government officials can make a concerted push to ensure farmers are aware of market standards. This can be done at both the national and local levels.

Development partners like Trademark East Africa is helping to provide funding to ensure the implementation of the standards, which also includes capacity building and education about EAC maize standards (Mukisa, 2016).

**b). Evaluate appropriate legal frameworks and engage in conversations with stakeholders.** Keyser (2012) argues the EAC and other African regions have set too high a bar for certification that smallholders cannot be expected to clear. In line with his recommendation of mutual recognition of verification and equivalence agreements rather than straight harmonization, regional policymakers can engage in discussions with the goal of simplifying trade agreements to make them business friendly and promote greater compliance.

**c). Information sharing & building knowledge/capacities.** For EAC Ministries, agencies responsible for environment management, ministries of Agriculture, maize crop intensification program officers and any other stakeholders concerned should be informed and work towards establishment of missing policies & environment related standards. This will help the policy makers and negotiators at country and EAC level, to take more informed and coherent actions and positions that benefits ordinary citizens.

### A closer look at specific activities

## **to be implemented**

The following should be made a priority to address the policy gaps at EAC level

**Formation of a technical committee to develop new standards:** There should be formation of a technical standing committee particularly from the Heads of Environment Management bodies to be technically responsible for developing new standards in environment related that are not yet developed to address the exiting gaps. This should be done first conducting a baseline assessment to ascertain the existing and non-existing standards.

**Harmonization of existing standards:** EAC stakeholders should form a standing committee on harmonization of existing standards. This should be done in parallel of mainstreaming EAC Policies into national development plans. This is in other words domestication of the approved EAC Policies.

**Fast tracking EAC Projects and Programs:** There are quite number of projects and programs initiated at the EAC level but which are not fully implemented at National Level. Examples include those at Lake Victoria basin Commission. This can bring sustainable results if owned at Partner States level.

EAC governments **must step up investments in the maize sector, adopt effective policies that will promote production and encourage adaptation** to existing climate variability and long-term changes in climate. Appropriate policies that can support the producers' capacities in EAC to adopt to the effects of CC are needed

**Creation of awareness and ownership of environment related standards:** EAC through

its Secretariat should create awareness and ownership of the already adopted legal instruments at an EAC level. This should be done by making them readily available to EAC Citizens, enforcing their compliance through their implementation since they qualify as legally binding mechanism. This can be done for example through celebrating World Environment Day together as a community. This can raise awareness on environmental challenges and the importance of a clean and healthy environment in the sustainable development of EAC region

**Addressing capacity gaps at Partner States level:** It was found out that technical capacity constraints still exist while implementing the already approved protocol, laws and standards. EAC Secretariat should take the lead in building the capacities of relevant stakeholders, with support from public and private partners.

**Partner States should exploit the available opportunity of the existing legal and policy frameworks.** The negotiators should exploit the fact that all EAC partner states are members of WTO and UNFCCC, as well ass signatories of Earth Summit of Rio de Janeiro, and many international conventions on environment management. There should be used as opportunities to strengthen the existing environmental regulations and standards in favor of certification of sustainable agricultural products. In fact, Certification and eco-labelingof products based on organic and ecological production processes has been in progress and should be encouraged even more.

## References

Characterization of Maize Markets in East Africa, Kilimo Trust, 2017

Maize value chains in Kenya report

Maize Value chains in East Africa, February 2017 - International Growth Centre

Agro value chain analysis and development- By UNIDO

Smallholder Agriculture in East Africa: Trends, Constraints and Opportunities, working paper, AfDB, April 2010

IFAD documents repository /small holder report

Guidance notes for pollution management-World bank publication-Getting to Green

Improving environmental practices in agricultural supply chains: The role of company-led standards.

EAC State of environment and outlook report, 2015

The Political Economy of Genetically Modified Maize in Kenya, Latha Nagarajan-International Fertilizer Development Center

East African Community treaty

East African Community Vision 2050



### CUTS International, Geneva

CUTS International, Geneva is a non-profit NGO that catalyses the pro-trade, pro-equity voices of the Global South in international trade and development debates in Geneva. We and our sister CUTS organizations in India, Kenya, Zambia, Vietnam, Ghana and Washington have made our footprints in the realm of economic governance across the developing world.

© 2019. CUTS International, Geneva.

This note is authored by Nathan Gashayija. CUTS' notes are to inform, educate and provoke debate on specific issues. Readers are encouraged to quote or reproduce material from this paper for their own use, provided due acknowledgement of the source is made.

37-39, Rue de Vermont, 1202 Geneva, Switzerland

geneva@cuts.org • www.cuts-geneva.org

Ph: +41 (0) 22 734 60 80 | Fax:+41 (0) 22 734 39 14 | Skype: cuts.grc