

WATER, LAND, ECOSYSTEMS AND TRADE IN STAPLES (WaLETS)



RESEARCH
PROGRAM ON
Water, Land and
Ecosystems

Policy Analysis of the National Development Plans
and Agriculture, Trade, Environment, Water and Land
Policies of the East African Region

Prepared by



regional solutions to local problems

www.kilimotrust.org



ACKNOWLEDGEMENT

This research was conducted under the CGIAR Research Programme on Water, Land and Ecosystems (WLE) through a research project entitled: *Water, Land, Ecosystems and Trade in Staples (WaLETS): Using regional trade in staples for equitable food and nutrition security and ecosystems services in the EAC*. We would like to thank all donors who supported this research through their contributions to the CGIAR Fund.

December 2016

TABLE OF CONTENTS

ACKNOWLEDGEMENT	I
ACRONYMS AND ABBREVIATIONS	IV
GLOSSARY	V
CHAPTER 1: INTRODUCTION	7
1.1. STUDY OBJECTIVES	7
1.2. METHODOLOGY	8
CHAPTER 2: STATUS OF THE EAC COUNTRIES DEVELOPMENT VISIONS TOWARDS ECOSYSTEM MANAGEMENT, FOOD TRADE AND GENDER	9
CHAPTER 3: RESPONSIVENESS OF THE EAC NATIONAL TRADE POLICIES TO FOOD TRADE, ECOSYSTEM MANAGEMENT AND GENDER EQUITY.....	10
CHAPTER 4: RESPONSIVENESS OF THE EAC NATIONAL AGRO ECOSYSTEM POLICY FRAMEWORKS TO FOOD TRADE, ECOSYSTEM MANAGEMENT AND GENDER.....	13
4.1 National Agriculture Policy Frameworks.....	13
4.2 National Environment policies and related frameworks	15
4.3 National Land policies and related frameworks.....	18
4.4 Water policies and related frameworks.....	20
CHAPTER 5: CONCLUSION AND RECOMMENDATIONS.....	23
REFERENCES	26
APPENDICES	28

List of Tables

Table 1: Criteria used for assessing key strategies/measures used in policy analysis 8

Table 2: Ratings of EAC country level National Trade Policies in relation to addressing ecosystem, food trade and gender 10

Table 3: EAC country level agriculture policies scores in relation to mainstreaming ecosystem, food trade and gender 13

Table 4: EAC country level environment policies and frameworks scores in relation to mainstreaming ecosystem, food trade and gender 16

Table 5: EAC country level land policies and frameworks scores in relation to mainstreaming ecosystem, food trade and gender 19

Table 6: EAC country level water policies and frameworks scores in relation to mainstreaming ecosystem, food trade and gender 21

Acronyms and Abbreviations

ASDS	Agriculture Sector Development Strategy
CHM	Clearing-House Mechanism- Tanzania
COMESA	Common Market for East and Southern Africa
EAC	East African Community
EM	Ecosystem Management
EMCA	Environment Management and Coordination Act-Kenya
ENR	Environment and Natural Resources
GEF	Global Environment Facility
IGAD	Inter-governmental Authority on Development
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries-Uganda
MINAGRI	Ministry of Agriculture and Animal Resources-Rwanda
MINEAC	Ministry of the East African Community-Rwanda
MINICOM	Ministry of Trade and Industry -Rwanda
MINIRENA	Ministry of Natural Resources-Rwanda
NAP	National Agriculture Policy
NBSAP	National Biodiversity Strategic Action Plan
NEMA	National Environment Management Authority
NEMC	National Environment Management Council-Tanzania
NRM	Natural Resources Management
NTP	National Trade Policy
NWP	National Water Policy
PNIA	National Plan for Agricultural investment-Burundi
PSTA	Strategic Plan for the Transformation of Agriculture-Rwanda
RBS	Rwanda Bureau of Standards
REMA	Rwanda Environment Management Authority
SADC	Southern Africa Developing Community
SEM	Sustainable Ecosystem Management
SLM	Sustainable Land Management
TAMP	Trans boundary Agro-ecosystem Management Project
UNIFEM	United Nations Development Fund for Women
WTO	World Trade Organisation

Glossary

Agro chemical: A chemical used in agriculture, such as a pesticide, herbicide, or fertilizer

Agro-ecology: An ecological approach to agriculture that views agricultural areas as ecosystems and is concerned with the ecological impact of agricultural practices.

Agro-ecosystem: The organisms and environment of an agricultural area considered as an ecosystem.

Biodiversity: The total diversity of all organisms and ecosystems at various spatial scales (from genes to entire biomass).

Conservation: The protection, preservation and careful management of natural resources

Ecosystem: The interactive system formed from all living organisms and their abiotic (physical and chemical) environment within a given area.

Ecosystem functioning: Building on the processes shaped by interactions among biological communities of both wild and domesticated species, biophysical processes such as water regulation, and nutrient recycling.

Ecosystem services: Ecological processes or functions that have monetary or non-monetary value to individuals or society at large. There are: supporting services such as productivity or biodiversity maintenance; provisioning services such as food, fibre, or fish; regulating services such as climate regulation or carbon sequestration; and cultural services such as tourism or spiritual and aesthetic appreciation.

Environment: The physical and biological factors along with their chemical interactions that affect an organism or a group of organisms

Erosion: The process of removal and transport of soil and rock by weathering, mass wasting, and the action of streams, glaciers, waves, winds and underground water.

Extension: The transfer of research and new practices through farmer training; including empowering farmers to make farm management decisions based on knowledge of options available to them.

Fertilizer: Chemical or natural substance added to soil or land to increase its fertility and promote plant growth

Food and nutrition security: This exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

Food trade: The transfer of the ownership of food and food products (such as maize, beans, rice etc) from one person or entity to another in exchange for other goods or services or for money

Food system: All processes and activities related to the production, distribution and consumption of food that can feed a population and affects human nutrition and health. It operates within an infrastructure (roads, rivers, ports, energy and communication networks, etc.) and is influenced by political, social, economic and environmental aspects.

Forest: A large area of land covered with trees or other woody vegetation.

Gender: Range of characteristics pertaining to, and differentiating between, masculinity and femininity; and the characteristics may include biological sex (i.e. the state of being male, female or intersex), sex-based social structures (including gender roles and other social roles), or gender identity

Informal trade: The part of trade that is not counted in national statistics and is usually neither taxed, nor monitored by government

Irrigation: The supply of water to land or crops to support growth, typically by means of channels

Land degradation: Deterioration in the quality of land, its topsoil, vegetation, and/or water resources, caused usually by excessive or inappropriate exploitation

Nexus: A connection or series of connections linking two or more things

Policy: A course or principle of action, adopted or proposed by a government, party, business or individual

Private sector: The part of an economy, industry, etc., which is privately owned and free from direct state control

Soil conservation: The prevention of soil from erosion or reduced fertility caused by overuse, acidification, salinization or other chemical soil contamination.

Soil health: The state of a soil meeting its range of ecosystem functions as appropriate to its environment.

Sustainability: Meeting the needs of the present without compromising the ability of future generations to meet their needs.

Sustainable Intensification: Meeting social needs and fulfilling sustainability criteria that enables food and all other agricultural ecosystem services (i.e. climate, stabilization, flood control, support, etc.) to be generated within a safe operating space of a stable and resilient Earth system, which in turn can be defined, e.g., by the scientifically derived planetary boundaries framework

Wetland: Land area that is saturated with water, either permanently or seasonally, such that it takes on the characteristics of a distinct ecosystem

Chapter 1: Introduction

- 1) There is general worldwide reduction in food insecurity. However, East Africa's food security and nutrition situation is growing worse. For instance for 2014 and 2015, the respective Food Security Indices are 28.8 and 25.2 for Burundi, 40.1 and 41.2 for Kenya, 34.2 and 35.1 for Rwanda, 29.9 and 33.7 for Tanzania, and 45.6 and 42.8 for Uganda (GFSI, 2014; 2015). Among other factors, to achieve food security and better livelihoods in the agricultural sector, an ecosystem that is sustained in a productive state is required to deliver a variety of resources and processes which are crucial for crop, livestock, forest and aquatic production systems and rural livelihoods (FAO, 2011a). This is because productivity depends on ecosystem functioning, which builds on the processes shaped by interactions among biological communities, and biophysical processes, such as water regulation and nutrient cycling (FAO, 2011a). To the contrary, ecosystem and associated services within the EAC region are deteriorating at an increasing rate. This is occurring despite numerous conservation initiatives being implemented. For instance, in the EAC there are projects through the Global Environment Facility (GEF) program like the Trans boundary Agro-ecosystem Management Project for the Kagera River Basin (Kagera TAMP); the Erosion control and protection of buffer zones project around Lakes of Tanganyika and Bugesera in Burundi; the Clean development mechanisms through re-forestation under the Nile Basin Reforestation in Uganda; the Green belt movement in the Aberdare Range and Mount Kenya watersheds in Kenya; the Lands conservation and protection against erosion and floods in vulnerable regions to climate change in Rwanda (Devisscher, 2010), among others.
- 2) The ecosystem deterioration is partly attributed to inefficient agriculture (USAID, 2008; 2012), high gender disparity (Verma, 2001), inefficient food trade or an interaction of these factors (Sachs, 2009). Most of the farming is characterized by rudimentary production technologies, inadequate extension services, and an ineffective policy environment that exacerbate ecosystem depletion. Besides, there are high levels of gender disparity where both customary and private property regimes tend to privilege men at the expense of women; mainly as a result of the panache of ideology, predominance of traditions, customs and beliefs that make men more superior than women. Also, inefficient food trade mainly results from unfavorable and uncoordinated trade policies and investments that exacerbate ecosystem degradation. Consequently, there is alteration in agricultural production and food distribution patterns that otherwise play a crucial role in ensuring food security for millions of East Africans. In fact, earlier attempts at intensification of agricultural production for improved food security have instead worsened ecosystem sustainability due to decrease in soil health through excessive soil nutrient mining, increase in soil erosion, excessive water use, decline and degradation of biodiversity, and the impact on the environment of the overuse and inefficient use of fertilizer and pesticides, leading to pest resistance and pest outbreaks.
- 3) According to FAO (2007), the challenge of reversing the degradation of natural resources while meeting the increasing demands for them involves significant changes in policies, institutions, and practices. But effective programming and policies on natural resources require among others to analyse and address the gender and trade specific relationships to ecosystem use and management while highlighting the associated linkages and gaps. By exploring such a complex interrelationship, policy makers will be supported with information for more effective ecosystem use including promoting appropriate conservation policies and subsequently reverse the food insecurity pattern within the EAC and beyond.

1.1. Study objectives

- 4) The objectives of the policy review are to:
 - a) Establish the gaps in EAC country specific key policies and strategies influencing ecosystem services and trade based food security with gender equity.
 - b) Provide recommendations to ensure improved delivery on food and nutrition security while enhancing ecosystem services of the land and water resources being used for food production in the EAC partner states.

1.2. Methodology

- 5) The methodological approach used to conduct the policy analysis comprised both secondary and primary data collection in the five EAC countries. Primary data was not collected in Burundi because of the current insurgency situation. To begin with, key policy frameworks impacting on land and water and with direct influence on food security were selected for desk review during a meeting of the implementing partners. The frameworks included those under trade, agriculture, environment, land and water. These documents were considered adequate and objective resources that reflect the prevailing thinking around the interrelationship of agro ecosystem, food trade and gender in influencing food security at the national and regional levels in each EAC country. (See the Appendices for the comprehensive list of policies and frameworks reviewed).
- 6) The policy review explored the status of the country specific development visions on food security and how they relate with ecosystem, food trade and gender. Subsequently, criteria with appropriate measures/variables were formulated to establish the strengths and gaps in the relevant policies/ frameworks (under trade, agriculture, environment, land and water) that influence ecosystem, gender and food trade which ultimately impact on food security. The parameters/ variables/ strategies selected for assessment were determined in consultation with key informants in each sector; and were regarded as the key ones in influencing ecosystem services and trade based food security with gender equity. Each variable was then assessed/scored using a scale described in Table 1 below. Besides supporting the development of the scale, experts as well as selected next users provided primary data during analysis. (See interviewed list in Appendices). This in combination with secondary literature enabled identification of the strengths as well as the gaps that hinder provision of sustainable ecosystem services and trade based food security with gender equity.

Table 1: Criteria used for assessing key strategies/measures used in policy analysis

Measure/Criteria	Scale	Definition of scale
Measure recognized in the policy documents	0-1	0=missing, and 1=incorporated
Measure incorporated in the policy objective(s)/strategies/actions	0-3	0=not incorporated; 1= weakly incorporated; 2=moderately; 3=intensely incorporated
Extent to which the strategy/ measure addresses the subject/ concern	0-5	0=does not address the issue; 1=very poorly addressed; 2=weakly addressed; 3= moderately addressed; 4= strongly addressed; 5= Very strongly addressed
Extent of incorporation of the subject/concern in the implementation strategy	0-3	0=Not incorporated; 1= weakly incorporated; 2=moderately incorporated; 3=intensely incorporated
Evidence of implementation (e.g. budget exist) of the concern/subject	0-3	0=No evidence; 1=weak evidence; 2=moderate evidence; 3= strong evidence

- 7) This report is structured as follows – Chapter two presents the status of the EAC Countries Development Visions with respect to ecosystem management, food trade and gender. This is followed by chapters three and four that provide the analyses of the strengths and gaps in the relevant policy frameworks with respect to ensuring sustainable ecosystem resources use while attaining a trade based food security. Specifically, chapter three analyses the trade policy frameworks while chapter four deals with those that are directly related to ecosystem i.e., agriculture, environment, land and water. The report ends with chapter five of recommendations and conclusions following the analysis undertaken under chapters three and four.

Chapter 2: Status of the EAC Countries Development Visions towards ecosystem management, food trade and gender

- 8) This section presents the status of the EAC Countries Development Visions towards ecosystem management, food trade and gender. The review established that all the EAC countries visions acknowledge the increased loss of biodiversity and environmental degradation; and this is negatively affecting food security in the region. In line with this, all the five countries are in many ways promoting Sustainable Ecosystem Management (SEM) issues as reflected in their country specific visions. For example, one of the pillars of the Rwanda's Vision 2020 is the protection of environment and achieve sustainable Natural Resource Management (NRM). In order to ensure sustainable development, the Vision proposes to implement adequate land and water management techniques, coupled with a sound biodiversity policy.
- 9) The Uganda Vision 2040 is also focused on undertaking efforts to attain a green and clean environment with no water and air pollution while conserving the flora and fauna and restoring as well as adding value to the ecosystems. According to the Vision, this is to be achieved through actions including re-forestation and afforestation on public land, and promoting participation of the population in tree planting; restoration of degraded wetlands, hill tops, rangelands and other fragile ecosystems; adoption and equitable transfer of environmentally sound technologies; creation of effective partnership and cooperation with the international community on environmental sustainability, among others.
- 10) Similarly under the economic pillar of the Kenya's Vision 2030, one of the aims is to have a nation with clean, secure and sustainable environment by 2030 through various flagship projects including promoting environment conservation; forest conservation and management; strengthening of legislation and policies on environment including harmonizing environment related laws for better environment planning and governance; and reducing the effect of solid waste and pollution in the cities and urban areas.
- 11) In Tanzania, the Development Vision 2025 envisages attaining fast growth while effectively reversing current adverse trends in the loss and degradation of environmental resources. In the same line, one of the focuses of the Burundi's Vision 2025 is environment and space management for sustainable development. To deliver on this, various strategies and action plans have been developed and are under execution such as introduction of methods of rational land use; watershed protection; strengthening the protection of protected areas; fight against bush fires; protection and restoration of areas in degradation; building capacities of population and institutions in soil restoration technics; funds mobilization for soil management; establishment of an extensive program of agro-forestry- livestock integration; sensitizing the population on natural resource rational use and protection, among others.

Chapter 3: Responsiveness of the EAC National Trade Policies to food trade, ecosystem management and gender equity

12) To ensure efficient food trade, several parameters are relevant but within the EAC, those considered of critical importance are regional integration for effective food distribution, mainstreaming environment issues including valuation of ecosystem services and observing environment thresholds, gender institutionalization as well as promoting agro processing and increased involvement of the private sector particularly in policy issues. Table (1) below analyses these parameters and provides the corresponding scores indicating the strengths and existing gaps within the National Trade Policies in relation to food trade, ecosystem management, and gender.

Table 2: Ratings of EAC country level National Trade Policies in relation to addressing ecosystem, food trade and gender

Criteria	Country score				
	Burundi	Kenya	Rwanda	Tanzania	Uganda
1. Strategies consistent with the national vision and regional integration	80	87	93	87	87
2. Addresses issues of regional and international trade	80	93	93	93	87
3. Has a strategy/policy actions of inter and cross sectoral collaboration	73	87	73	87	73
4. Mainstreams sustainable ecosystem management (SEM) including issues of incentive, rewards and sanctions for SEM	20	60	40	27	13
5. Mechanism of valuation of ecosystem services incorporated	0	0	0	0	0
6. Environmental thresholds towards investments in agriculture trade	0	0	0	0	0
7. Agro processing addressed	73	73	27	27	93
8. Strategy of engaging the private sector	80	80	87	80	93
9. Strategy for capacity development of the different actors	73	80	80	80	80
10. Gender is mainstreamed in the policy	40	60	80	33	20

13) For all countries, the policy documents are very strong in addressing regional and international trade. Presently the trade regimes for these countries are guided by market-driven principles of liberalization under the World Trade Organization (WTO). Accordingly, the trade policies for all the member countries are well streamlined with the regional economic integration initiatives i.e., East African Community (EAC), Common Market for Eastern and Southern Africa COMESA) and the Inter-governmental Authority on Development (IGAD) where all the EAC countries are members. In addition, Tanzania is a pro-active member of the SADC regional economic co-operation scheme.

14) For effective participation in the regional arrangements, each of the member countries is working towards reducing trade imbalances with regional partners; harmonization of policies with regional partners; promoting diversification of exports; and becoming a competitive regional economy. Such regional arrangements have concurrently promoted infrastructure improvements and increased cross border trade thereby improving food security levels in the hunger prone regions. For instance, Kenya has persistently experienced adverse weather and crop failure, and to

supplement local production and improve food security, the country imports grains particularly maize and beans from neighboring Tanzania and Uganda. Indeed, evidence from Tanzania indicates that regional maize trade has increased in volume with Kenya, and this has been amplified by the improvement in infrastructure (Cuts International, 2013).

- 15) Table (1) results also indicate that all the EAC National Trade Policies have remarkable levels of inter and or cross sectoral collaboration for efficient trade. The Rwanda Trade Policy (2010) has a structured framework for harmonizing and consolidating trade policy interventions while streamlining coordination. It particularly emphasizes building networks and collaboration linkages among the national, regional and international public and private sectors players for effective trade. In Kenya, the National Trade Policy (2009) targets several areas for collaboration such as: a) government with key stakeholders to facilitate the development of effective mechanisms for export support institutions to ensure smooth flow of business information and marketing; b) collaboration with the private sector in assessing capacity and training needs with a view of identifying training gaps for the export oriented enterprises; c) establishing an inter-ministerial committee to incorporate ICT into government operations; and d) developing a master plan for e-government and to establish a regional infrastructure development fund in collaboration with other partner states for increased trade. In Uganda, identification and exploitation of the trade policy synergies and complementarities is an integral component of the National Trade Policy (2007). In this respect, the policy advocated for an Inter-Institutional Trade Committee (IITC) to strengthen the consultative mechanism between the public and private sectors on trade policy implementation. Besides to promote international trade, the policy spells out an action for constituting a National Trade Negotiations Team (NTNT) led by the Minister responsible for Trade. Similarly, the Tanzania National Trade Policy (2003) acknowledges that trade function cuts across all sectors of the economy, ranging from the productive sectors to the economic and social services sectors; and spells out the specific sector policies that ensures effective harmonisation and coordination in terms of theme and direction.
- 16) Nevertheless, the inter and cross sectoral collaboration expressed here is only strong on ensuring greater market openness and increased trading of outputs but weak on the input side. This is revealed in Table (1) which indicates that the trade policies have weak linkages with ecosystem services. For example, although the policies have well laid strategies of promoting agro processing for value addition and increased revenue from exports, attention on sustaining the ecosystems which support provision of the goods and services for export is minimal and in many times nonexistent. Indeed, only the Kenya's Trade Policy is above average in mainstreaming ecosystem management (EM). Here, the country's strategy is to facilitate the conservation and protection of the environment while promoting domestic and international environmental friendly trade and investment activities but also, the corresponding strategies lack the necessary incentives.
- 17) In addition, results in Table (1) indicate that except for Kenya and Rwanda, gender is weakly mainstreamed in the countries national trade policies. This paints a dark picture regarding effective food trade. Most of the cross border food trade in the EAC is informal and the majority (85%) of the traders are young women who mainly sell food commodities carried by head (Brenton *et al.*, 2012). Besides, UNIFEM (2009) earlier reported that the average value of informal cross border trade in the SADC region is US\$17.6 billion per year, 70% of which is traded by women; and most of this trade is for staple food commodities (such as rice, maize, beans and cattle) (Lesser and Moise-Leeman, 2009). However, in all the East African countries, the status of women is characterized by unequal power and social relations, unequal access to political power, heavy work load and inequality before the law.
- 18) Consequently, women generally experience barriers to food trade differently from men. For example, women have limited access to skills, lack market information and access, are highly exploited by middlemen, face high levels of harassment and physical violence at the border, and prevalence of unofficial payments and bribes, and all these hold women traders back in selling products, thereby limiting their upward mobility for opportunities related to trade. In support of

this, a study by Masinjila (2009) found more than 44% of the female respondents trading across the Uganda/Kenya border not to be aware of trade policies and laws, which is a very high percentage of those engaged in business. Similarly, the study established that nearly all small scale businesses for women traders between Rwanda and Burundi-mainly dealing in cereals are informal and women traders exhibited low awareness of formal structures of trade and of their rights as traders within the EAC catchments as well as low motivation for getting informed. Simavi *et al.* (2010) emphasized that these obstacles make women more disadvantaged than men in responding to new economic incentives; and thus limits the opportunities and benefits that women can gain from economic activities and imposes significant development costs on economies and societies. Indeed, failure of gender integration into food trade may partly explain why women are more involved in informal trade than men. This is supported by UNIFEM (2009) who reported that in East Africa, many women rely on 'panya' (smugglers) or intermediaries to get their goods across borders in spite of the existence of the EAC customs union. Such reliance on illegal methods have serious consequences for women's safety and their businesses, as they can be fined, imprisoned or harassed by smugglers and or border officials. Higgins (2012) pointed out that removing the impediments faced by women in Africa and proactively promoting the participation of women in trade will boost exports and revenue for the various countries thereby improving food distribution. Thus, there is need for incorporation and implementation of robust gender-sensitive strategies in the trade and investment policies to provide a conducive playing field for effective participation of women in food trade, including access to the productive assets as well as to offset any negative consequences of food trade in terms either of widening overall gender inequalities or of specific losses for particular groups of women.

Chapter 4: Responsiveness of the EAC National Agro ecosystem Policy Frameworks to food trade, ecosystem management and gender

This chapter discusses the policy frameworks for agriculture, environment, land and water that are directly mandated to address sustainable management of ecosystem resources of land and water.

4.1 National Agriculture Policy Frameworks

19) Agriculture is highly multi sectoral, and to ensure sustainable production, there is need for an effective collaborative mechanism across the relevant sectors linked to agriculture. In addition, issues of climate change, gender, agro processing and agro zoning are important in sustainable agriculture intensification. These parameters were therefore considered in assessing the national agriculture framework for the EAC countries. The analysis established that overall, all the EAC agriculture policy frameworks are strong with respect to addressing issues of ecosystem, trade and gender (Table 2). Besides, all the National Agriculture Policies (NAPs) target increasing production and productivity to subsequently attain sustainable food security. However, agriculture production is highly dependent on the services provided by neighboring natural ecosystems including maintenance of soil structure and fertility, nutrient cycling and hydrological services, pollination, biological pest control, among others. The interaction also produces a variety of ecosystem services, such as regulation of soil and water quality, carbon sequestration, and support for biodiversity (Power, 2010).

Table 3: EAC country level agriculture policies scores in relation to mainstreaming ecosystem, food trade and gender

Criteria	Country score				
	Burundi	Kenya	Rwanda	Tanzania	Uganda
1. Strategies consistent with the national vision and regional integration	87	80	93	80	80
2. Addresses issues of agro processing	93	80	80	67	67
3. Strategy of inter and cross sectoral collaboration	80	87	87	73	73
4. Mainstreams sustainable ecosystem management (Water, Land, Forest)	87	73	93	73	93
5. Promotes sustainable intensification including Agro zoning	67	67	87	67	87
6. Issues of climate change are addressed	80	67	80	67	93
7. Environmental thresholds/ safeguards towards ecosystem resources used in agriculture production embedded	0	0	0	0	60
8. Gender mainstreamed	67	73	87	73	60

20) Thus to foster a sustainable agriculture sector in the long term, sound environmental management must be mainstreamed in agricultural practices. Auspiciously in all the EAC countries, the agriculture policies/strategies/acts are highly positive on mainstreaming ecosystem management (Table 2) in agriculture interventions. Indeed, the frameworks emphasize strong collaboration with environment related sectors and all have enshrined several strategies to reverse the decline of soil and water qualities and ensure sustainable ecosystem use while improving the food security status. Besides, they all support sustainable agriculture intensification with agro zoning as a key strategy (Table 2) where crops are promoted in the respective areas of

agro ecological suitability. This is further illustrated by the National Agriculture Policies (2013) for Uganda and for Tanzania where one of the key objectives is to ensure sustainable use and management of agricultural resources through various strategies but including regulating the exploitation of agricultural resources within ecologically sustainable levels. Similarly, one of the objectives of the Kenya's National Agriculture Draft Policy (2015) is to promote agricultural Zone-guided production with improved capacity to predict and respond to shocks. In the same line, the Rwanda's Strategic Plan for the Transformation of Agriculture in Rwanda (PSTA) Phase III - 2013-2017 (2013) has a number of remarkable line actions for mainstreaming environment into agriculture such as promoting effective water management and soil conservation, soil nutrient management, and ensuring sustainable use of agro chemical, among others.

- 21) Despite the strengths stipulated on mainstreaming ecosystem into agriculture, Table (2) shows that the policies reviewed are devoid of environmental thresholds and associated indicators for monitoring unsustainable trends caused by the agriculture practices to the ecosystem. The exception is Uganda that has the National Environment Regulations (2001) with minimum standards for management of soil quality; and Regulations, S.I. No 5/1999 standards for discharge of effluents into water or land. For instance, Regulation 2001 clearly spells out the minimum soil quality parameters for irrigated and for rain-fed agriculture, while Regulations S.I. No 5/1999 stipulates the standards for discharge of effluents or waste water with the maximum permissible limits of various elements and chemicals in Uganda. In all cases however, implementation of the set guidelines is not effected in the country.
- 22) Establishing, tracking and working within the permissible limits of environment thresholds is critical in sustainable agriculture. This is because agriculture in the EAC is one of the major causes of environment degradation in the region; and failure to monitor the trends is detrimental to the ecosystem. For instance, following continued nitrogenous fertilizers use by Nzoia Sugar Company in western Kenya, River Nzoia got affected by heavy metals and physicochemical parameters like total phosphate, nitrate-nitrogen and dissolved oxygen beyond international levels. This endangered the ecosystem by lowering the soil pH as well as contamination of water thereby endangering the aquatic lives in the river (Omwoma, 2012). Worse still, resulting from excessive fertilizer use by the sugar company, Cowi (2002) reported annual loads of nitrogen and phosphorous in L. Victoria originating from Nzoia River basin as 3,340 total N tonnes and 946 total P tonnes per year; and the values were partly responsible for growth of water hyacinth in L. Victoria.
- 23) Similarly in Burundi, due to increased and poor agriculture practices, there is increased hillside erosion, which in addition to inorganic fertilizers and pesticides applied to farms eventually wash downstream and accumulate in basins causing pollution, thereby endangering the ecosystem (USAID, 2010). Indeed this may partly explain why industries like the artisanal palm oil near Rumonge is unregulated in disposing of by-products in the lakes and rivers. Also in Rwanda, the increased use of fertilizer under the Crop Intensification Program (CIP) has exacerbated contamination of the water bodies (REMA, 2014) thereby affecting the aquatic organisms. As well in Uganda, the failure to enforce the set standards has led to unregulated agro chemical applications. This partly explains why in 2014, the European Union threatened to suspend importation of Ugandan agricultural products including flowers, vegetables and fruits, following the use of banned chemicals and failure to meet phyto-sanitary requirements. In addition, this points to why for instance the Lower Nile has become excessively polluted by agro-chemicals (Mohamed *et al.*, 2005), thereby endangering the ecosystem to a wider scale.
- 24) The National Agriculture Policy (NAP) frameworks also point on strong collaborations across sectors such as trade and environment (Table 2). For instance, the Uganda's agriculture policy stipulates that the environment and natural resources sector shall mainstream appropriate policy measures on environmental management and natural resources in their programmes and intervene, in collaboration with the Ministry of Agriculture, Animal Industries and Fisheries (MAAIF) and other relevant ministries and agencies, to mitigate the impact of climate change and extreme weather events on agriculture in areas of high risk. Also in Tanzania, the policy stresses

collaboration of relevant ministries to strengthen the sustainable environmental early warning and monitoring systems; but also increased collaboration with the private sector to improve market intelligence and keep pace with changing market conditions and requirements.

- 25) Similarly PSTA III for Rwanda mentions several collaborative areas including Ministry of Agriculture and Animal Resources (MINAGRI) with Ministry of Natural Resources (MINIRENA) to improve hydrological monitoring networks and better predict seasonal flows including droughts, floods and small-scale shortages; and increasing agricultural exports and cross border trade channels where MINAGRI and National Agricultural Export Board (NAEB) targets collaboration with Ministry of Trade and Industry (MINICOM), Ministry of the East African Community (MINEAC) and Rwanda Bureau of Standards (RBS) to expand EAC trade. In Kenya, the ASDS 2010-2020 recognizes that the agriculture sector is a key player in multilateral and bilateral trade with the objectives of expanding and diversifying agricultural products and markets; and it calls for collaboration with other relevant sectors and subsectors to promote economic cooperation and regional integration as a strategy for expanding local markets.
- 26) Overall, gender is mainstreamed in all the EAC policies/ strategies/ plans reviewed under agriculture (Table 2). In Burundi, the National Plan for Agricultural investment (PNIA) 2012-2017 calls for promoting entrepreneurship towards women and youth under its second objective. Rwanda has a detailed Agriculture Gender Strategy (2010) under MINAGRI and the overall objective is to contribute to poverty reduction and sustainable development through institutionalisation of gender responsive programming (planning and budgeting), implementation, monitoring and reporting systems and improve gender equality in the agriculture sector. In Tanzania, the National Agriculture Policy has four strategies aiming for equitable participation of men and women in the production of goods and services in agriculture while ensuring that benefits are equitably shared. Also in Uganda, mainstreaming gender issues in SLM interventions is a main thrust within the Uganda Strategic Investment Framework for Sustainable Land Management (U-SIF SLM)-2010-202.
- 27) Although the findings suggest appreciable levels of gender mainstreaming in agriculture, implementation of the stipulated strategies is generally weak for all the countries. This is a serious gap that needs to be addressed in achieving ecosystem sustainability, food trade and subsequently improved food security within the EAC. This is because agriculture is key to EM and women in the region contribute approximately 80% of agriculture labor force. For instance in Uganda, 72% of all employed women and 90% of all rural women work in agriculture (Ahabwe, 2011) compared to 53% of rural men. Women are also responsible for 90% of the total food production in Uganda and 50% of cash crop production, thus a key target to address ecosystem management and food security. In this regard, there is need to implement the comprehensive gender interventions as mainstreamed in the agriculture sector plans, strategies, budgets, programmes and projects at both national and sub national government levels.

4.2 National Environment policies and related frameworks

- 28) All sectors are users of environment resources and coordination of utilization is paramount to avoid degeneration. Thus there are several parameters to consider to ably assess an effective environment policy, and the key ones include, extent of collaboration, strategies for valuation of ecosystem services, climate change, defining and enforcing environment standards, strategies for regional cooperation, involving the private sector and gender mainstreaming. All these were considered while reviewing the environment frameworks for the EAC countries as in Table (3).
- 29) With regard to existing policy framework, all the EAC countries have taken commendable steps in the policy realm towards ensuring improved environmental sustainability. For the international commitments, all the five countries are signatories to the United Nations Framework Convention on Climate Change (UNFCCC); National Adaptation Programmes of Action (NAPAs); the Convention on Biological Diversity (CBD); National Biodiversity Strategies and Action Plans (NBSAP); and the United Nations Convention to Combat Desertification (UNCCD). On regional integration to address climate change, the region has adopted the East African Community

Climate Change Policy (EACCCP). Besides, Kenya, Uganda, and Tanzania are signatories of the Protocol on Sustainable Development of Lake Victoria Basin. At the national level, all the EAC environment policies have strategies for valuation of ecosystem services (Table 3). Nevertheless, no single country is implementing the stipulated strategies for valuation of ecosystem services used in production of food commodities. Consequently, the value of environmental resources is hardly reflected in pricing of marketed goods and services. Besides, environment strategies are weak at addressing sustainable food trade except for Kenya (Table 3); and this was also observed with the national trade policies. Thus, the policy frameworks do not recognize trade as a useful tool in the adoption of mitigation strategies against ecosystem deterioration.

Table 4: EAC country level environment policies and frameworks scores in relation to mainstreaming ecosystem, food trade and gender

Criteria	Country score				
	Burundi	Kenya	Rwanda	Tanzania	Uganda
1. Strategies consistent with the national vision and regional integration	93	93	93	93	93
2. Strategy/framework of inter and cross sectoral collaboration/ coordination	93	87	80	80	93
3. Strategy for sustainable food trade embedded in the policy	0	67	80	20	0
4. Strategy on incentives to invest in SEM	67	87	67	73	73
5. Climate change management strategy	93	93	87	87	87
6. Strategy for valuation of ecosystem services/resources embedded	67	73	67	73	67
7. Environment thresholds for ecosystem resources used in food production implemented	0	0	0	0	0
8. Strategy/act for enforcing environment legislations including on water, land, forest, wetlands and pollution	87	73	80	67	67
9. Actions to address issues of incentives, rewards and sanctions regarding use of ecosystem services	87	73	73	80	80
10. Mechanisms to promote regional cooperation for environment management are within the policy	87	93	87	87	87
11. Strategy of engaging the private sector in sustainable ecosystem management	73	73	87	73	80
12. Gender mainstreamed	80	80	80	67	80

30) Prioritization of environment and natural resources remains low among policy makers and the general public partly due to inadequate appreciation of the total economic value of the sector. Thus prices paid by resource users never reflect the cost of resource replacement or rehabilitation; and this discourages community participation in ecosystem conservation. Indeed, economic valuation is a very important tool in encouraging community participation in support of environment conservation as it reveals the tangible benefits arising from ecosystem and conservation, which can also be used to extrapolate the losses along with ecosystem loss. Economic valuation can also serve to raise awareness among policy makers and the general public of the unrecognized economic benefits of conservation. For example through valuation, it was established that Egypt, a highly water-stressed country, imported 8 million metric tons of grain from the United States in 2000 (Molden *et al.* 2007). However, to produce this amount of grain, Egypt would have needed about 8.5 cubic kilometers of irrigation water, a substantial

proportion of Egypt's annual supply from Lake Nasser of 55.6 cubic kilometers. Another example is in Japan, a land-scarce country and the world's biggest grain importer. Japan would require an additional 30 billion cubic meters of crop water to grow the food it imports (Molden *et al.*, 2007). Thus, a strategic increase in international food trade, and trade in virtual water coupled with appropriate valuation tools, could likewise mitigate water scarcity and reduce environmental degradation in the EAC.

- 31) According to Table (3), all the EAC countries recognize the importance of incentives in SEM. The Five year strategic plan for environment and natural resources (2014-2018) in Rwanda recognizes that in order for the country's natural resources and environment to be sustainably managed, there is a need to adopt economic and business approaches that provide incentives for sustainability, raise revenue, increase employment as well as increase financial resources for the sector. It is thus keen at developing and implementing an incentive structure to award performance in environmental management. In Uganda, one of the key principle targets in the environment policy is to establish a social and economic environment which provides appropriate incentives for sustainable natural resource use and environmental management. The policy has several actions to this effect such as mobilizing private sector resources to achieve environmental conservation and management objectives, through the use of incentives, management contracts, leases, concessions, joint ventures, and production sharing agreements. In Tanzania, establishing government incentive system for SEM is a priority. Similarly in Kenya, the environment policy has set actions to ensure the provision of economic incentives for investment in more efficient, clean and environment-friendly production technologies and associated capacity building.
- 32) Table (3) also suggests that the environment policies and frameworks are designed with inherent opportunities for integration and pursuing of SEM. Kenya established the Environment Management and Coordination Act (EMCA) of 2012 and one of the objectives is to promote cooperation among public departments, local authorities, private sector, NGOs and such other organizations engaged in environmental protection programmes. This includes harmonization of conflicting policies in key sectors such as water, forestry, wildlife, energy and agriculture.
- 33) Similarly for Tanzania, the Environment Act of 2004 provides a legal framework necessary for coordinating harmonious and conflicting activities with a view to integrating such activities into an overall sustainable environmental management system by providing key technical support to Sector Ministries. The Act also provides for a National Environment Management Council (NEMC) to undertake enforcement, compliance, review and monitoring of environmental impact assessment and in that regard, ensure effective coordination over all matters relating to the environment. Besides, it provides for a Regional Secretariat for coordination of all advice on environmental management in the respective regions and liaison with the Director of Environment and the Director-General on the implementation and enforcement of this Act. As well within the NBSAP, Tanzania developed a national Clearing-House Mechanism (CHM) under the Ministry responsible for Environment. The CHM was designed to support implementation of the NBSAP in various ways, including strengthening coordination and collaboration among key stakeholders.
- 34) The Uganda's Environment Management Policy (2014) recognizes that environmental concerns are cross-sectoral and require an integrated multi-sectoral management approach which provides for a comprehensive institutional mechanism that ensures wide and active participation and interaction by everybody. Thus, the policy lays strategies to strengthen the National Environment Management Authority (NEMA) as the principal agency responsible for coordinating, monitoring, supervising and regulating all activities in the field of the environment; as well as streamline mandates, roles and responsibilities of the different actors in the Environment and Natural Resources (ENR) management.

- 35) In Rwanda, the National Environment Policy (2004) mandates Rwanda Environment Management Authority (REMA) to coordinate the different institutions to promote the integration of environmental issues in the developmental policies, projects and programmes with the aim of ensuring appropriate management and rational use of environmental resources on the basis of sustainable production. Also to attain the five year strategic plan (2014-2018) for the environment and natural resources sector in Rwanda, the key emphasis is collaboration of the relevant sectors influencing the use of natural resources.
- 36) Although numerous sections of policy frameworks point to cross sectoral collaboration, the actual implementation of the coordination mechanisms among the key sectors is weak, and in some cases, this is characterized by overlapping mandates among the institutions that influence ecosystem management. For instance in Uganda, during the interview with MAAIF, it was reported that water for agriculture production/irrigation is under both MAAIF and Ministry of Water and Environment, but there are no clearly stipulated policy guidelines on the roles to be played by each ministry. Besides, policy experts from NEMA and MAAIF mentioned that awareness of what each ministry/institution is undertaking and how synergies can be achieved, remain a challenge due to weak horizontal cooperation and ineffective partnerships among the actors. A similar concern was raised by a gender expert from Ministry of Gender regarding the reluctance of NGOs to share information with government agencies.
- 37) Related to cross sectoral collaboration, the countries have put in place adequate legislations to protect the environment from degradation (Table 3). However, enforcement is hardly undertaken. For example, Tanzania prepared guidelines in 2014 for sustainable management of wetlands as provided for by the Environment Management Act (2004) section 56, subsection 5. Although the guidelines outline the appropriate path in managing wetlands sustainably for present and future generation of Tanzania, this is characterized with poor enforcement and thus, always violated. In Uganda, a comprehensive wetland policy with regulations that clearly define a wetland are in place. However, there is no national wetland inventory gazetted wetlands. NEMA and stakeholders in validation meeting in Uganda mentioned that this coupled with limited resources (human and finance) as well as rampant corruption make enforcement difficult.
- 38) The results in Table (3) further reveal that the policy frameworks on environment in the EAC countries are devoted to institutionalizing gender into the relevant interventions. In Uganda, one of the key principles of the National Environmental Management Policy (2014) states that “Effective involvement of women and youth in natural resource policy formulation, planning, decision making, management and program implementation is essential and should be encouraged”. The policy provides for integration of gender concerns in environmental policy planning, decision making and implementation at all levels to ensure sustainable social economic development. In Rwanda, the Environment Policy and the Five Year Strategic Plan (2014 – 2018) deliberately pay attention to greater involvement of the women and youth in environment and Natural Resources Management (NRM) issues and appropriate line actions were designed. Similarly for Tanzania, the Environment Policy focuses on ensuring inclusion of gender considerations in environment management. In Kenya, some of the key policy actions focus on mainstreaming gender and equity in all sustainable development policies; and providing incentives to attract the under-represented gender and other vulnerable groups into environmental management careers, occupations and programmes.

4.3 National Land policies and related frameworks

- 39) Land is a key factor of production and as a result, it is highly abused. Besides, within the EAC, it is a major source of conflict and is an area where marginalization of women and the poor is predominate. Therefore an effective land policy framework that addresses ecosystem and food security concerns should contain strategies dealing with enforcement of land rights, sustainable utilization, conflict resolution, and involvement of stakeholders in policy formulation as well as effective at addressing gender issues. The analysis in Table (4) deals with these parameters and shows that existing policies and legislations are strong and adequate to deal with land issues that

affect ecosystem and food security in each of the EAC member countries as reflected with the high overall percentage scores.

- 40) Specifically, there are well laid strategies for collaboration on land issues in each country, and integrated strategies are in place to ensure sustainable land use. Similarly procedures for land dispute resolution as well as appropriate strategies to enforce enacted land legislations exist for all the countries although relatively weak in Kenya and Rwanda. In addition, all the National Land Policies (NLPs) have appreciable levels of gender mainstreaming but with varying degrees among the countries. For instance, to protect the rights of women, the Kenya Land Policy stipulates eight key actions including enforcing existing laws and establishing a clear legislative framework to protect the rights of women in issues of inheritance to land and land-based resources; as well as ensuring proportionate representation of women in institutions dealing with land at all levels. Similarly, in Rwanda, one of the principles of the policy is that women, married or not, should not be excluded from the process of land access, land acquisition and land control, and female descendants should not be excluded from the process of family land inheritance. In Tanzania, in order to enhance and guarantee women’s access to land and security tenure, according to the Land Policy, women are entitled to acquire land in their own right not only through purchase but also through allocations.

Table 5: EAC country level land policies and frameworks scores in relation to mainstreaming ecosystem, food trade and gender

Criteria	Country score				
	Burundi	Kenya	Rwanda	Tanzania	Uganda
1. Strategies consistent with the national vision and regional integration	73	73	67	73	73
2. Strategy/framework of inter and cross sectoral collaboration	60	73	67	53	73
3. Strategy/act for enforcing land rights legislations including capacity development for enforcers, and land rights of marginalized groups	67	73	80	80	80
4. Strategy for sustainable land use and management including land use planning	60	80	73	67	80
5. Strategy for stakeholders participation in matters pertaining to land especially on policy formulation and implementation	60	73	67	60	73
6. Domestic land dispute management system	67	47	47	73	67
7. Gender is institutionalized	53	67	67	60	80

- 41) In Uganda one of the principles in the Land Policy is that access to and transmission of land must reflect concern with equity and justice irrespective of gender; and one of the strategies is to modify the rules of transmission of land rights under customary land tenure to subsequently guarantee gender equality and equity. Nevertheless, land issues in the EAC remain complicated and implementation of the policy frameworks is weakly undertaken for reasons ranging from gender disparity, legal complexities, political interference, corruption, inadequate knowledge of enforcers, and extreme poverty within the region.

- 42) For instance, the co-existence of customary and statutory laws provides an overlapping set of legal institutions, each characterized by its own sets of rules, principles, and accepted

procedures. In general however, customary practices in most parts of the region continue to override statutory law in recognition and enforcement of women's land rights, abating unnoticed land grabbing at family level. For example in Kenya, despite a progressive legal framework, Kenyan women's land rights continue to lag behind those of men. This is because the customary law, which often discriminates against women and limits their land and property rights, governs at least 65% of land in Kenya, and the patriarchal nature of Kenyan society often limits the rights of even those women not living on land governed by custom (FIDA, 2009). Also in Uganda, the country's National Land Policy (2011) clearly provides for rights of all citizens to have access and to own land. However in practice, women are not able to make use of such laws. Women are typically given few or no rights to land during their marriages, and are hardly permitted, for example, to add their names to documents indicating ownership of property – and even fewer upon the death of a husband. The option of seeking redress in courts is theoretically available to women – and, indeed, the judiciary is trained to enforce the land ownership and inheritance rights of women, deference to customary norms notwithstanding – but, in practice, that process is long, costly, difficult to access, and confusing. To support this, in Uganda the Marriage Codes guarantees women 15% of their husband's estate, though it is common for all assets to pass back to the husband's family (OECD, 2009). Similarly in Tanzania, although the formal laws mandate gender equality in property rights and require female representation on land governance bodies, in practice, customary law, traditional practice and religious norms combine to maintain paternalistic systems and limit women's ownership and control of land.

- 43) Nevertheless, considering the women's extensive participation in agricultural production, their access to and control of ecosystem resources including land is critical for SEM and increased productivity. According to Akanji (2007), agricultural productivity in the EAC could increase by 20% if women's access to resources such as land, seed and fertilizers were equal to that of men's, and this also leads to an improved ecosystem. Kawamara-Mishambi and Ovonji-Odida (2003) expressed similar view that without secure rights to land, women's ability and incentive to participate in income-expanding economic activity are reduced.
- 44) This is further supported by Gebreseclassie *et al.* (2009) who established that land security significantly increases the probability of adoption. Another empirical study by Gebremedhin and Swinton (2003) also point to security of tenure as a critical in determining incentives to conserve land quality, while the Uganda Gender Policy-2007 similarly stresses that gender imbalance in agricultural and lower incentives for women affects investment in agricultural production for the market. In the same line, FAO (2011b) report argues that reducing gender inequalities in access to productive resources and services could produce an increase in yields on women's farms of between 20% and 30%, which could raise agricultural output in developing countries by 2.5% to 4%, while protecting the ecosystem from degeneration and thereby improving food security.

4.4 Water policies and related frameworks

- 45) Water scarcity threatens food security, energy production and environmental integrity and consequently there are water use conflicts between sectors of the economy. To analyse the water policy framework, issues that directly influence water availability and utilization were considered and are listed in Table (5). Using these parameters, the general ratings/scores of the water policy frameworks for all the countries are generally high. Indeed, according to the policy documents, the issues that directly influence sustainable use and availability of water such as water resources conservation and demand, climate change, water for agriculture production, waste water management, and water use efficiency are incorporated in the frameworks of the individual countries as indicated in Table (5). For instance, in all the countries, the National Water Policies (NWP) pay attention to the importance of environment in the development and implementation of water resources.

Table 6: EAC country level water policies and frameworks scores in relation to mainstreaming ecosystem, food trade and gender

Criteria	Country score				
	Burundi	Kenya	Rwanda	Tanzania	Uganda
1. Strategies consistent with the national vision	73	87	80	73	73
2. Strategy for inter and cross sectoral collaboration	73	80	67	80	73
3. Issues of climate change management are addressed	67	80	73	67	60
4. Strategy for sustainable water resources conservation and waste management	80	87	67	80	67
5. Water resources assessment plan	93	87	73	73	73
6. Strategy on water for agriculture production	80	80	87	80	87
7. Research strategy for water use efficiency	87	87	53	73	67
8. Strategy of engaging the private sector in sustainable water management	80	80	73	80	60
9. Gender mainstreamed	80	80	80	80	87

46) The policies also recognize that the development of water programs should be conducted in a way that is environmentally friendly and that the utilization of water by one generation should not in any way adversely affect the prospect of utilization by subsequent generations. They also call on environmental authorities to provide environmental advisory and guidance so as to ensure that the set objectives for the water policy with respect to environmental conservation and protection are properly achieved. In addition, the Kenya's National Irrigation Policy draft (2015) calls for rehabilitating and protecting water catchments, while improving water use efficiency.

47) The policy frameworks are also highly rated regarding collaboration. The Uganda National Water Policy (1999) recognizes the close links between land use and water quality, as well as wetlands and water resources; and calls for collaboration among the various stakeholders including the private sector to ensure effective and efficient resources utilization. The Policy aims at promoting an integrated approach to manage the water resources in ways that are sustainable and most beneficial to the people of Uganda. In Kenya, the implementation plan of the National Water Management Plan (2030) was partly designed to ensure that the sector is operating in a coordinated and a harmonized approach that supports a high level of development effectiveness and sound communication. For instance, it calls for the establishment of inter-ministerial coordination committee to coordinate conflicts among different water users. The National Water Policy (2002) in Tanzania recognizes that lack of coordination and collaboration may result in duplication of efforts and misallocation of available resources; and set a goal with strategies targeting strong coordination and collaboration mechanisms with key stakeholders. In Rwanda, the 2008 water law provides an institutional framework for the coordination of water resources management, a key ingredient of integrated water resources management. In addition, the policy and its implementation are premised on close collaboration and substantial financial contribution from many stakeholders

- 48) Regarding gender, the water sectors for the EAC countries adequately mainstreamed gender in their policy frameworks. In Rwanda, the Water and Sanitation Sector Strategic Plan 2013/14 - 2017/18 was designed while ensuring that all sector activities are implemented in a way that addresses equal participation and representation of men and women, and to pay due attention to the viewpoints, needs and priorities of women. In addition, the water policy targets to attain at least 40% females in decision-making positions on water issues. Similarly in Kenya, the policy enforces the one-third rule constitutional provision for participation of women in water sector leadership such as representation to boards in the sector; and it encourages women to investment in the water sector and have access to employment opportunities.
- 49) Additionally, the National Water Policies in Tanzania and Burundi take recognizance of the role of women in provision, management and water conservation; and have well stipulated strategies to ensure active and effective participation of women and men in water programs. In the same line, Uganda has comprehensive Water Sector Gender Strategy (WSGS) 2010-2015 which aims to enhance gender equity, participation of both women and men in water management, and equal access to and control over water resources in order to alleviate poverty. The strategy is designed to provide guidelines to water sector stakeholders on how to mainstream gender in their work plans and for the planning and implementation of water and sanitation programmes within the decentralized districts. In addition, Uganda's National Water Policy (1999) recognizes the importance of gender and states that women's involvement in design, construction, operation and maintenance of improved water supply and sanitation facilities should be supported through training. The policy further emphasizes that under the Community Based Maintenance System, a Water User Committee should have at least 50% women representatives.

Chapter 5: Conclusion and Recommendations

50) This review covered the national policy frameworks in the EAC countries that are relevant to addressing ecosystem service and trade based food security with gender equity. The analysis revealed that existing policies and legislations are relatively strong and adequate to deal with SEM and food security issues. For instance, the national development Visions for all the EAC countries show deliberate efforts to promote SEM, improved food security and gender equity. Nevertheless, a couple of gaps that need to be addressed have been identified. Broadly for all the countries, the working relationship among the relevant sectors such as ministries of trade, agriculture, environment, land, water, irrigation, etc is weak to enable effective coordination, collaboration and subsequent implementation of the set strategies/ actions. For instance, although gender strategies are well mainstreamed in most of the policies, corresponding implementation is weak across all ministries implementing the policy documents studied. An example is the land policy where while all the countries are committed to tackling challenges posed by gender disparity within the land sector, coordination and management of strategic activities are fragmented among different actors. Besides, policy strategies linking trade to environment are either weak or none existent depending on the country. In the same line, although the agriculture policy frameworks substantially mainstreamed ecosystem, the countries' strategies and actions are devoid of environmental thresholds except for Uganda. The specific recommendations per country are listed as below;

a. Burundi:

- Embedding ecosystem considerations into trade policies will harmonize and strengthen inter-sectoral and multi-sectoral collaboration between key sectors. Optimizing collaboration will result in synergies and ultimately reduce costs, while attaining sustainable ecosystem management.
- Undertaking valuation of ecosystem services can help ensure that pricing policies are responsive to conserving and sustaining natural resources. If resource users pay a price that reflects the cost of resource replacement or rehabilitation of ecosystems, then ecosystems and ecosystem services can be preserved into the future, which is critical to national and regional food security.
- Formulating and implementing guidelines of environmental thresholds will support adoption of environmentally friendly technologies and ultimately sustainable utilization of natural resources used in production of the traded commodities.
- Establishing an exclusive and comprehensive legislative framework under a leading institution with mandate to coordinate efforts in land issues, while emphasizing concerns related to gender equality and marginalized groups, will reduce gender inequalities in access to land resources and support improved management and utilization of land and subsequently increased and sustainable agricultural production.
- Removing the impediments faced by women in business and proactively promoting the participation of women in trade will boost exports and revenue for the country. Incorporating and implementing comprehensive strategies of gender mainstreaming into the national trade policy will facilitate fair involvement of women and youth in trade.

b. Kenya:

- Undertake valuation of ecosystem services to support pricing policies be aligned with conserving and sustaining natural resources; and subsequently ensure that resource users pay a price that reflects the cost of resource replacement or rehabilitation of ecosystems, as stipulated in the Environment Policy, 2013 under section 5 on environmental stewardship
- Formulating and implementing guidelines of environmental thresholds to support adoption of environmentally friendly technologies and ultimately sustainable utilization of natural resources used in production of the traded commodities.
- Establishing an exclusive and comprehensive legislative framework under a leading institution with mandate to coordinate efforts in land issues, while emphasizing concerns related to gender equality, and between the pastoral and farming communities, will

reduce land disputes as well as gender inequalities in access to land resources and support improved management and utilization of land and subsequently increased and sustainable agricultural production.

c. Rwanda:

- Undertaking valuation of ecosystem services can help ensure that pricing policies are responsive to conserving and sustaining natural resources. If resources are valued, as proposed for wetlands within the Five Year Strategic Plan for the Environment and Natural Resources Sector (SPENRS)-2014-2018, and resource users pay a price that reflects the cost of resource replacement or rehabilitation of ecosystems, then ecosystems and ecosystem services can be preserved into the future, which is critical to national and regional food security.
- Formulating and implementing guidelines on environmental thresholds will support adoption of environmentally friendly technologies and ultimately sustainable utilization of natural resources used in production of traded food staples.
- Developing and implementing an incentive structure to award performance in environmental management, as enshrined in the Five Year SPENRS will encourage best practices and positive attitudes towards sustainable use and value adding investments in ecosystem-related sectors such as agriculture.

d. Tanzania:

- Establishing a functional integrated framework that embeds ecosystems into trade will harmonize and strengthen inter-sectoral and multi-sectoral collaboration between key sectors. Optimizing collaboration will result in synergies and ultimately reduce costs, while attaining sustainable ecosystem management.
- Undertaking valuation of ecosystem services can help to ensure that pricing policies are responsive to conserving and sustaining natural resources. If resource users pay a price that reflects the cost of resource replacement or rehabilitation of ecosystems, as stipulated in the Environment Act, 2004, then ecosystems and ecosystem services can be preserved into the future, which is critical to national and regional food security.
- Formulating and implementing guidelines of environmental thresholds will support adoption of environmentally friendly technologies and ultimately sustainable utilization of natural resources used in production of the traded commodities.
- Removing the impediments faced by women in business and proactively promoting the participation of women in trade will boost exports and revenue for the country. Incorporating and implementing comprehensive strategies of gender mainstreaming into the national trade policy will facilitate fair involvement of women and youth in trade.
- Establishing an exclusive and comprehensive legislative framework under a leading institution with mandate to coordinate efforts in land issues, while emphasizing concerns related to gender equality and marginalized groups, will reduce gender inequalities in access to land resources and support improved management and utilization of land and subsequently increased and sustainable agricultural production.

e. Uganda:

- Establishing a functional integrated framework that embeds ecosystems into trade will harmonize and strengthen inter-sectoral and multi-sectoral collaboration between key sectors. Optimizing collaboration will result in synergies and ultimately reduced costs, while attaining sustainable ecosystem management.
- Undertaking valuation of ecosystem services will help to ensure that pricing policies are responsive to conserving and sustaining natural resources. If resource users pay a price that reflects the cost of resource replacement or rehabilitation of ecosystems, as enshrined in the Environment Policy, 2014, then ecosystems and ecosystem services can be preserved into the future, which is critical to national food security.
- Implementing strategies that support the realization of policy statements 126 (a) and (b) under the Land Policy, 2013, that target designing and implementing a comprehensive framework for proper stewardship of land resources will support optimal use and sustainable management of land resources in an integrated manner.
- Implementing strategies that support the realization of policy statement 66 (a) and (b) of the Land Policy will ensure greater equality in access to land for both men and women.

Reducing gender inequalities in access to land resources will ensure improved management and utilization of land resulting in increased and sustainable agricultural production.

- Removing the impediments faced by women in business and proactively promoting the participation of women in trade will boost exports and revenue for the country. Thus, incorporating and implementing comprehensive strategies of gender mainstreaming into the national trade policy will facilitate fair involvement of women and youth in trade.

References

- Ahabwe M. M. 2011. Food security: challenges, Solutions and Good Practices. Presentation at the Jane Addams Hull house Museum- University of Illinois Chicago on October 11, 2011. ICOD Action Network-Uganda.
- Akanji B. 2007. Creating Gender equity in Growth Areas of African Development: Trade and Investment: Some Lead Issues,' Discussion paper, Expert group Meeting of the Africa Partnership Forum-Support Unit and NEPAD Secretariat OECD, Berlin, Germany Feb 2007.
- Brenton P, Bucekuderhwa C. B, Hossein C, Nagaki S and Ntagoma J. B. 2012. Risky Business: Poor Women Cross-border Traders in the Great Lakes Region of Africa. In *De-Fragmenting Africa: Deepening Regional Trade Integration in Goods and Services*. Edited by Paul Brenton and Gözde Isik.
- Cowi 2002. Integrated Water Quality Limnology Study for Lake Victoria. Lake Victoria Environmental Management Project, Part II Technical Report Daniels A. E., and G.S. Cumming. 2008. Conversion or conservation? Understanding wetland change in northwest Costa Rica. *Ecological Applications* 18:49-63.
- Cuts International. 2013. Climate, Food, and Trade: Where is the Policy Nexus? Lessons from the East African Community.
- Devisscher T. 2010. Ecosystem-based Adaptation in Africa: Rationale, Pathways, and Cost Estimates: April, 2010 Sectoral Report for the Adapt Cost Study.
- FAO. 2007. Environment and Agriculture. Committee on Agriculture, 20th Session, Rome, April.
- FAO. 2011a. Save and Grow. A policymaker's Guide to the Sustainable Intensification of Smallholder Crop Production, FAO, Rome, 102pp.
- FAO. 2011b. *The State of Food and Agriculture: Women in agriculture – Closing the gender gap for development*. Rome.
- FIDA. 2009. Women's Land and Property Rights in Kenya (2009)
- Gebremedhin B. and Swinton S. M. (2003). Investment in soil conservation in Northern Ethiopia: the role of land tenure security and public programs, *Agricultural Economics*, 29, 69–84.
- Gebreselassie S., Hagos F., Haileslassie A., Bekele S.A., Peden D. and Tafesse T. 2009. *Determinants of Adoption of Improved Land and Water Management Practices in the BNB: Exploring Strategies for Outscaling of Promising Technologies*, Proceedings of the 10th Conference of the Ethiopian Society of Soil Science (ESSS), 25–27 March 2009, EIAR, Addis Ababa, Ethiopia.
- GFSI. 2014; 2015. The Global Food Security Index 2015; and 2015.
- Higgins K. 2012. Gender Dimensions of Trade Facilitation and Logistics A Guidance Note.
- Kawamara-Mishambi S and Ovonji-Odida I. 2003. The campaign to advance Women's Property rights in Uganda" in *No shortcuts to Power; African women in Politics and Policy Making* edited by Anne Marie Goetz and Shireen Hassim, Zed Book: London.
- Lesser C. and Moise-Leeman E. 2009. 'Informal Cross-Border Trade and Trade Facilitation Reform in Sub-Saharan Africa', OECD Trade Policy Working Paper, No. 86, Paris.
- Masinjila M. 2009. Gender Dimensions of Cross Border Trade in the East African Community – Kenya/Uganda and Rwanda/Burundi Border: African Trade Policy Centre.

- Mohamed, Y. A., van den Hurk, B. J. J. M., Savenije, H. H. G. and Bastiaanssen, W. G. M. 2005. The Nile Hydro-climatology: results from a regional climate model, *Hydrology and Earth System Sciences*, 9, 263–278.
- Molden, D, Charlotte de Fraiture, and Rijsberman F. 2007. Water Scarcity: The Food Factor. *Issues in Science and Technology* 23, no. 4.
- OECD. 2009. *Social Institutions and Gender Index*. <http://genderindex.org/country/27ommer>
- Omwoma S. 2012. Environmental Impacts of Sugarcane Farming, Kenya: Effects of Nitrogenous Fertilizer use on Soil and Water Chemistry within the Sugarcane Farms.
- Power A.G. 2010. Ecosystem services and agriculture: tradeoffs and synergies Published 16 August 2010.DOI: 10.1098/rstb.2010.0143.
- REMA, 2014. Impact of fertilizer use in Rwanda (Rweru-Mugesera Wetland Complex). Prepared by the Green World Consult Ltd, 143pp.
- Sachs, C. 2009. Gender and Natural Resources Management. In *Gender in Agriculture Source Book* by the World Bank, 2009.
- Simavi S, Manuel C and Blackden M. 2010. *Gender Dimensions of Investment Climate Reform. A Guide for Policy Makers and Practitioners*. Washington DC: World Bank.
- UNIFEM. 2009. 'Findings of the Baseline on Studies on Women in Informal Cross Border Trade in Africa,' Presentation Brussels, 24 March 2009
- USAID. 2008. Rwanda Environmental Threats and Opportunities Assessment, 2008 update. Prepared by Chemonics International Inc.
- USAID. 2010. Burundi Environmental Threats and Opportunities Assessment. Prepared by: James Beck, Geoffroy Citegetse, Jason Ko, and Skye Sieber, September 2010
- USAID. 2012. Tanzania Environmental Threats and Opportunities Assessment. Prepared by: Bruce Byers, Zakiya Aloyce, Pantaleo Munishi, and Charles Rhoades.
- Verma. R. 2001. Gender, Land, and Livelihoods in East Africa: Through Farmers' Eyes. International Development Research Centre 2001, 284pp.

Appendices

Appendix 1: EAC country Development Visions reviewed

Country	Vision
Burundi	Burundi Vision 2025
Kenya	Kenya Vision 2030
Rwanda	Rwanda Vision 2020
Tanzania	The Tanzania Development Vision 2025
Uganda	Uganda Vision 2040

Appendix 2: Burundi policies and strategies reviewed

Policy/strategy theme	Policies/strategies used to score
Trade	National Trade Policy (2009)
Agriculture	National plan for Agricultural investment (PNIA 2012-2017)
Environment	National environment strategy (SNEB, 1998)
	National program for climate change adaptation (PANA, 2007)
	National strategy for communication on climate change and early warning on extreme climatic conditions (2014-2018)
	National strategy for biologic biodiversity (NSPA-DB, 2013)
	National strategy and action plan for fight against soil degradation (PAN/LCD2011-2016)
	Environment law code (2000)
Land	Land policy (2008)
	Land code (2012)
	National strategy and action plan anti land degradation (2011-2016)
Water	National Water policy (2009)
	National Water strategy (2011-2012)
	Water Code (2012)

Appendix 3: Kenya policies and strategies reviewed

Policy/strategy theme	Policies/strategies used to score
Trade	National Trade Policy (2009)
Agriculture	National Agriculture Policy (2015)
	National Agricultural Sector Extension Policy (NASEP)-2012
	The Agricultural Sector Development Strategy (ASDS) 2010-2020
	Agriculture Act Chapter 318
Environment	National Environment Policy (2013)
	The Environmental Management and Coordination Act (EMCA), (1999)
	National Climate Change Response Strategy (NCCRS)- 2010
	National Action Plan on Climate Change (NCCAP) (2013-2017)
Land	National Land Policy (2009)
	Land Act No. 6 of 2012
	Draft National Land Use Policy (May 2016)
Water	National Water Policy (2012)
	WRMA strategic plan (2012-2017)
	Water Act (2002)
	The National Water Master Plan (2030)
	National Irrigation Policy-draft (2015)

Appendix 4: Rwanda policies and strategies reviewed

Policy/strategy theme	Policies/strategies used to score
Agriculture	National Agriculture Policy (2004)
	Rwanda's Strategic Plan for the Transformation of Agriculture in Rwanda Phase III - 2013-2017 (PSTA III) (2013)

	MINAGRI. Agriculture Gender Strategy (2012)
Environment	National Environment Policy (2004)
	Five year strategic plan for environment and natural resources (2014-2018)
	National Bioversity Strategy Action Plans (2003)
	National Adaptation Programmes of Action (NAPA)-2006
	Climate Change Low Carbon Growth Strategy (2011)
Water	National Policy for Water Resources Management (2011)
	Water and Sanitation Sector Strategic Plan (2013/14-2017/18)
	Rwanda Irrigation Master Plan (2010)
Land	National Land Policy (2004)
	Land law (2013)

Appendix 5: Tanzania Policies and strategies reviewed

Policy/strategy theme	Policies/strategies used to score
Trade	National Trade Policy (2003)
Agriculture	National Agriculture Policy (2013)
	Agriculture Sector Development Program (2010)
Environment	National Environment Management Policy (1997)
	Climate Change Strategy (2012)
	National Biodiversity Strategy and Action Plan (NBSAP) (2015-2020)
	Environment Management Act (2004)
Land	National Land Policy (1997)
	Land Act (1999)
Water	National Water Policy (2002)
	National Irrigation Policy (2009)
	National Water Sector Development Strategy (2006-2015)

Appendix 6: Uganda policies and strategies reviewed

Policy/strategy theme	Policies/strategies used to score
Trade	National Trade Policy (2007)
Agriculture	National Agriculture Policy (2013)
	Agriculture Sector Development Strategy and Investment Plan (ASDSIP): 2010/11-2014/15
	Uganda Strategic Investment Framework for Sustainable Land Management 2010 - 2020
Environment	National Environment Management Policy (2014)
	The National Environment (Minimum Standards For Management Of Soil Quality) Regulations, 2001
	The National Environment (Wetlands, River Banks And Lake Shores Management) Regulations, No. 3/2000
	The National Environment (Waste Management) Regulations, S.I. No 52/1999
	National Policy for the Conservation and Management of Wetland Resources (1995)
	National Adaptation Programmes of Action (NAPA)-2007
Land	National Land Policy (2011)
	Land Act Chapter (227)
Water	National Water Policy (1999)
	The Water Act Cap 152.
	National Irrigation Master Plan 2010-2035
	Water and sanitation sub sector Gender strategy (2010-2015)