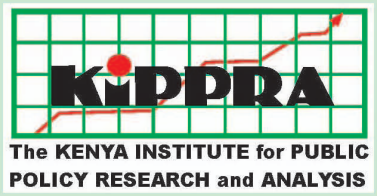
Special Report



Enhancing Productivity and Competitiveness of the Kenyan Economy Through A Cluster Development Strategy

SP/13/2012

KENYA INSTITUTE FOR PUBLIC POLICY
RESEARCH AND ANALYSIS
(KIPPRA)

Enhancing Productivity and Competitiveness of the Kenyan Economy Through a Cluster Development Strategy

Kenya Institute for Public Policy Research and Analysis

KIPPRA Special Report No. 13

2012

KIPPRA IN BRIEF

The Kenya Institute for Public Policy Research and Analysis (KIPPRA) is an autonomous institute whose primary mission is to conduct public policy research leading to policy advice. KIPPRA's mission is to produce consistently high quality analysis of key issues of public policy and to contribute to the achievement of national long-term development objectives by positively influencing the decision-making process. These goals are met through effective dissemination of recommendations resulting from analysis and by training policy analysts in the public sector. KIPPRA therefore produces a body of well-researched and documented information on public policy, and in the process assists in formulating long-term strategic perspectives. KIPPRA serves as a centralized source from which the Government and the private sector may obtain information and advice on public policy issues.

Published 2012
© Kenya Institute for Public Policy Research and Analysis
Bishops Garden Towers, Bishops Road
P.O. Box 56445-00200, Nairobi, Kenya
tel: +254 20 4936000; +254 20 2719933/4
fax: +254 20 2719951
email: admin@kippra.or.ke
website: http://www.kippra.org

ISBN 9966 777 83 0

The KIPPRA Special Reports Series deals with specific issues that are of policy concern. The reports provide in-depth survey results and/or analysis of policy issues. They are meant to help policy analysts in their research work and assist policy makers in evaluating various policy options. Deliberate effort is made to simplify the presentation in the reports so that issues discussed can be easily grasped by a wide audience. KIPPRA appreciates any comments and suggestions arising from this report.

KIPPRA acknowledges generous support from the Government of Kenya, the African CapacityBuilding Foundation (ACBF), and the Think Tank Initiative of IDRC.

TABLE OF CONTENTS

ABBREVIATIONS AND ACRONYMS

AAK Architectural Association of Kenya
ADC Agricultural Development Corporation
AI Artificial Insemination
ASALs Arid and Semi-Arid Lands
BMI Business Monitor International
BMUs Beach Management Units
BPO Business Process Outsourcing
CBK Central Bank of Kenya
CCK Communications Commission of Kenya
CDA Coast Development Authority
CDCs Community Development Committees
CMA Capital Markets Authority
CODA Cotton Development Authority
COMESA Common Market for Eastern and Southern Africa
COTU Central Organization of Trade Unions
EAC East African Community
EPC Export Promotion Council
EPZ Export Processing Zone
EPZA Export Processing Zones Authority
ERC Energy Regulatory Commission
FDIs Foreign Direct Investments
FPEAK Fresh Produce Exporters Association of Kenya
GDC Geothermal Development Company
GDP Gross Domestic Product
GoK Government of Kenya
HCDA Horticultural Crops Development Authority
IATA International Air Travel Association
ICA Investment Climate Assessment
ICT Information and Communication Technology
IEK Institute of Engineers of Kenya
IFAD International Fund for Agricultural Development
IMF International Monetary Fund
IMO International Maritime Organization
ISCOS Intergovernmental Standing Committee on Shipping
ISK Institute of Surveyors of Kenya
ISPS International Ships and Port Security code
JKUAT Jomo Kenyatta University of Agriculture and Technology
KAAO Kenya Association of Air Operators
KACC Kenya Anti-Corruption Commission
KADET Kenya Agency for Development of Enterprise and Technology
KAHC Kenya Association of Hotel Keepers and Caterers
KARI Kenya Agricultural Research Institute
KATA Kenya Association of Travel Agents
KATO Kenya Association of Tour Operators
KCC Kenya Cooperative Creameries
KEBS Kenya Bureau of Standards
KEMFRI Kenya Marine Fisheries Research Institute
KEPHIS Kenya Plant Health Inspectorate Services
KEPSA Kenya Private Sector Alliance
KERRA Kenya Rural Roads Authority
KESGA Kenya Sugarcane Growers Association
KESREF Kenya Sugar Research Foundation
KETRACO Kenya Electricity Transmission Company
KETRI Kenya Trypanosomiasis Research Institute
KEVEVAPI Kenya Veterinary Vaccines Production Institute
KFC Kenya Flower Council
KFS Kenya Ferry Services
KHC Kenya Horticultural Council
KIE Kenya Industrial Estates
KIFWA Kenya International Freight and Warehousing Association
KIPI Kenya Intellectual Property Institute
KIPPRA Kenya Institute for Public Policy Research and Analysis
KIRDI Kenya Industrial Research and Development Institute
KMA Kenya Maritime Authority
KMC Kenya Meat Commission
KMDP Kenya Maize Development Programme
KNBS Kenya National Bureau of Statistics

KPA Kenya Ports Authority
KPC Kenya Pipeline Company
KPLC Kenya Power and Lighting Company
KRA Kenya Revenue Authority
KSAA Kenya Ships Agents Association
KSB Kenya Sugar Board
KTDA Kenya Tea Development Authority
KTF Kenya Tourism Federation
KUDHEIHA Kenya Union of Domestic, Hotel, Educational Institutions, Hospitals and Allied Workers
LATF Local Authority Transfer Fund
LNGA Lake Naivasha Growers Association
LNRA Lake Naivasha Riparian Association
LSCI Liner Shipping Connectivity Index
LSK Law Society of Kenya
MCTA Mombasa and Coast Tourist Association
MoA Ministry of Agriculture
MoF Ministry of Finance
MoHEST Ministry of Higher Education, Science and Technology
MoI Ministry of Industrialization
MoIC Ministry of Information and Communication
MoT Ministry of Transport
MPS Milieu Project Sierteelt
MTP Medium Term Plan
NAS National Airport Services
NCPB National Cereals and Produce Board
NCTTCA Northern Corridor Transit Transport Coordination Authority
NEMA National Environment Management Authority
NESC National Economic and Social Council
NGOs Non-Governmental Organizations
PAPs Participatory Action Plans
PCPB Pest Control Products Board
PERAK Pubs, Entertainment and Restaurants Association of Kenya
PMAESA Port Management Association of Eastern and Southern Africa
PPP Public-Private Partnership
PSD Private Sector Development
PSDS Private Sector Development Secretariat
R&D Research and Development
SACCOs Savings and Credit Cooperative Organizations
SAM Social Accounting Matrix
SMEP Small Micro Enterprise Programme
SMEs Small and Medium Enterprises
SUCAM Sugar Campaign for Change
SUPAC Sugar Parliamentary Committee
T&L Transport and Logistics
TTCANC Transit Transport Coordination Authority of the Northern Corridor
WFP World Food Programme
WTO World Trade Organization

ACKNOWLEDGEMENTS

This report has been prepared by the staff of the Kenya Institute for Public Policy Research and Analysis (KIPPRA). It draws heavily from a study commissioned by the Ministry of Trade and conducted by KIPPRA with support from ECORYs Netherlands under the KEPLOTRADE II Project. The NESC Competitiveness Committee, Vision 2030 Delivery Secretariat, Office of the Prime Minister, Ministry of Trade, and the PSDS Goal 4 Steering Committee provided insightful comments and suggestions during the implementation of the study. The preparation of Participatory Action Plans benefitted greatly from a vibrant stakeholder participation during cluster workshops. The work was undertaken under the overall guidance of the Executive Director of KIPPRA, Dr Moses M. Ikiara.

We would like to thank the NESC Secretary, Julius Muia, and Eng. Abdul Razak, Permanent Secretary in the Ministry of Trade for their encouragement and support to have the study published as a report so as to inform policy dialogue and debate.

The report has been prepared by KIPPRA Cluster Team under the leadership of Dickson Khainga. The cluster team and their respective sectors and sub-sectors comprised Nahashon Mwongera (Tourism); Benson Kiriga (Livestock and Dairy); Eliud Moyi (Tea); Anne Gitonga (Cotton and ICT); Nashon Adero (Transport and Logistics); Nancy Muthoka (Horticulture), Joseph Sirengo (Sugar) and Hellen Hoka (Energy). The report also benefited from peer review in KIPPRA seminar system.

The study upon which this report draws received important contributions from current and former KIPPRA staff, namely: Rachael Musitia (Sugar); Jane Kibiru and Jackline Sagwe (Dairy); Maurice Ogada (Fisheries); Rhoda Gakuru (Tourism), Casty Mbae (Energy); Robert Nyaga and Daniel Keng'ethe (Maize); John Mutua (ICT) and Mary Kiveu (Tea). We wish to thank Koen Berden and Afke Mulder and David Regeczi, all of ECORYs Netherlands, for their technical support in the implementation of the study.

EXECUTIVE SUMMARY

The world economy is undergoing rapid change associated with globalization and liberalization, which has increased the need for industrial competitiveness. Kenya ranks low in global competitiveness and compares unfavourably with the East Asian economies that Kenya aspires to catch up with. The country needs to enhance competitiveness and transform the economy in to effectively address concerns related to unemployment, poverty and low standards of living.

During the past four decades, the government has implemented various policy tools to enhance competitiveness and transformation of the economy, but the level of success has been low. Kenya's industrial transformation has remained below its potential, with the share of manufacturing in total output stagnating at around 10 per cent. In the first decade after independence, the government adopted an import substitution strategy which, combined with expansion in cash crop farming, supported high economic growth of about 6.6% per annum. The state played a leading role and the strategy was seen as a means to facilitate high economic growth and transformation of the economy. However, the economy slowed down in the 1970s mainly due to external shocks and economic mismanagement.

In the 1980s, the failures of the previous decade and economic development challenges provided the rationale for policy change. Kenya, as many other developing economies, embarked on structural adjustment reforms supported by the World Bank and International Monetary Fund (IMF). The key aspects of the new policy regime included reduction in pervasive licensing and regulations that had created enormous opportunities for rent-seeking and corruption, privatization and staff rationalization to reduce the size of the public sector, and macroeconomic stabilization. However, in the 1980s and 1990s, the economy was characterized by stagnant and erratic growth (KIPPRA, 2009). In this regard, the new policy regime fell short of expected results.

The economy registered sustained recovery between 2003 and 2007, but the gains were disrupted in 2008 following the post-election violence, drought and external shocks. Consequently, growth declined from 7.1 per cent in 2007 to 1.7 per cent in 2008. By 2010, the economy was on a strong recovery path and expanded by 5.6 per cent. However, there are concerns about high youth unemployment, poverty, low standards of living, and level of economic transformation taking place and whether growth can be sustained.

Conscious of the challenges facing the Kenyan economy, the National Economic and Social Council (NESC) recommended the adoption of a ***cluster development strategy***. Cluster development strategies and the new structural economics represent an emerging middle ground in development thinking between heavy state interventions and unbridled free markets. Cluster-based development strategies recognize the fundamental role of the invisible hand of the market and the strategic role of the state in facilitation and coordination of development efforts towards economic transformation. Across the globe, there is growing evidence of a shift in economic policy towards a cluster-based development strategy. The cluster framework offers firms the opportunity to access knowledge, reduce research and development costs, achieve economies of scale, cluster skills and a qualified labour force, solve common problems,

and reduce costs due to geographical proximity and increased interaction with each other. Cluster development approaches have extended to urban and regional development in form of Special Economic Zones and city clusters.

The NESC identified 12 sectors and sub-sectors for analysis, with a view to implementing a cluster strategy in Kenya. These are: Transport and Logistics at the port of Mombasa, Horticulture, Sugar, Tea, Tourism, Marine and inland fisheries, Livestock, Energy, ICT, Maize, Cotton, and Dairy. The Vision 2030 advocates for regional manufacturing and industrial clusters as engines for realizing industrialization. In addition to the sectors and sub-sectors proposed by NESC, recent trade data indicate that Kenya has a comparative advantage in coffee, hides and skins, cement, tobacco and textiles. It also has opportunities to intensify and accelerate production within the technological ladder, including manufacture of resource-based products such as butter and ghee, pyrethrum extract, wattle extract, wood carvings, meat products, animal feeds, canned pineapples, essential oils, cement and petroleum products. Low technology products include textiles, leather, footwear and articles of plastics. The medium technology products include metal containers, wire products, insecticides and fungicides, and screws and nuts. At the high technology level, there are opportunities in the manufacture of medicinal and pharmaceutical products. Analysis of Kenya's imports by end-use indicates that there are opportunities for competitive substitution of imports through domestic production in areas such as animal and vegetable fats and oils, sugars, molasses and honey, textile fibres, and plastics. In this regard, there is potential to develop innovative policy frameworks to upgrade production and competitiveness in the aforementioned products.

The cluster analysis for the selected sectors and sub-sectors was implemented by the Kenya Institute for Public Policy Research and Analysis (KIPPRA), supported by ECORYS Netherlands, through KEPLOTRADE II. The selected sectors are mapped into 20 clusters and then further prioritized to six potential clusters based on performance, spatial concentration of economic activities, network data and parallel government policy. Participatory Action Plans (PAPs) have been developed for the six potential clusters, namely, Transport and logistics at the port of Mombasa, Coast Beach Tourism, Inland Fisheries in Kisumu, ICT in Nairobi, Beef in Garissa, and Horticulture in Naivasha-Limuru. The PAPs outline some of the practical grassroots solutions to the challenges Kenya faces with respect to productivity and competitiveness in the mapped clusters.

There are cluster-specific bottlenecks and barriers as well as cross-cluster bottlenecks. Some of the bottlenecks include input cost and quality, lack of proper coordination and optimization in the value chain, access to finance, corruption, infrastructure, low quality and product standards, and lack of effective collaboration with and support from research and development institutions.

As the government moves from planning to implementation of a cluster strategy, there is no simple generic solution to the governance framework, even though there are some important (international) lessons. Historically, Kenya has suffered from lack of a coherent approach to economic transformation, with most policies towards economic transformation being reactive. The East Asian experience supports the need for an institutional architecture that enjoys political leadership and support, proper coordination and deliberate mechanisms, and transparent and accountable implementation of specific policy tools. Representatives from the private sector, government and academic/consultancy/research community to support the piloting of the cluster initiatives must come together and address the challenges in a holistic way.

1. INTRODUCTION AND BACKGROUND

Kenya needs to enhance its competitiveness in the world economy in order to achieve the goals of the Kenya Vision 2030. The Vision 2030 envisages to transform Kenya into a modern, globally competitive middle income country with a high quality of life for all citizens by the year 2030. While the government is implementing the First Medium Term Plan 2008-2012 towards Vision 2030 goals, the country needs to navigate various challenges to put the economy on a sustained growth path. Kenya still ranks low in global competitiveness. For instance, the Global Competitiveness Report 2008 to 2009 ranks Kenya at 93 out of 134 countries, ahead of her East African neighbours - Tanzania (113) and Uganda (128). However, in 2010/11, Rwanda entered the rankings ahead of Kenya at position 88. The country compares unfavourably with the Asian Tigers that Kenya aspires to catch-up with. The East Asian economies are ranked as having superior business environment, including: institutions, social economic infrastructure, macroeconomic stability, market efficiency, and innovation capabilities. In Africa, Kenya was ranked 10th behind Tunisia, South Africa, Botswana, Mauritius, Morocco, Namibia, Egypt, Gambia and Libya in that order. The level of industrial development in Kenya as reflected in the share of manufacturing in total output, and manufacturing value added per capita, has stagnated during the last 20 years.

During the last four decades, development thinking has evolved substantially. In the first decade after independence, Kenya's economy grew at an annual rate of about 6.6 per cent largely driven by high growth in agriculture and industry, with import substitution strategy giving good results. However, in the 1970s and 1980s, growth faltered mainly on account of external shocks and economic mismanagement. The failure to achieve rapid growth within a stable macroeconomic environment provided the rationale for policy change towards the International Monetary Fund (IMF)/World Bank supported structural adjustment programmes. Under the structural adjustment programmes, Kenya initiated institutional and market reforms aimed at re-orienting the economy towards exports, macroeconomic stabilization, liberalization, and reduced role of the state in the economy. However, in the 1980s and 1990s, the Kenyan economy was characterized by stagnant and erratic growth (KIPPRA, 2009).

The economy registered sustained recovery between 2003 and 2007. However, the gains were disrupted in 2008 following post-election violence, drought, global financial crisis, and high global oil and food prices. Consequently, growth declined from 7.1 per cent in 2007 to 1.7 per cent in 2008. A slight recovery was recorded in 2009 when the economy grew by about 2.6 per cent. There are concerns about joblessness, poverty, low standards of living and whether growth can be sustained. In general, the World Economic Forum in its Global Competitiveness Report for 2010/11 has raised questions about the long-term sustainability of the recent growth episodes recorded in most sub-Saharan African countries.

Conscious of the challenges facing the Kenyan economy, the National Economic and Social Council (NESC) during its 17th Council meeting held on 29-30th May 2009 recommended the adoption of a **cluster development strategy** as a new direction in Kenya's economic policy.

Cluster development strategies and new structural economics represent an emerging middle ground in development thinking between heavy state interventions and unbridled free markets. Cluster strategies recognize the central role of the market in resource allocation, but also acknowledge that the state has a strategic role to play through facilitation and coordination of policies and programmes aimed at economic transformation.

There is growing global evidence on the significance of clusters in industrial development. Accordingly, in recent years, cluster initiatives have proliferated across the world. The Kenya Vision 2030 envisages that 'development of various industrial clusters will be promoted…..' (p.62-63). While economic policy at microeconomic level has largely focused on sector-by-sector interventions at the macroeconomic level, policy has mainly been informed by the structural adjustment framework, emphasizing stabilization and liberalization. Therefore, the cluster strategy presents a paradigm shift with respect to the role and balance between the state and private sector in economic development.

The overall objective of this study is to use a cluster approach to analyze the identified sectors and sub-sectors, and come up with practical grassroot solutions to productivity and competitiveness challenges. A cluster approach recognizes the importance of inter-linkages and dependencies within the economy, including skills, quality of inputs, distribution channels, supplier networks and the broad business environment. The approach presents a shift in the pattern of economic policy making that emphasizes strategic collaboration between the government, knowledge institutions, the private sector and other stakeholders. A cluster approach thus identifies areas of concern beyond specific individual sectors or businesses and, therefore, provides a framework through which shortcomings can be addressed, whether they are emanating from the business, government or the knowledge institutions.

This study identified and analysed 20 potential clusters based on the selected sectors and sub-sectors, namely: Transport and Logistics at the port of Mombasa, Horticulture, Sugar, Tea, Marine and inland fisheries, Livestock, Energy, ICT, Maize, Tourism, Cotton, and Dairy. These sectors and sub-sectors are of strategic importance in various ways, including export expansion potential based on Revealed Comparative Advantage (RCA), poverty reduction and regional development and economic multiplier effects. Maize and Sugar are among the key products identified by Kenya as 'sensitive' or 'special' under the World Trade Organization (WTO).

The detailed analytical work was conducted by the Kenya Institute for Public Policy Research and Analysis (KIPPRA), working in collaboration with ECORYS Netherlands. The study involved desk review of data and documents, firm/institutional level survey, regional validation workshops, and consultations with relevant stakeholders. In analyzing the clusters, the analytical framework associated with 'Porters Diamond' has been applied. The framework provides a conceptual structure for understanding constraints to competitiveness at the microeconomic level as well as the cluster context. Twenty (20) clusters were identified based on assessment of geographical concentration and performance. In addition, six clusters were selected for further analysis and development of participatory action plans. The criteria for selecting the six are Vision 2030 priorities, level of grassroots bottlenecks, the presence of a cluster, and parallel government policies that would benefit the cluster.

This report is organized as follows: chapter two provides a broad overview of Kenya's competitiveness and the performance of the selected sectors and sub-sectors. In addition, the concept of cluster and its policy significance is

discussed. In chapter three, the twenty (20) clusters are identified and analyzed. In chapter four, we discuss the Participatory Action Plans for the six selected clusters. The report concludes in chapter 5 and provides suggestions on the way forward.

2. OVERVIEW OF KENYA'S COMPETITIVENESS AND PERFORMANCE OF IDENTIFIED SECTORS

2.1 Overview of Kenya's Global Competitiveness

According to the World Economic Forum's annual Global Competitiveness Reports (GCR), Kenya ranks low in global competitiveness. For instance, in 2008/09 Kenya was 93 out of 134 countries, and in 2010/11 was in position 106 out of 139 countries. Kenya has always been ahead in the East African Community. However, in 2010/11, Rwanda entered the ranking at position 88.

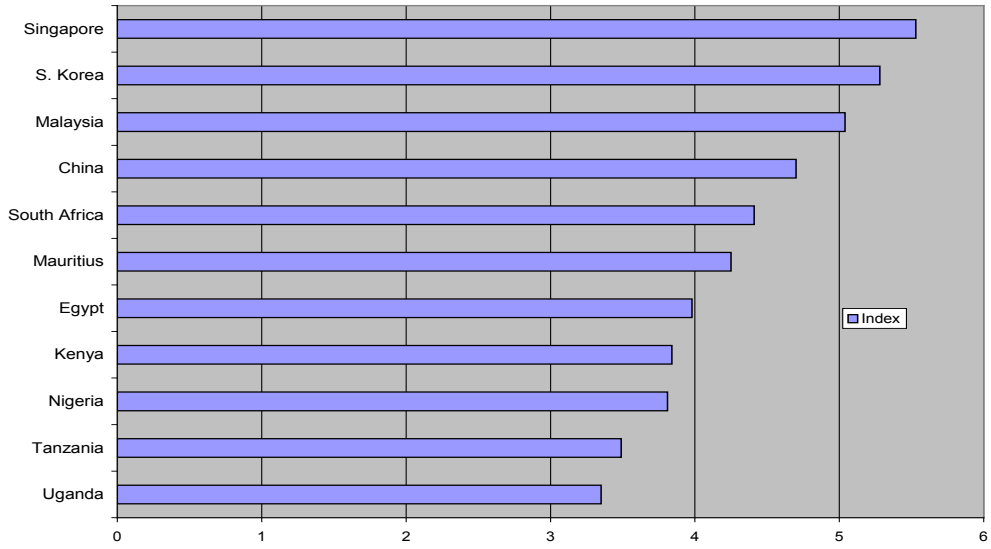
The key areas of concern in Kenya's competitiveness include weak institutions, social economic infrastructure, macroeconomic stability, and innovation capabilities. South Africa is the most competitive economy in Sub-Saharan Africa.

In terms of industrial development, the share of manufacturing in total output and Manufacturing Value Addition (MVA) per capita has stagnated at about 10 per cent and US$ 50, respectively, for the last 20 years (UNIDO/UNCTAD 2011).

Over the period 2003-2007, Total Factor Productivity in the Kenyan manufacturing sector increased by 4 per cent per annum, Kenya (ICA, 2008). The results from the World Bank's Enterprise Survey further showed that Kenyan firms had become relatively more productive than those in Uganda and Tanzania, but remained less productive than firms in comparator countries such as Botswana and Namibia.

From the available literature, Kenya's competitiveness is hampered by a combination

Figure 2.1: Global Competitiveness Index 2008-09 rankings



Global Competitiveness Report (2008-2009)

of factors, including macro and microeconomic challenges and policy and institutional weaknesses. The key ones include infrastructure (transportation, electricity), access to finance, corruption, inefficient government bureaucracy, tax administration, customs and trade regulations, inflation and policy stability.

2.2 Recent Performance of the Selected Sectors and Sub-Sectors

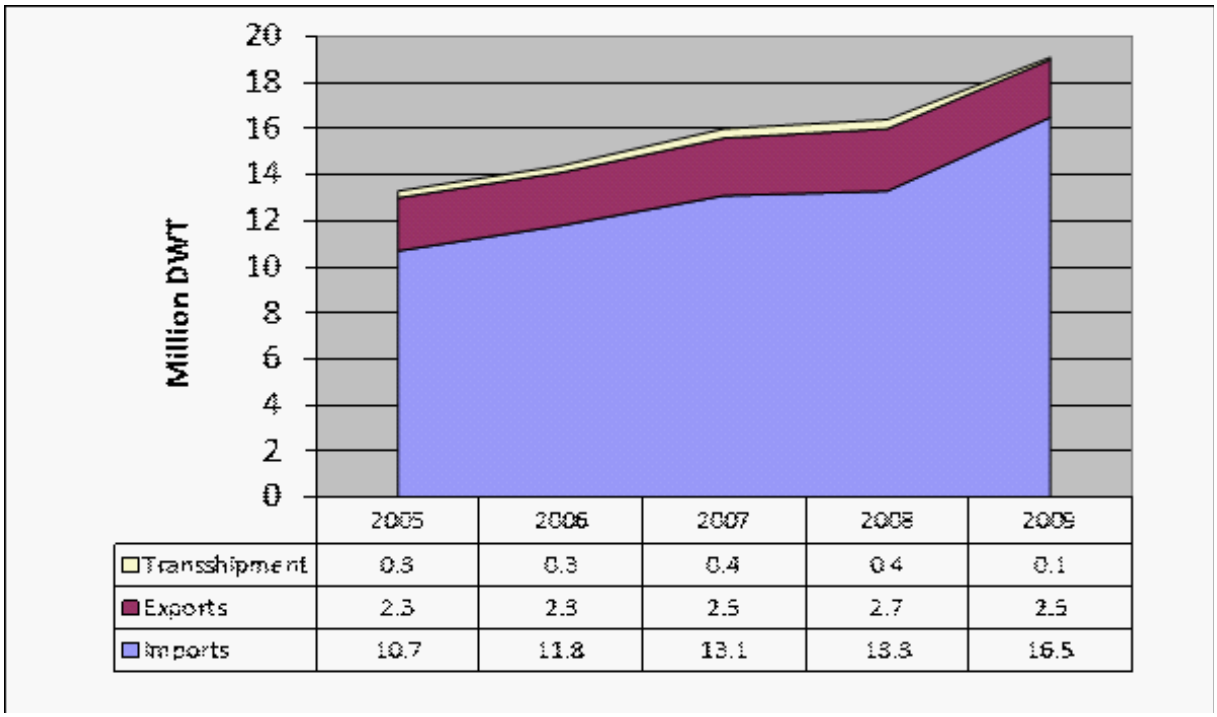
The sectors and sub-sectors identified for cluster analysis are: Transport and logistics at the port of Mombasa, Horticulture, Sugar, Tea, Marine and inland fisheries, Livestock, energy, ICT, Maize, Tourism, Cotton, and Dairy. The 12 sectors and sub-sectors provide an entry point for a productivity and competitiveness analysis using a cluster approach. These sectors have strategic importance in many ways. All but Transport and logistics, and Energy fall under the Vision 2030 key national priority sectors under the economic pillar. While Social Accounting Matrix (SAM) analysis reveals that Transport and logistics have high multiplier effects in the economy due to inter-linkages with other sectors of the economy, Energy has been identified in various Investment Climate Assessment (ICA) surveys as a key constraint to competitiveness in Kenya. Maize is the most important staple food and together with sugar, are among the key commodities that the government has identified as sensitive under the WTO negotiations. Analysis of Kenya's export potential using RCA indicates that tea and horticulture are among the top commodities where Kenya has a strong comparative advantage in global trade. The inclusion of ICT among the identified sectors is reinforced by the importance of technological progress and innovation in international competitiveness in this 'information age'.

In addition to the sectors and sub-sector identified by NESC, analyses of Kenya's trade data reveals that there are many other products where Kenya has a comparative advantage and would benefit from innovative policies to up-grade production and enhance competitiveness (KIPPRA, 2011). These include coffee, hides and skins, cement, tobacco, textiles and fish. Kenya also has opportunities to intensify and accelerate production within the technological ladder for instance in the manufacture of resource based products such as butter and ghee, pyrethrum extract, wattle extract, wood carvings, meat products, animal feeds, canned pineapples, essential oils, cement and petroleum products. Low technology products include textiles, leather, footwear and articles of plastics. The medium technology products are metal containers, wire products, insecticides and fungicides, and screws and nuts. There are opportunities in high technology manufacturers such as medicinal and pharmaceutical products. Analysis of Kenya's imports by end-use, indicate that, with right policies competitive import substitution can be achieved in animal and vegetable fats and oils, sugars, molasses and honey, textile fibres, and plastics.

2.2.1 Transport and Logistics at the Port of Mombasa

About 90 per cent of Kenya's international trade estimated at about Ksh 1.4 trillion in 2010 was transacted through the port of Mombasa. It is therefore of strategic significance that the efficiency and competitiveness of the port be enhanced. The port further serves the land-locked countries in the region including Uganda, Tanzania, Rwanda and Burundi. The port has reported improved performance in container traffic and turn-around time. However, it remains less competitive in terms of connectivity to global shipping networks, cost of importing containers, and the burden of custom procedures.

Figure 2.2: Port of Mombasa throughout (million DWT), 2005-2009



	2005	2006	2007	2008	2009
Transshipment	0.3	0.3	0.4	0.4	0.1
Exports	2.3	2.3	2.5	2.7	2.5
Imports	10.7	11.8	13.1	13.3	16.5

Source: Kenya Ports Authority (2009)

Performance at the port has improved, with turnaround time of container vessels dropping from 5.1 days in 2008 to 3.1 days in 2009. There was a substantial improvement in average container dwell time, from 12.1 days in 2008 to 6.0 days in 2009 (KPA, 2009). Improved trends are also recorded in container traffic that increased from 436,671 TEU in 2005 to 618,816 TEU in 2009 (KPA, 2009; World Bank, 2009). BMI (2011) projected that the TEU throughput would be 852,461 TEUs by 2014. The trends in total port throughput (imports, exports and transshipment) from 2005 to 2009 are shown in Figure 2.2.

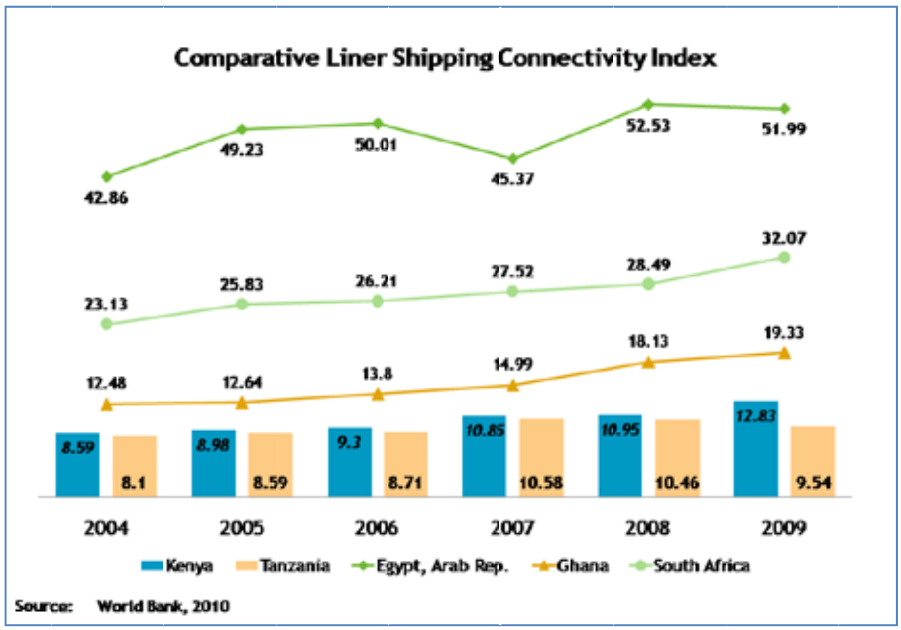
The level of connectivity of the Mombasa port to global shipping networks has been increasing but remains relatively low. This is reflected in a low Liner Shipping Connectivity Index - LSCI (Figure 2.3). In the region, Kenya lags behind Ghana, South Africa and Egypt.

Kenya's relatively low score on LSCI communicates a key challenge in terms of enhancing accessibility to global trade. This underscores the need to strengthen transshipment functions at the Port of Mombasa (Adero and Aligula, 2011).

Another important consideration in improving port performance is the cost of importing containers to Kenya and Africa in general, which is relatively high than to Asian countries (Figure 2.4). The cost excludes tariffs and trade taxes, but includes costs for documents, administrative fees for customs clearance and technical control, customs broker fees, terminal handling charges and inland transport (World Bank, 2010).

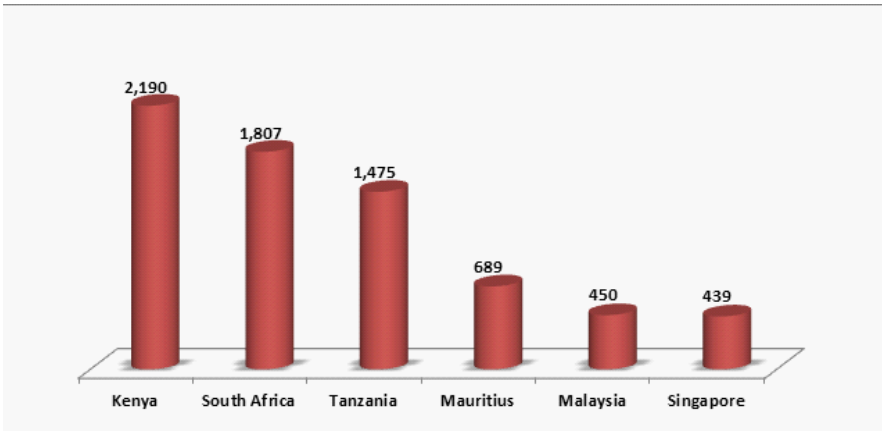
The comparative importation costs show that Kenya still has to deal with a key bottleneck as far as becoming a business hub and preferred investment destination for the region is concerned. In addition to the low connectivity, the burden of

Figure 2.3: Comparative Liner Shipping Connectivity Index



Source: World Bank (2010)

Figure 2.4: Cost of importing a twenty-foot container (US Dollars excluding tariffs and trade taxes), 2010



Source: World Bank (2010)

customs procedures remains relatively high. Kenya also lags behind Egypt and South Africa.

2.2.2 Tea

Kenya is the fourth largest producer of tea in the world after China, India and Sri Lanka in that order (FAO Statistical Database). Tea has a long history in Kenya, having been introduced in the country in 1903. In 2010, tea was a leading foreign exchange earner, with tea exports accounting for almost one quarter of the country's export earnings. In 2010, the price of tea increased by about 6 per cent.

At Kenya's independence, the area under tea farming was 24,448 hectares and production stood at 18,000 tonnes. However, by 2010, the area under tea farming had increased by about seven times to 171,900 hectares, while production had increased by 22 times to settle at 399,000 tonnes (KNBS, 2011). Production in the recent past has generally maintained an upward trend. This can be attributed to favourable weather conditions, increase in the total area of land under cultivation, and the productivity gains associated with multinational tea companies. However, the decline in production in 2008 and 2009 was in part due to the effects of drought and post election violence, which disrupted production.

Smallholder tea producers account for about 67 per cent of the total area under tea and 56 per cent of total tea production (Table 2.1). However, the productivity of estates is 33 per cent higher than that of smallholders. This is attributed to the low levels of fertilizer usage, poor husbandry practices and inferior management among the smallholder producers.

Kenya's tea is exported to about 30 countries (Figure 2.5). However, the top five importers are Egypt, UK, Pakistan, Afghanistan and Sudan, together accounting for over 70 per cent of the exports.

2.2.3 Horticulture

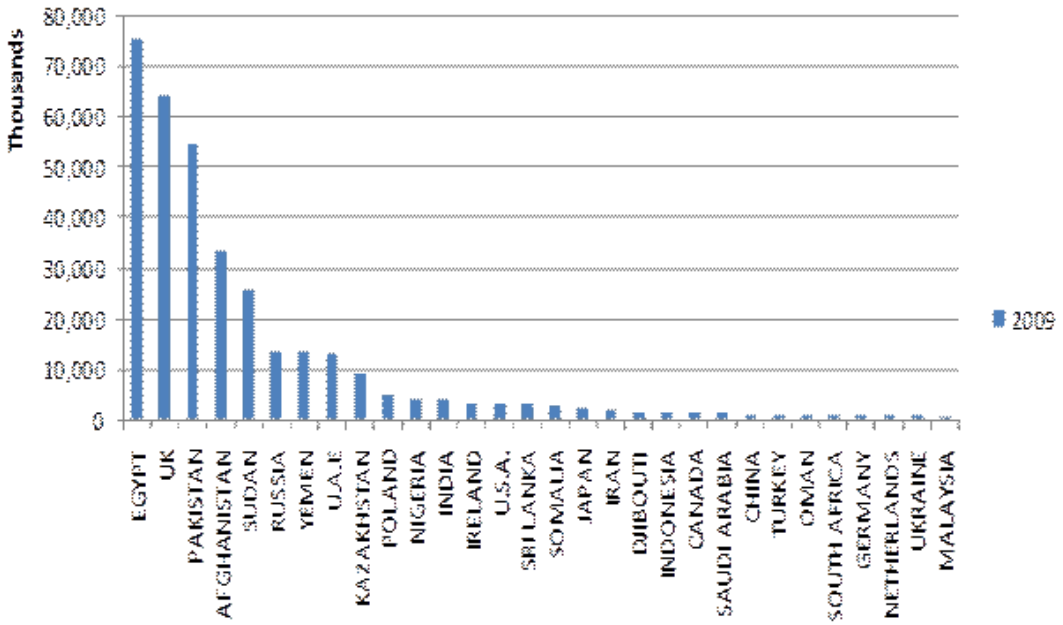
In 2010, the horticulture export earnings increased by 6.4 per cent to Ksh 77.7 billion. It was the second largest commodity export earner, after tea (MoA, 2011). Kenya is the leading exporter to the European market from the region. The horticultural sub-sector has been the fastest growing industry within the agricultural sector, recording an average growth of between 15 and 20 per cent per annum. The sub-sector employs approximately 4.5 million people countrywide directly in production, processing, and marketing, while additional 3.5

Table 2.1: Tea – Selected performance indicators

Approach	2004	2005	2006	2007	2008	2009	2010
Area (Ha '000)							
Smallholder	88.0	92.7	95.8	98.2	107.1	107.3	115.0
Estates	48.8	48.6	51.3	51.0	50.6	51.1	56.9
Total	136.7	141.3	147.1	149.2	157.7	158.4	171.9
Production (Tonnes '000)							
Smallholder	192.6	197.7	191.2	229.6	210.9	172.6	225.0
Estates	132.1	130.8	119.4	140.0	135.0	141.5	174.0
Total	324.6	328.5	310.6	369.6	345.8	314.1	399.0
Average Yield (Kg/Ha)							
Smallholder	2,263	2,312	2,225	2,658	2,397	1,862	2,291
Estates	3,739	3,372	2,689	3,105	2,768	2,909	3,412
Memo items							
Export share (%)	23	20	21	18	20	21	24
Export price (Ksh per kg)	131	124	148	126	164	211	223

Source: KNBS 2009; 2011), Economic Survey

Figure 2.5: Export destinations for tea traded at the Mombasa Tea Auction



Source: KNBS 2009; 2011), Economic Survey

Table 2.2: Fresh horticultural exports (Ksh million)

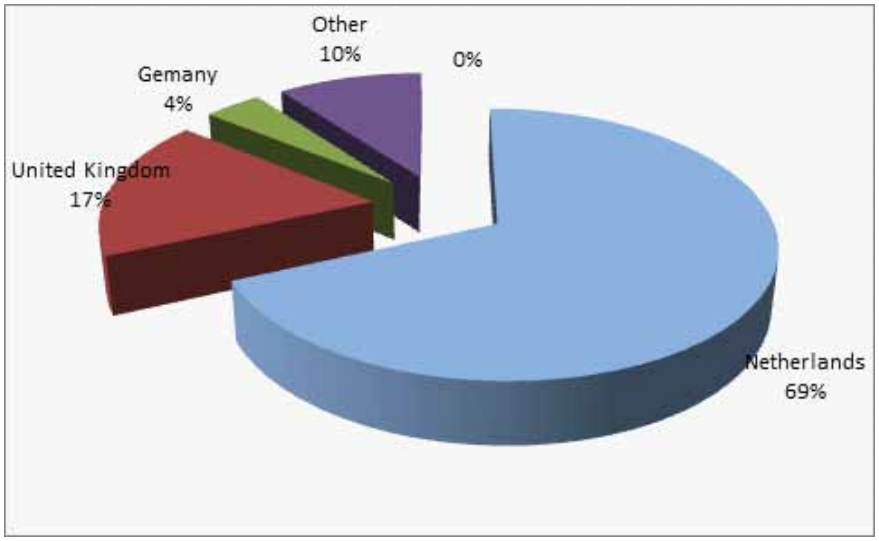
Year	2003	2004	2005	2006	2007	2008	2009	2010
Cut flowers	16,496.0	18,720.0	22,896.8	23,560.6	43,101.5	39,765.9	30,815.0	24,379.20
Vegetables	10,591.0	12,068.0	13,891.4	17,822.9	22,354.3	16,128.7	16,253.6	13,744.00
Fruits	1,753.0	1,803.0	2,049.9	1,737.3	1,797.9	2,071.2	2,283.5	2,047.20
TOTAL	28,840.0	32,591.0	38,838.1	43,120.8	67,253.7	57,965.8	49,352.2	40,170.40

Source: KNBS (2011)

million people benefit indirectly through trade and other related activities.

The key components of the horticulture industry are vegetables, fruits and cut-flowers. Cut-flowers account for about 60 per cent of total fresh horticultural produce. The global financial crisis, unfavourable weather conditions and the effect of post-election violence affected exports in 2008. The declining trend in horticultural exports that began in 2008 continued through 2010 (Table 2.2). The value of exports declined by about 14 per cent from Ksh 67.2 billion in 2007 to Ksh 57.9 billion in 2008. In 2010, export earnings declined further by about 18 per cent to Ksh 40 billion. This weak performance in 2010 could further be attributed to continued slowdown in growth in Europe, and temporary closure of the European airspace in 2010 following the volcanic eruption in Iceland.

Figure 2.6: Destination of cut-flowers exported in 2010



2.2.4 Tourism

Kenya has an array of tourism resources, such as natural and cultural heritage, which can be optimally utilized for the socio-economic development. Development of the tourism sector often leads to expansion of the economic base in both rural and urban areas, increase in foreign exchange earnings and greater opportunities for employment in Kenya. Furthermore, tourism based on the principle of sustainable development could address environmental concerns, while contributing to economic growth and social development. Kenya's Vision 2030 aims to ensure that the country is among the top ten long-haul tourist destinations globally (Kenya Vision 2030, 2007). Tourism is one of the major sectors that have contributed to Kenya's impressive economic growth over the last few years. The sector has demonstrated potential for quick gains based on the available resources and consequently, tourism has been recognized as one of the sectors that will drive economic growth towards achievement of the Vision 2030 (Ministry of Tourism, 2009).

Tourism accounts for about 20 per cent of the foreign exchange earnings and 11 per cent of GDP to the Kenyan economy. It employs about 253,000 people in the modern wage sector, which represents 9 per cent of total formal employment. Over the last three years, tourism has been one of the fastest growing sectors. It remains a leading earner of foreign exchange for the country, having brought in Ksh 56.2 billion (US$ 809.8 million) in 2006, and Ksh 73.68 billion (US$ 944.2 million) in 2010 as summarized in Table 2.3.

Due to its high multiplier effect and numerous linkages with other sectors (including agriculture, manufacturing, banking and finance, wildlife, entertainment, ICT and energy), tourism has great potential to stimulate growth of other sectors. It has the capacity to promote regional development, economic growth, create new commercial and industrial enterprises, stimulate demand for locally-produced goods and services and contribute directly and indirectly to employment creation, poverty alleviation and equality (Ministry of Tourism, 2009).

Table 2.3: Highlights of performance in the tourism sector, 2007-2010

Performance Indicator	2007	2008	2009	2010
International arrivals (No. million)	1.817	1.203	1.490	1.609
Growth in arrivals (%)	13.492	-33.792	23.857	7.99
Tourism earnings (Ksh billion)	65.200	52.700	62.500	73.68
Growth in earnings (%)	16.014	-19.172	18.596	17.89

Source: KNBS (2009; 2011), Economic Survey

The tourism industry in Kenya is built around the country's rich wildlife and beautiful coastal beaches. The greatest attraction of Kenya as a tourist destination is the fact that a tourist can enjoy a safari and the beach on the same trip. Thus, even though the coast accounts for over 60 per cent of all bed nights in the country, the prime motivation for 70-80 per cent of all tourists visiting the country is wildlife (Ikiara and Okech, 2002).

2.2.5 Marine and Inland Fisheries

The fisheries resources in Kenya are important sources of food, employment and foreign exchange. The sub-sector has directly contributed around 0.5 per cent to GDP yearly (Ministry of Fisheries, 2008). This figure could be higher if the indirect contribution is considered and post harvest losses are minimized. The sub-sector supports about 80,000 fishers directly and about 800,000 individuals (processors, traders and other service providers) indirectly.

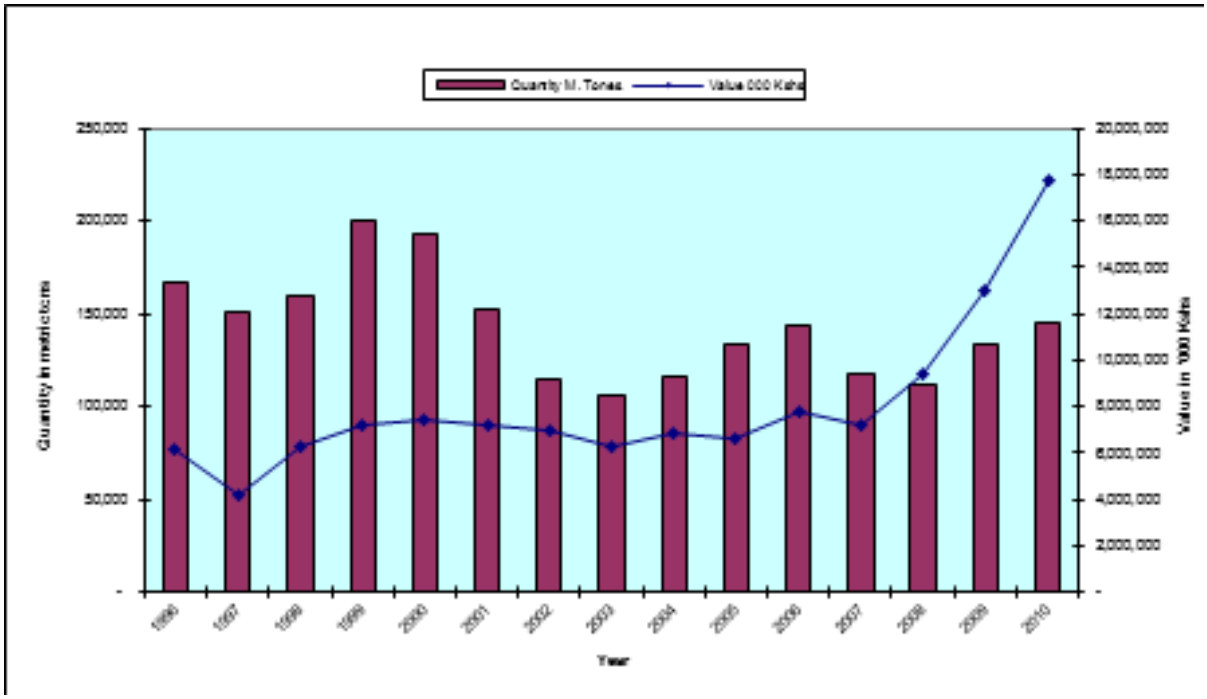
Fish production in Kenya can be discussed in two broad categories, namely, aquaculture and capture fisheries. Capture fisheries, which is divided into marine and fresh water, accounts for the bulk of the national production, accounting for about 96 per cent in 2008. Kenya's freshwater fish production enormously exceeds that from the marine waters in both volume and value. From 1963 through mid 1970s, national fish production remained below 40,000 metric tonnes per year. However, this changed from the early 1980s when the landings steadily increased to levels of well over 140,000 metric tonnes by 1989. The highest landed volume was 214,709 metric tonnes in 1999, a figure that fell by about 85,000 metric tonnes ten years later in 2008. In 2008, total national fish production was 135,408 metric tonnes with an ex-vessel value of Ksh 11,454,415,000 (approximately US$ 164 million). The export business also earned the country over Ksh 3.8 billion (approximately US$ 55 million) in foreign exchange in 2008 (Ministry of Fisheries, 2008).

Figure 2.7 shows that while production has been declining, the value of fish caught has been rising since 2003. Production, however, went up between 2009 and 2010 largely due to increased aquaculture following funding from the economic stimulus programme that was initiated by the government in 2008. This is attributed to the rising fish prices over the same period. Inland fisheries, however, still contribute the bulk of the national catch as shown in Figure 2.8.

2.2.6 Livestock

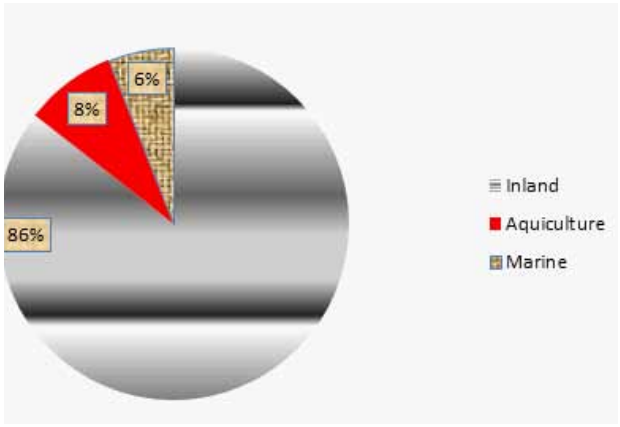
The livestock sub-sector contributes about 10 per cent of the Gross Domestic Product (GDP) and accounts for over 30 per cent of farm gate value of agricultural commodities. Livestock production

Figure 2.7: Fish production by quantity and value, 1999-2010



Source: Ministry of Fisheries (2010) and KNBS (2011), Economic Survey

Figure 2.8: National fish production by area, 2010

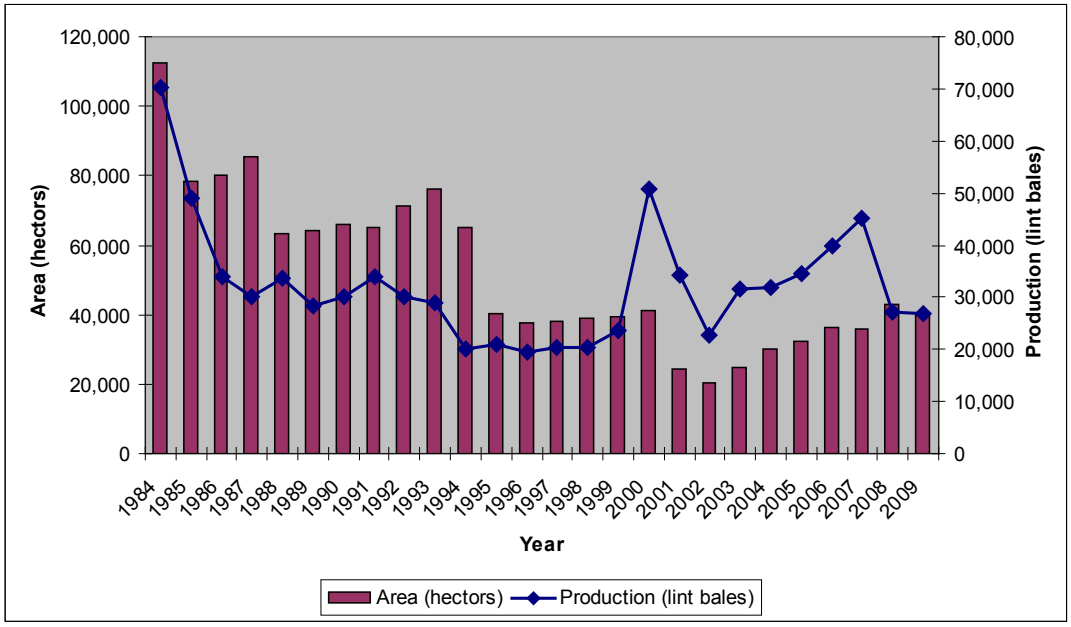


Source: KNBS (2011), Economic Survey

is a major economic and social activity for the communities that live in the high rainfall areas for intensive dairy production and in the arid and semi-arid lands (ASALS) for meat production. The population of major livestock species in 2003 was estimated at 9 million zebu cattle, 3.5 million exotic and grade cattle, 9.9 million sheep, 11.9 million goats, 895,000 camels, 415,200 pigs, over 25 million chicken, and 470,000 rabbits. The census conducted in 2009 gave an updated estimate of animals as follows; 16.96 million cattle (both dairy and beef), 16.80 million sheep, 30.61 million goats, 2.97 camels, 1.80 million donkeys, 0.293 million pigs, 30.197 million chicken and 2.11 million beehives.

Red meat production in Kenya is estimated at 362,815 metric tonnes, with the bulk of the supply coming from ASALs. Livestock production in the ASALs accounts for nearly 90 per cent of the employment opportunities and nearly 95

Figure 2.9: Cotton lint production and area under cultivation, 1984-2009



Source: Source: KIPPRA (2007), Kenya Agricultural Data Compendium, and CODA

per cent of the family incomes. It is, therefore, a critical industry in these areas. Kenya's main export markets for meat products include the United Arab Emirates, Tanzania and Uganda, while the main markets for hides and skins are Germany, United Kingdom, The Netherlands and Italy.

2.2.7 Cotton

Cotton production was introduced in Kenya by the colonial administrators in the 1900s. Production was largely dominated by private colonial ginners. However, after independence in 1963, this changed and the policies introduced encouraged cooperatives and societies to buy ginneries. This saw the growth of the sector. By the 1980s, approximately 80,000 bales of cotton lint were produced annually from approximately 60,000 hectares of land (Figure 2.9), which marked the pinnacle of the country's output (Government of Kenya, 2001). This period was also marked by government and donor assistance, which contributed to an increase of 60 per cent in processing capacity. In the mid 1980s, however, the assistance started declining (Ikiara and Ndirangu, 2003). The influx of secondhand goods and textile imports with the liberalization of the economy saw the gradual decline of the sector, with a number of local textile companies collapsing (EPZA, 2005). By the 1990s, cotton production was very low at an average of 20,000 bales annually. This was further affected by liberalization and the 1994 ban by the US on textile imports from Kenya. This period was also mired by inefficiencies in cotton production, ginning and distribution and the price control regime, which rendered cotton uncompetitive (Ikiara and Ndirangu, 2003).

Cotton lint production has been averaging approximately 20,000 bales since the early 1990s

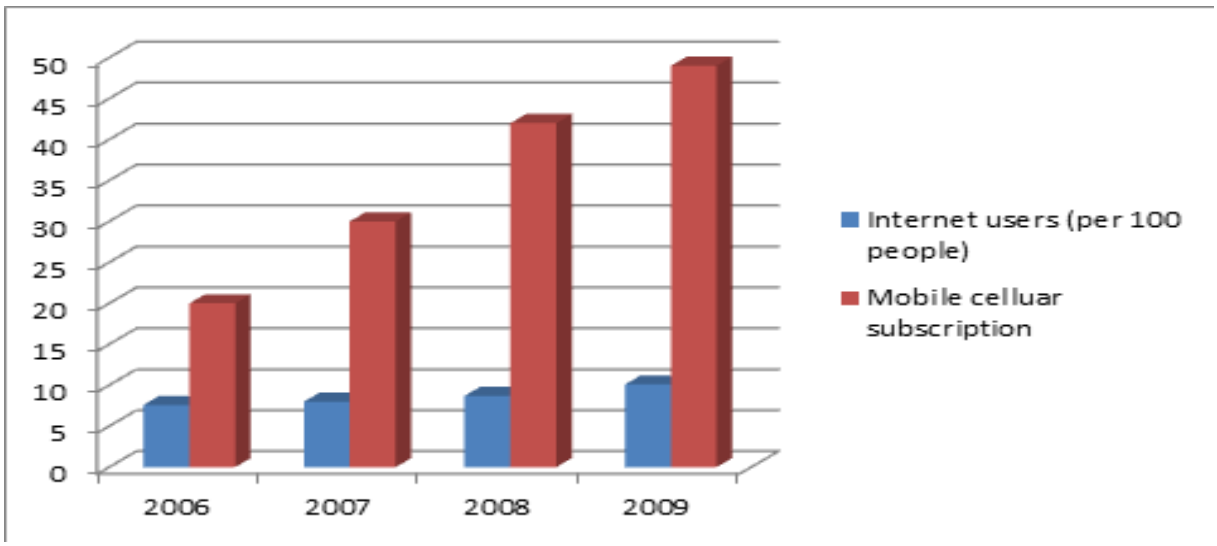
up to year 2000 when production doubled to 50,000 bales. However, production declined to 22,000 bales in 2002 but has gradually been increasing, other than in 2008 when it declined probably because of the drought experienced then. This is illustrated in Figure 2.9.

2.2.8 Information, Communication and Technology

The ICT sector in Kenya has seen tremendous growth over the recent years with the improved uptake and investment in mobile phone and internet services. According to the ICT Policy (2006), ICT refers to the technologies including computers, telecommunication and audio-visual systems that enable the collection, processing, transportation and delivery of information and communication services to users.

There has been an improvement in the quality and quantity of ICT infrastructure and services over the years. For instance, by 2003, the number of mobile phone service subscribers increased to 1.6 million compared to 15,000 in 1999 and has been increasing at about 50 per cent every year (CCK, 2008). By end of 2010, there were 24.96 million mobile phone subscribers. Mobile penetration during this time reached 63.2 per 100 inhabitants (CCK, 2011). The year 2004 saw the introduction of broadband wireless and voice over internet services, while by 2010 three undersea optical cables landed: East African Sub-marine Cable System (EASSy), East African Marine System (TEAMS), and SEACOM. The latter two landed in 2009 and account for 98 per cent of total international internet bandwidth (Waema et al., 2010). During the same year, three mobile operators rolled out 3G services, contributing to growth in data market (CCK, 2011). These changes have contributed to an increase of internet bandwidth and reduction of costs. According to the Internet Market Analysis Study (2007), as of 2005/06, there were 2.8 million internet users. This is a big increase from a reported 100,000 users in 2000/01. The study also established that 80.7 per cent of internet users were located in Nairobi Province. Recent data from CCK reveals that by 2010, this figure increased by almost five fold to 10.2 million. This

Figure 2.10: Internet and mobile use in Kenya, 2006-2009



Source: World Development Indicators database

Table 2.4: Exports of ICT goods, percent of total goods exports

	2003	2004	2005	2006	2007	2008	2009
India	2.0	1.5	1.4	1.4	1.3	1.3	3.8
Indonesia	10.3	11.3	9.2	6.9	5.3	4.6	5.7
Kenya	0.3	0.2	0.3	0.4	1.0	1.3	NA
Malaysia	50.8	47.4	45.7	45.1	41.5	26.2	38.1
Singapore	48.7	48.8	46.4	45.6	36.2	35.9	35.4
South Africa	1.9	1.9	1.7	1.8	1.8	1.6	2.0
Tanzania	0.04	0.2	0.4	0.3	0.4	0.4	0.6
Thailand	26.0	24.2	23.8	24.2	22.2	19.4	19.8
Uganda	0.5	1.9	2.1	6.1	6.9	4.9	..

Source: World Development Indicators database from http://data.worldbank.org/

growth is attributable to internet access through mobile operators (Figure 2.10).

Policy focus has also been given to the sector by Kenya's Vision 2030, which prioritized the Business Process Outsourcing (BPO), where Kenya is envisioned to be the top off shoring destination in Africa. To this end, the government has commenced the process of developing a BPO park, also referred to as a technopolis. This will be on a 5,000 acre piece of land, 60km south of the city of Nairobi in Malili, Konza.

Available statistics, however, reveal that Kenya still performs dismally in exports of ICT goods and services compared to South Korea, Malaysia, and Singapore. For example, Singapore and Malaysia export ICT products over 30 per cent of total goods exported, while Kenya only exports about one per cent (Table 2.4).

2.2.9 Energy

Kenya has three main sources of energy. These are wood fuel, petroleum and hydroelectric power accounting for 70 per cent, 21 per cent, and 9 per cent, respectively, of total energy consumption in the country. The interconnected system in Kenya has a total installed capacity of 1,533MW made up of 761.0MW of hydro, 525MW of thermal, 198MW of geothermal, 5.45MW of wind, 26MW from cogeneration and 17MW of isolated grid. The total effective capacity is 1,515MW during normal hydrology. Hydro accounts for about 50 per cent of the total energy supply. Registered interconnected national sustained peak demand is 1,178 (1,183MW instantaneous).

However, although renewable energy is also becoming important, it is insignificant in the country's overall energy mix. Thermal, geothermal, cogeneration and wind generation account for 37 per cent, 13 per cent, and 2 per cent (combined wind and cogeneration) of the installed capacity

Table 2.5: Capacity distribution of energy sources in Kenya

Source	Capacity in MW	Per centage of total capacity
Hydro	761.00	0.496
Thermal	525.00	0.342
Geothermal	198.00	0.129
Wind	5.45	0.004
Cogeneration	26.00	0.017
Isolated	17.00	0.011
Total	1,533.00	100.00

Source: Ministry of Energy (2011)

respectively. Table 2.5 shows the capacity distribution of various sources of energy in the country.

The government has a number of projects committed to improve generation in the immediate to mid-term. Table 2.6 shows the committed generation projects. Estimated committed generation to 2015 is 1915MW. In terms of capacity, wind has the highest with (530MW) followed by geothermal (404MW), coal (360MW), Medium Speed Diesel (MSD) with 342MW and hydro (278MW).

The largest share of Kenya's electricity supply comes from hydroelectric stations at dams along the upper Tana River, Sondu Miriu (Sondu River), Kiambere, Kindaruma as well as the Turkwel Gorge Dam in the west. Sangaro and Kindaruma form part of government priority projects for hydro.

Coal exploratory drilling has been going on since 2001 in the Mui Basin (situated within Kitui and Mwingi districts) after completing geological and geophysical surveys in the basin in 1999. Appraisal drilling has been undertaken in Mui Basin to establish the potential and subsequently estimate the resource. Seventy (70) wells have been drilled in the Mui Basin, with 40 wells intercepting coal seams of various thicknesses at different depths. The government has priorities for more projects in Mombasa.

The Ministry of Energy is currently implementing the solar projects, which include: 60KW solar generator in Lodwar, 30KW solar generator in Habaswein, 60KW solar generator at Hola, 50KW solar generator at Elwak, and 10KW solar generator at Merti.

2.2.10 Maize

Maize is the most important staple food in Kenya. It is also used in animal feed production and is a raw material for cooking oil. Maize production has remained steady. Production was 35.8 million bags in 2010, up from 27.1 million bags in 2009. However, Kenya is not self-sufficient in maize production. In 2010, the country imported 229.6 thousand tonnes valued at Ksh 5.5 billion down from 1,508 thousand tonnes valued at Ksh 33 billion in 2009. Despite the importance of maize as a key staple food, the value of marketed maize as a per centage of total agricultural marketed production is relatively small, about 2 per cent in 2010 (KNBS, 2011). However, these values tend to underestimate the importance of maize, since a large proportion of maize is used for own

Table 2.6: Committed generation projects

Developer	Project	Type	Capacity (MW)	Est. Commissioning Date
KenGen	Wellhead Units	Geothermal	70	Jun-11
KenGen	Eburru	Geothermal	2.2	Dec-11
KenGen	Olkaria IV	Geothermal	140	Sep-13
KenGen	Olkaria1–Life Extension	Geothermal	140	Sep-13
IPP	Orpower4	Geothermal	52	Jan-14
Sub-total			404	
KenGen	Sangoro	Hydro	21	Oct-11
KenGen	Kindaruma 3rd unit	Hydro	32	Jun-2013
IPP	Small Hydros	hydro	25	2011-2015
IMPORT	Ethiopia	hydro	200	2014-2020
Sub-total			278	
KenGen	Ngong 1 ph2 and Ngong 2 wind	Wind	20.4	Nov-12
IPP	Lake Turkana	Wind	300	Jul-13
IPP	Osiwo wind	Wind	50	Jul-13
IPP	Aeolus wind	Wind	160	Nov-12
Sub-total			530	
KENGEN/IPP	Mombasa Coal	Coal	300	Jul-14
IPP	ARM Coal	Coal	60	Jul-14
Sub-total			360	
IPP	Athi River 1	MSD	81	Mar-12
IPP	Athi River 2	MSD	84	Mar-12
IPP	Thika 1	MSD	87	Mar-12
IPP	Muhoroni	MSD	80	2012
IPP	Garissa	MSD	10	Dec-12
Ministry of Energy	Lodwar	Solar	60	
Sub-total			342	
TOTAL			1,915	

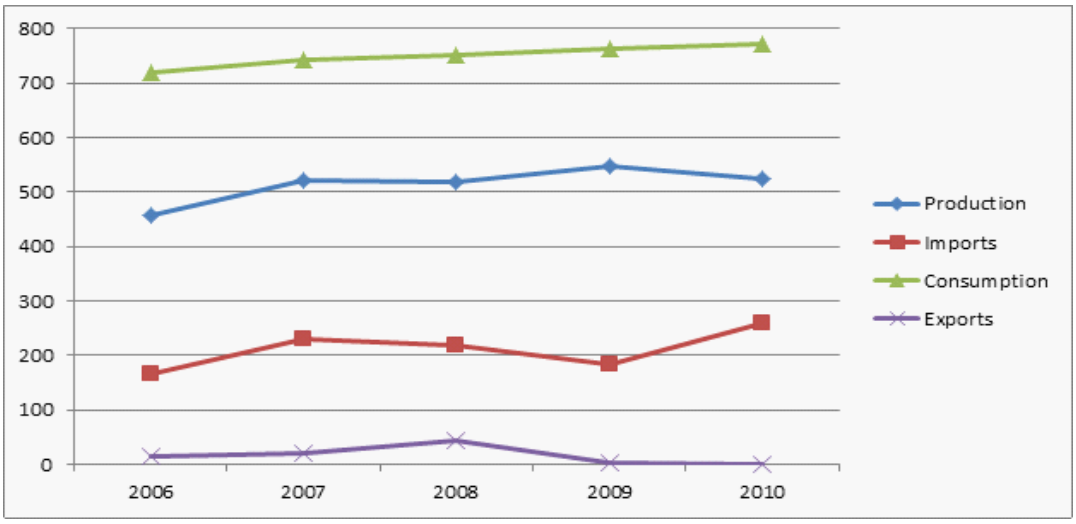
Source: Ministry of Energy (2011)

consumption and is hardly captured in official statistics.

2.2.11 Sugar

Figure 2.11 shows sugar production, consumption, importation and exportation over the period 2006 to 2010. Sugar production has increased over time from 368,970 tonnes in 1984 to 523,700 tonnes in 2010. The country is however a net importer of sugar with imports rising from 4,000 tonnes in 1984 to 258,600 in 2010. The deficit in sugar consumption is met through imports from the COMESA region and other producing countries such as Brazil, United Kingdom and Mexico.

Figure 2.11: Sugar production, consumption, imports and exports in '000 tonnes, 2006 - 2010



Source: KNBS, 2011

Table 2.7: Area under sugarcane, area harvested, production and average yield

	2006	2007	2008	2009	2010
Area under cane (ha)	*147,730*	*158,568*	*169,421*	*154,298*	*157,583*
Area harvested (ha)	*54,621*	*59,201*	*54,465*	*65,774*	*68,738*
Production (tonnes)	*4,932,839*	*5,204,214*	*5,112,040*	*5,610,702*	*5,709,586*
Average yield Tonnes/Ha)	*70.89*	*70.87*	*72.94*	*65.21*	*63.55*

Source: KNBS, 2011

The total area under sugarcane declined from 169,421 hectares in 2008 to 157,583 hectares in 2010 as shown in Table 2.7. The area of sugarcane harvested increased from 54,621 hectares in 2006 to 68,738 hectares in 2010. However, the average yield has been declining steadily from 70.9 tonnes per hectare in 2006 to 63.6 tonnes per hectare in 2010.

2.3 The Concept of Clusters and its Policy Significance

Definitions as to what exactly constitutes a cluster vary. However, the concept of 'cluster' generally refers to a geographical concentration of vertically or horizontally linked firms engaged in related lines of business together with supporting organizations. The Global Competitiveness Report (2008-09)

defines a cluster as a geographical agglomeration or concentration of companies, suppliers, service providers and associated institutions engaged in a particular economic activity linked by externalities and complementarities.

In the literature, clusters appear to have four key components, namely: core businesses, supporting businesses, soft infrastructure, and physical infrastructure. The core businesses comprise those firms that are the leading producers (both small and large) that generate the largest income or earnings in the cluster. The supporting businesses include the raw material, component manufacturers and other service providers such as insurance, banking, accountancy, training and design. The 'soft' infrastructures are largely institutions that facilitate the cluster. These include business associations, research institutions, technology and science parks targeted at the cluster, universities, and think tanks, testing laboratories, public regulatory agencies and quality control centres. The physical support infrastructure includes roads, railways, ports, telecommunication, energy and transport.

A cluster strategy is a conscious effort by the government and other stakeholders to create an environment and an institutional setting where risks, costs and barriers facing firms in a cluster are minimized, ensuring that enterprises exploit opportunities and build on their strengths to up-grade or enter into high value, more sophisticated segments of the industry. One of the still hotly debated issues relate to the role of the government. In the Middle East and Asia, countries such as United Arab Emirates, Japan, South Korea, Singapore, China and Malaysia, governments have played a relatively active role. However, broadly speaking, the cluster approach is the middle way between free markets and strong government intervention.

The adoption of a cluster development strategy is motivated by market and government/policy failure. Market failures occur when private sector firms, left on their own, produce sub-optimal outcomes. Government failures, on the other hand, arise where government policies or interventions lead to misallocation and wastage in the use of resources.

Clusters continue to attract the interest of policy makers wanting to boost competitiveness of their economies. The 2003 Cluster Initiative Greenbook (Orjan, 2003) analyses 250 cluster initiatives across the world, focusing on important aspects such as objectives and drivers of performance. The Global Cluster Initiative Survey (2005), identified 1,400 initiatives in Europe, North America, Australia and New Zealand. According to Jun Wang and Fangmin Yue (2009), there were an estimated 4,605 Clusters in China in 2007. In the USA, it is estimated that there are 380 clusters employing 57 per cent of the workforce and producing 61 per cent of its output. In Latin America, cluster initiatives have been undertaken in Colombia, Costa Rica, Guatemala, Brazil and Chile. In Asia, cluster initiatives have been implemented in countries such as Malaysia, New Zealand and Singapore. In Africa, South Africa and Morocco were two early adopters of cluster programmes (Enright M. J and Ffowcs-Williams, 2000). In recent years, Europe has adopted a more direct approach (Orjan Solvel, 2008).

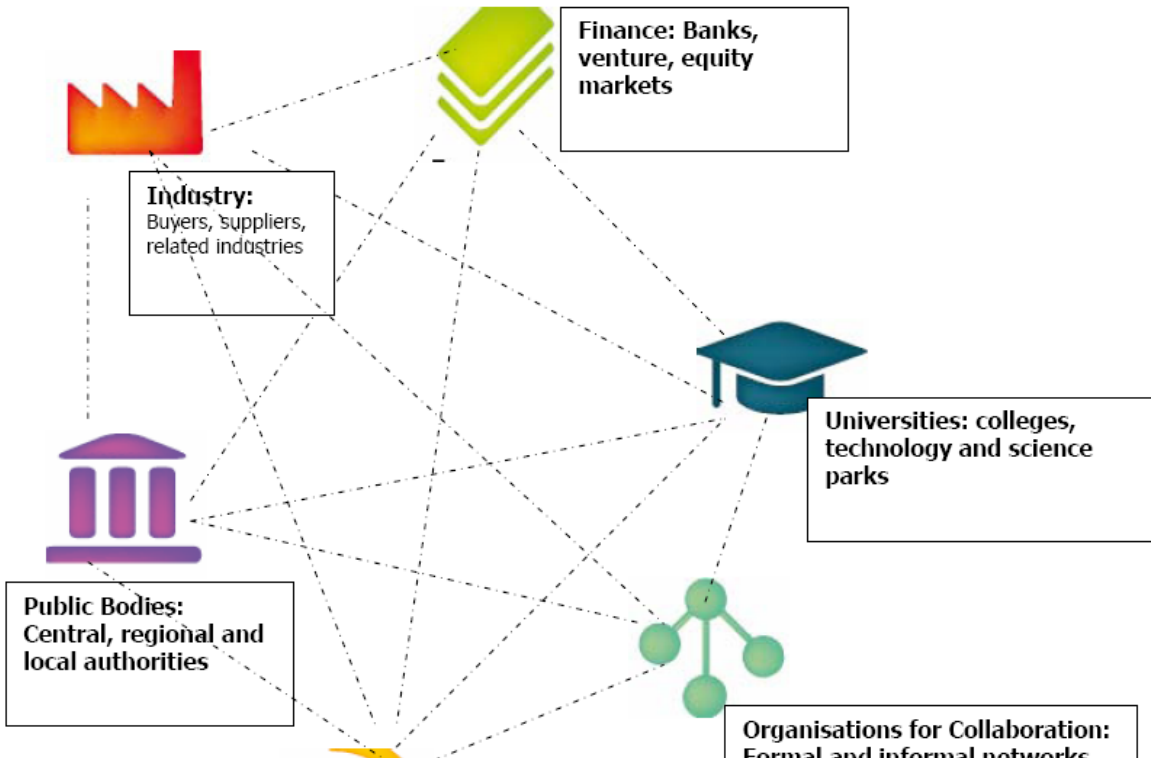
The cluster strategy is an 'innovative' framework for coordinated efforts between public sector, cluster businesses, research and academic community, and relevant non-state actors to improve growth and competitiveness. It is a paradigm shift in organization of economic policy as a collaborative effort between not only business community and the government, but also the 'triple helix', including the academic community. The key players in clusters include cluster firms (upstream and downstream firms involving both large firms and SMEs - competitors, suppliers of goods and services), financial institutions, central, regional and local governments and agencies, communities, academic and research institutions, media, and

public and private organizations including cluster organizations. In this context, the important strength of the cluster approach is the ability to address various kinds of competitiveness bottlenecks emanating from different sections of the society.

According to the Global Cluster Initiative Survey (GCIS) 2003, although the overarching goal for all the CIs is upgrading cluster competitiveness, the objectives pursued vary across clusters across the world depending on the local context. However, the common objectives include expansion of existing firms, facilitation of higher innovativeness and technology, promotion of exports, fostering networks, creating brands, and enhancing education and training.

In the literature, there is a wide range of government policies that influence cluster development. These include regulatory policy, education and training, fiscal policy, trade policy and environmental policy. The major challenge most nations suffer relate to overlapping authority and inconsistency of such policies in different parts of the government (Porter, 1990).

Figure 2.12: Selected cluster players



Source: Orjan (2008)

3. IDENTIFICATION AND MAPPING OF 20 CLUSTERS

3.1 Introduction

A common basic methodology was used to identify and map the various sectors into clusters. Clusters are usually identified based on some basic methodological approaches, including input-output analysis, analysis of geographical concentrations, and quantitative and qualitative techniques involving analysis of network data to visualize particular networks/clusters. The core criterion for identifying the 20 clusters is geographical concentration and performance. The analysis involved examining those regions where production and employment in the key sectors were concentrated, though in is some cases employment data at the regional level is not easily available, and as such could not be used in the analysis. This is the natural extension of the logic of clusters, given that they are by definition regional concentrations of companies. The clusters thus identified are industry concentrations, based on location concentration.

In the literature, clusters develop in stages. The stages are not mutually exclusive and, in some cases, clusters may be in transition stage. However, certain characteristics may dominate at a particular stage. Clusters emerge and grow due to natural advantages (such as mineral deposits, geographical circumstances such as transportation routes and good climatic conditions), or some particular demand or some specialized skill within a region (Porter, 1998).

Stage 1 clusters

An agglomeration of companies, usually across a value chain, that are in relatively close proximity. This first stage of cluster development occurs when companies recognize that locating next to each other provides greater benefit than costs including economies of scale and knowledge sharing. The "fame" of a region tends to attract more resources such as employees, funding, and new companies than other areas. These resources strengthen all members of the cluster. At stage 1, there is limited collaboration.

Stage 2 clusters

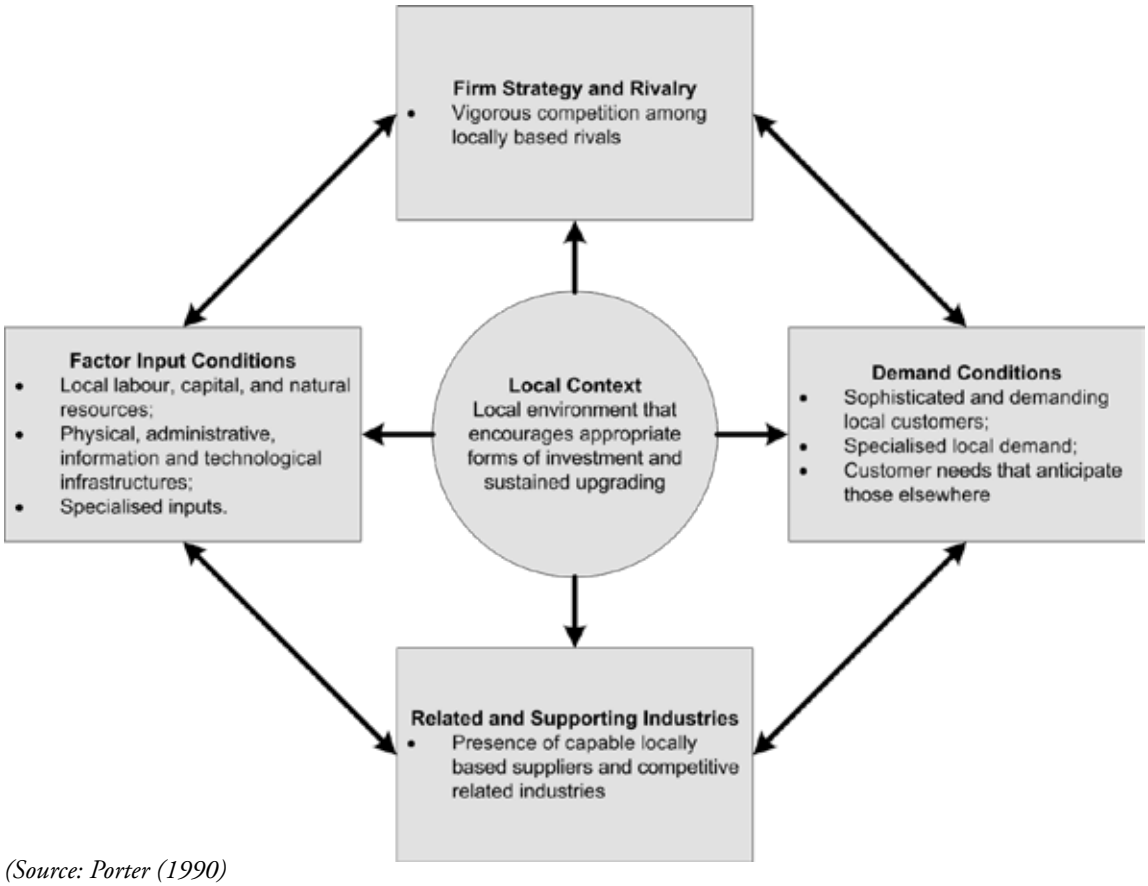
A network that exchanges resources. As a cluster matures, firms and organizations within the cluster realize that more direct communication and collaboration brings benefit both on an individual and cluster level. Organizations begin to work directly with each other to pool their resources, overcoming problems from competitors in other regions, improving local conditions, or even lobbying the government.

Stage 3 clusters

Internal and external recognition of a group identity. As the members of the cluster continue to work together, the cluster coalesces into a visible entity. It takes on marketing activities and actively works to recruit new resources to the cluster. Mature competitive clusters are characterized by intensive exchange of business information, technologies and expertise.

In analyzing clusters, it is important to note that a potential cluster area could be cross-sectoral and also cut across administrative boundaries. What follows are the analyses of potential clusters based on the selected sectors and sub-sectors. The analysis involved desk review, informant interviews and an

Figure 3.1: The microeconomic business environment –the diamond



(Source: Porter (1990)

extensive survey among all 20 clusters and their actors.

Three types of questionnaires were administered to address the different cluster actors adequately:

- The key actors in the cluster
- The support associations in the cluster
- The support institutions in the cluster

The questionnaires focus was on three main aspects of clusters:

(a) The nature of the cluster and interrelations between its key actors

(b) The grassroots bottlenecks faced by the clusters and cluster actors

(c) The opinions within the cluster regarding competitiveness and productivity and where potential gains would lie

The survey work generated 1,060 responses, of which 763 survey responses came from primary actors and 297 from associations and support institutions for all the clusters. The number of questionnaires per cluster is indicated in Table 3.1. The administration of the questionnaires varied substantially across-the-board depending on the number of key players in the selected geographical region. For instance, in energy (Olkaria), the companies are large and few and a large share of the sector is publicly owned. As a result, only 20

questionnaires were administered. On the other hand, where there are a large number of small- and medium-sized enterprises (SMEs) in the local districts, as in the case of Uasin Gishu, 59 questionnaires were administered.

Porter's diamond provides an analytical framework for assessing key aspects of competitiveness, namely: factor inputs, demand conditions, related and supporting industries, and firm strategy, structure, and rivalry. According to this framework, key factors of production such as skilled labour, capital resources and infrastructure are necessary for competitiveness. The presence of internationally competitive related industries and suppliers is an important component in a successful cluster. The framework also identifies the context of the firm in terms of management, organizational practices and competition as another important element in a productivity and competitiveness strategy. The fourth important dimension of the diamond relates to the market conditions, especially the nature and availability of domestic and foreign buyers, and market rivalry. These components all come together to constitute the combined effect that acts within the locational context of the cluster to enhance cluster competitiveness: location matters.

An overview of the 20 potential clusters is provided below, covering the following aspects:

- Types and levels of interactions between cluster firms and related support associations

Table 3.1: Survey responses per cluster

Identified cluster	Number of survey responses
1. Cotton – Makueni	40
2. Cotton – Mombasa	62
3. Dairy – Nakuru/Nyandarua	62
4. Dairy – Uasin Gishu	59
5. Energy – Olkaria	20
6. Horticulture – Mombasa	52
7. Horticulture – Naivasha/Limuru	62
8. ICT – Nairobi	43
9. Beef – Garissa	73
10. Livestock – Kajiado	64
11. Maize – Trans Nzoia/Uasin Gishu	63
12. Inland Fisheries – Kisumu	59
13. Marine Fisheries – Malindi	61
14. Transport & Logistics – Mombasa	30
15. Sugar – Nyando Belt	51
16. Sugar – Western Belt	62
17. Tea – Kericho/Nandi	61
18. Tea – Mombasa	43
19. Tourism – Mombasa	56
20. Tourism – Nairobi	37
Total	1060

and institutions. These are private sector enterprises (large and small), government, research/knowledge institutions, business associations, and other support institutions

- Main bottlenecks and impediments to productivity found for each cluster based on the survey results

3.2 Transport and Logistics

The Transport and logistics cluster at the port of Mombasa is made up of private sector firms such as transport companies, logistics firms, agricultural and manufacturing firms that use the transport sector and port. Transport associations are also key actors in this cluster. The structure of the cluster exhibits linkages between institutions, industries, professionals, entrepreneurs and associations with varied memberships. There seems to be a strong interaction between the following actors:

- **Suppliers** of production factors, infrastructure facilities and logistics services, and professional service providers, especially accountancy and engineering services.
- **Government and affiliated parastatals,** particularly Kenya Ports Authority (KPA), Kenya Revenue Authority (KRA), and Kenya Maritime Authority (KMA).
- **Supporting institutions** providing security and regulatory institutions, such as the Intergovernmental Standing Committee on Shipping (ISCOS) and the Transit Transport Co-ordination Authority of the Northern Corridor (NCTTCA).
- **Associations** with varied membership such as Kenya Ships Agents Association (KSAA), Kenya International Freight and Warehousing Association (KIFWA), Port Management Association of Eastern and Southern Africa (PMAESA), and Sea Farers Union of Kenya.

Figure 3.2 presents the map for the cluster. There is, however, a weak degree of interaction with R&D and capacity building institutions, a fact that is attributable to the lack of research and training institutions dedicated to advancing knowledge in maritime transport and logistics.

The cluster faces important obstacles to productivity and competitiveness, as expressed by key respondents to the cluster analysis survey that was completed in June 2010.

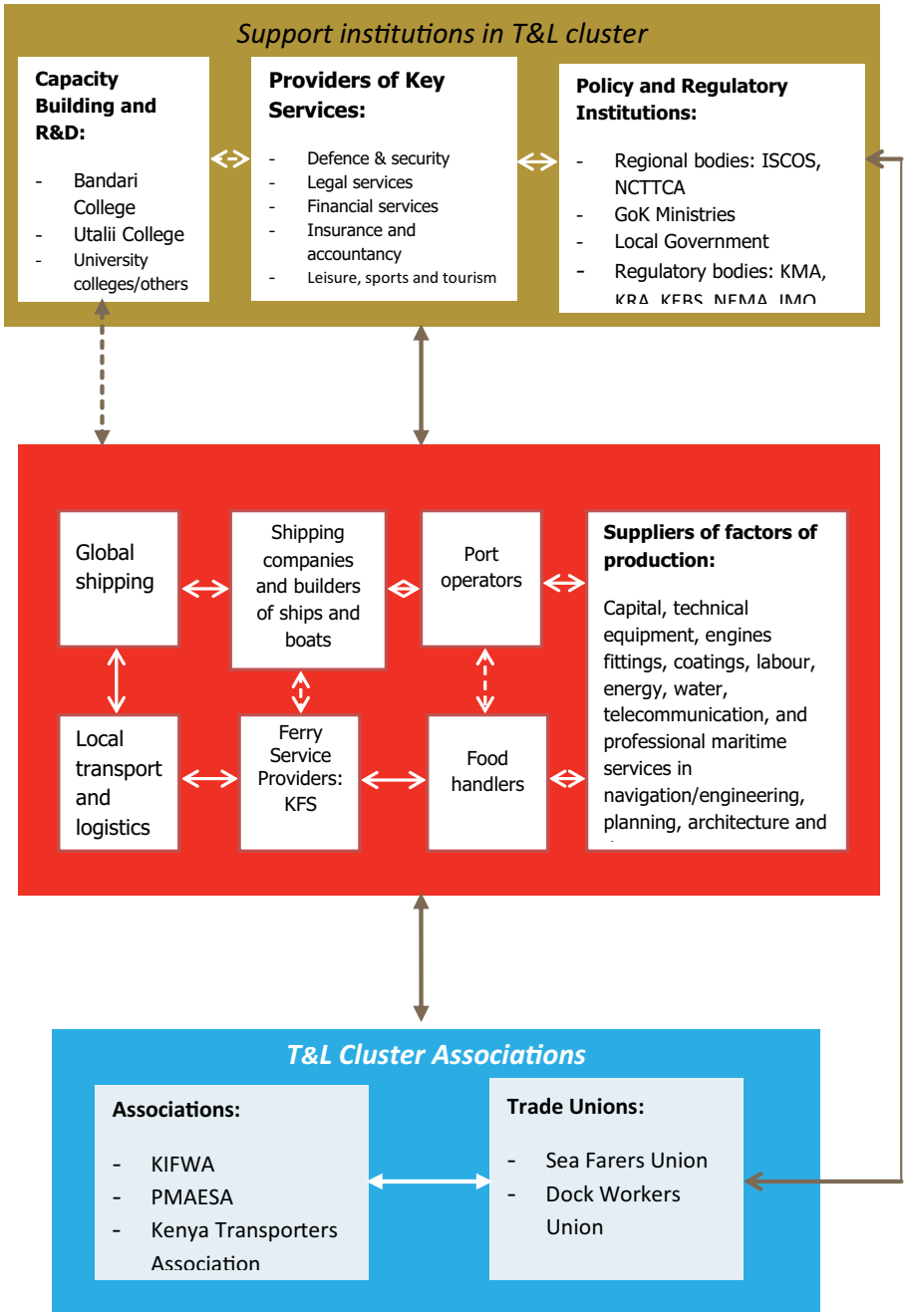
Stakeholder discussions and institutional/firm level questionnaire revealed concerns about efficiency and costs of operations at the port, insufficient number of containers, congestion, capacity of the ministry of transport on maritime transport issues, weakly integrated inland transport system especially roads, railway and pipeline, access to finance, workforce development for the maritime sector, weak clustering, and bureaucracy and corruption.

3.3 Tea

Tea growing is concentrated in the Great Rift Valley, spanning from the Aberdare Highlands, Mt Kenya, Nyambene Hills, Nandi Hills, highlands around Kericho, Mt Elgon and Kisii Highlands. Tea is grown in 18 districts. These are Kericho, Bomet, Nandi, Nyamira, Kisii, Sotik, Kakamega, Trans Nzoia, Nakuru, Kiambu, Thika, Maragwa, Murang'a, Nyeri, Kirinyaga, Embu, Nyambene and Meru. These areas possess favourable soils, altitude and rainfall. They receive well-distributed rainfall ranging from 1,200mm to 2,500mm annually with long sunny intervals. The soils are tropical red loam soils mixed with volcanic soils and the areas lie between 45,000ft (15,000m) and 6,750ft (2250m) above sea level.

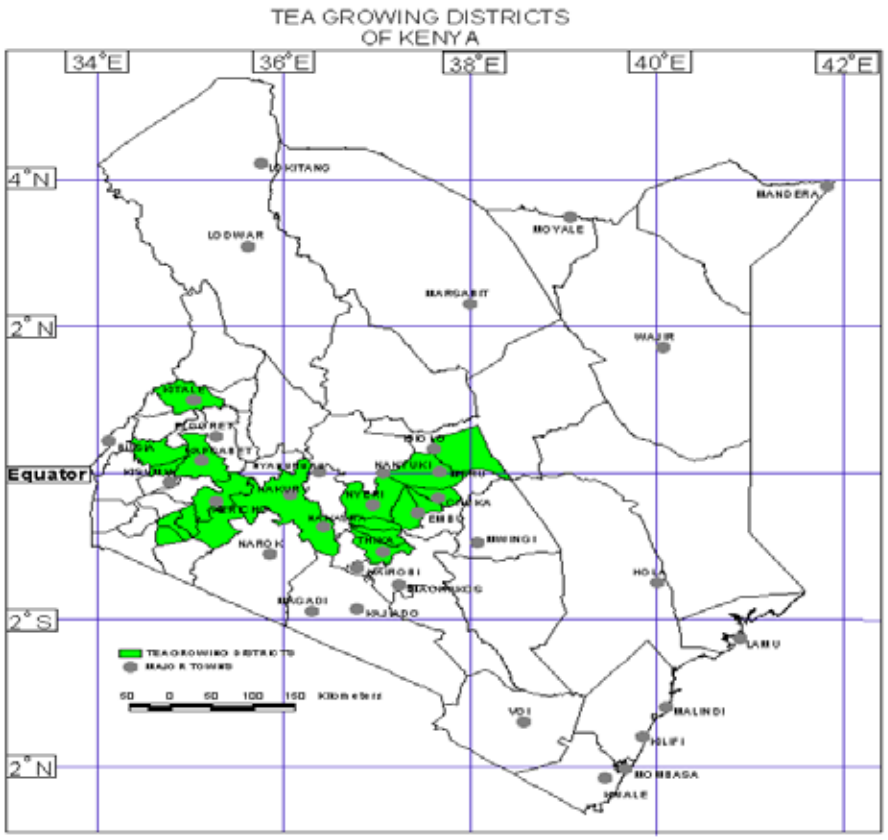
The two clusters selected for further analysis are Kericho and Mombasa. According to statistics from the Tea Board of Kenya, in 2009, the top

Figure 3.2: Cluster map for Transport and logistics at the port of Mombasa



KEY: Dotted lines represent weak linkages and full lines strong linkages

Figure 3.3: Tea growing districts of Kenya



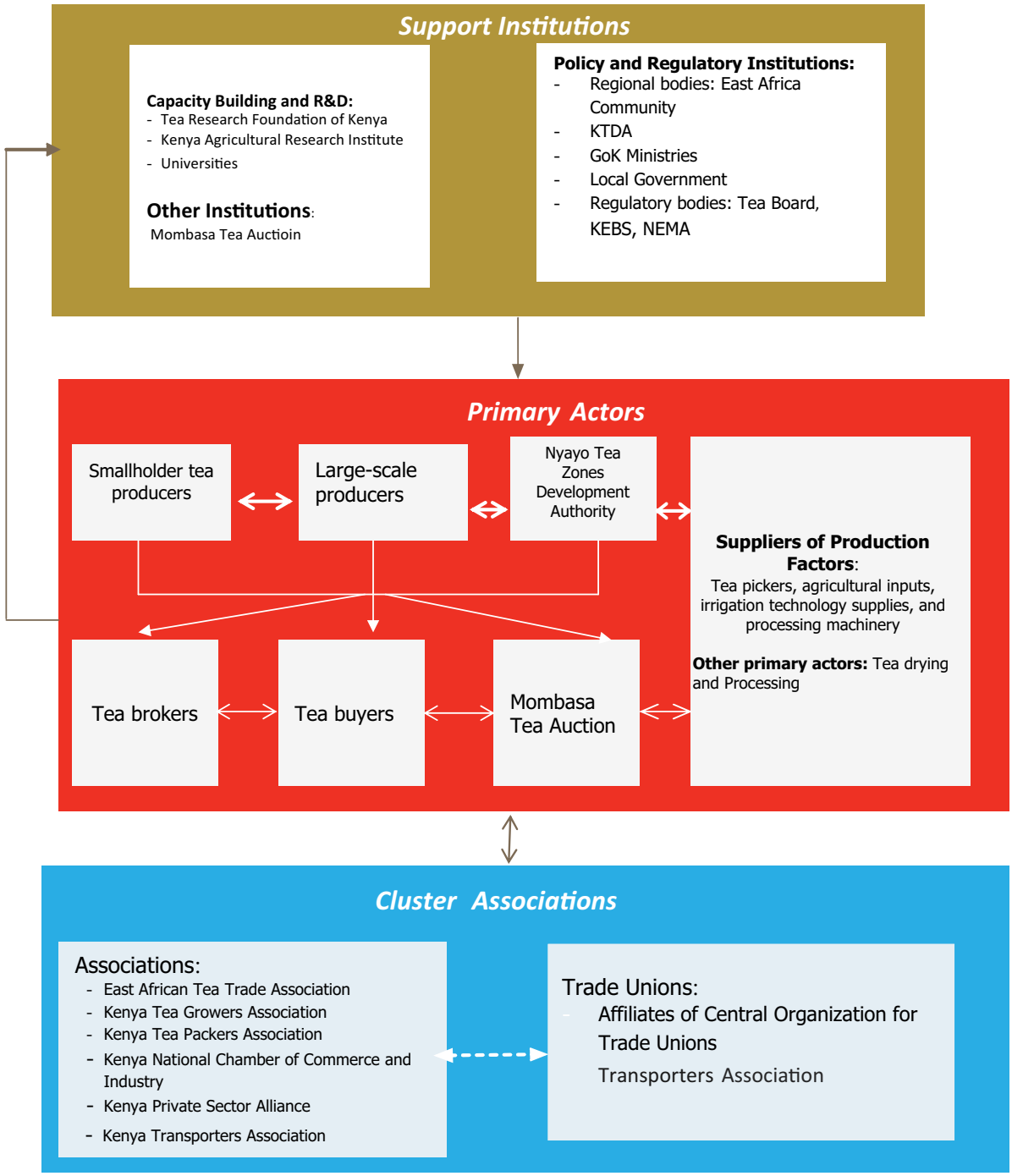
Source: KTDA

four largest tea producing districts were Kericho (74,190,927Kg), Nandi (45,500,092Kg), Sotik (22,574,190Kg) and Kiambu (19,300,018Kg). The choice of Kericho is thus based on the fact it is the largest tea producing district. On the selection of Mombasa, the decision was made based on the strategic importance of the Mombasa Tea Auction in giving more value to Kenyan tea through blending, packaging and marketing, and the planned establishment of industrial and manufacturing zones under the Vision 2030. There is potential for increasing value addition in Mombasa, especially with regard to blending, packaging and marketing, which is mainly undertaken in Kenya's export markets and is controlled by a few multinationals.

The Kenya Vision 2030 proposes the establishment of industrial and manufacturing zone(s) at the Coast that will incorporate an agro-industrial zone with blending and packaging of fertilizers, teas, and coffees. Currently, about 85 per cent of the tea produced in Kenya is exported through the Mombasa Tea Auction. It is the second largest tea auction in the world. The auction handles tea from 13 countries, including Kenya, Burundi, Malawi, Rwanda, Uganda, Tanzania, DRC, Zambia, Madagascar and Mozambique.

The primary actors in the Mombasa tea cluster are tea producers, tea collectors, tea dryers, brokers, buyers, warehouses, packers and the Mombasa tea auction. Support institutions include the

Figure 3.4: Tea cluster map



Tea Board of Kenya, Tea Research Foundation of Kenya, Kenya Tea Development Agency, Ministries of Trade and Agriculture, insurance brokers, trucking services, transporters, Kenya Bureau of Standards, freight handlers, banking services, and the Export Promotion Council. The tea cluster associations include Kenya Tea Growers Association, Kenya Tea Packers Association, East African Tea Trade Association, Kenya National Chamber of Commerce and Industry, Kenya Private Sector Alliance, and affiliates of Central Organization of Trade Unions (Figure 3.4).

Several bottlenecks were identified through a cluster survey. They include:

1. Kenya's tea is exported with very little value added to it – adversely affecting the country's competitiveness in the global tea market. Therefore, multinationals who are able to reap this premium are willing to do it in export markets at the expense of the local economy.
2. Lack of institutional cooperation, especially between multinationals and SMEs, is a big challenge
3. There is a low emphasis on standards. Only a few firms at the Mombasa Tea Auction have obtained the international standards for quality, food safety, traceability and sustainability.
4. Rising costs of labour, fuel, fertilizer and electricity adversely affect the competitiveness of Kenya's tea cluster.
5. Lack of innovation and limited research activities, especially in tea processing, packing and blending. Both public and private initiatives towards this end are absent.
6. Limited credit facilities for SMEs.

3.4 Horticulture

Horticultural products are produced in almost all regions in the country. However, certain areas are dominant in production.

Cut-flower sub-sector

In the cut-flowers sub-sector, most of the large and medium scale farms are in the Rift Valley (Naivasha, Laikipia, Nakuru, Kajiado, Kericho, Trans-Nzoia, Uasin Gishu, and Nandi), Central (Nyandarua, Kiambu, Murang'a, Maragua and Thika), Eastern (Machakos, Meru Central and Embu) and Nairobi Provinces. Most smallholder production is undertaken in Central Province (Kiambu, Limuru, Nyandarua, Thika, Nyeri, Maragwa and Murang'a), Rift Valley Province (Nakuru and Naivasha) and Eastern Province (Meru and Machakos). The most recent conservative estimates indicate that large and medium scale growers are mainly concentrated around Lake Naivasha (872.5 hectares), Thika (251.7 hectares), Limuru/Kiambu (187.6 hectares), Athi River plains, Nakuru, Eldama Ravine (173.6 hectares), Nanyuki/Nyahururu (45.5), and fewer areas around Mt Kenya region (118.5 hectares) and Uasin Gishu (Eldoret/Kitale) (129.5 hectares). While the small scale farms are located mainly in the Limuru/Kiambu region, the larger Thika/Muranga/Nyeri and pockets in Laikipia, Western and Eastern provinces (Bolo, 2006).

Fruits Sub-sector

Fruit production in the country accounts for an estimated Ksh 1.6 billion metric tonnes annually. This production comprises mainly tropical fruits (banana, mango, avocado, passion fruit, and pineapple etc) and nut crops (macadamia, coconut etc) and small quantities of temperate fruits (apples, pears and plums peaches, etc). Most of the tropical fruits are produced in warmer/low

land regions of the country and the temperate in the colder/highlands regions. As a result, tropical fruits (banana, avocado, mango, passion fruit, pineapple, pawpaw, citrus) are grown in all provinces, namely: Coast (Taita-Taveta, Kwale and Kilifi districts), Central (Thika, Muranga, Nyeri and Kirinyaga districts), Eastern (Embu and Meru Central districts), Rift Valley (Nakuru and Baringo districts), Western (Kitale, Bungoma, Kakamega districts), North Eastern (Garissa district), Nyanza (Kisii district) and Nairobi Provinces. Of these provinces, the Coast has the widest selection and high concentration of fruits. Except avocado, all other fruits are grown in this region, including sweet melon, watermelon and tamarillo.

Other important fruits are passion and bananas, which are grown in Central (Thika, Muranga, Nyeri and Kirinyaga districts), Eastern (Embu and Meru Central districts), Rift Valley (Nakuru and Baringo districts), Western (Kitale, Bungoma, Kakamega districts), Nyanza (Kisii district) and Coast (Taita-Taveta, Kwale and Kilifi districts) provinces.

Pineapples are grown in Thika, Murang'a, Malindi, Kilifi, Bomet, Rachuonyo, Kisii and Nyamira districts. For avocados, the major producing districts are Kiambu, Thika, Muranga, Kirinyaga, Meru, Embu, Machakos, Nyeri, and Tharaka-Nthi. The major variety grown is Fuerte but Hass. Mangoes are mainly grown in Coast Province (Lamu, Malindi and Kilifi), Central Province (Thika, Maragua) and Eastern Province (Embu, Mbeere, Meru Central, Makueni, Machakos, Meru South, Mwingi and Kitui). Over the last ten years, the average estimated annual production of mango is 250,000MT, avocado is 63,000MT while passion fruit is 30,000MT. Table 3.2 shows the geographical concentration in the production of mangoes.

In Coast Province production is mainly concentrated in Kilifi and Kwale. Based on production data, the potential clusters that were selected are Cut-flower in Naivasha and Limuru, and Fruit industry at the coast, especially Kilifi and Kwale.

Cut-flower Cluster

There are two distinct supply chains for cut-flowers. One for the large-scale flower growers and another for the small-scale producers. The large-scale growers follow a vertically integrated value chain that is almost symmetrical. They have sophisticated post-harvest cold-supply chain infrastructure, including refrigerated trucks for transportation.

Table 3.2: Mango production (MT) per province

	Central Province			Coast Province			Eastern Province			North Eastern Province		
Year	Area	Prod.	Value '000'	Area	Prod.	Value '000'	Area	Prod.	Value '000'	Area	Prod.	Value '000'
2000	714	6,119	104,220	8,151	43,845	4,461,198	5,395	111,819	480,027	n.a	n.a	n.a
2005	806	5,719	80,718	7,675	34,328	412,100	11,143	63,309	668,263	277	302	27,940
2008	874	13,110	209,760	15,115	226,725	3,627,600	7,315	109,725	1,755,600	421	6,315	101,040
2009	925	883	1,061	19,235	301,784	3,017,840	10,005	97,470	1,003,500	491	5,730	492,000
2010	1,061	9,250	9,688	19,301	363,783	3,637,830	10,035	93,958	1,732,980	492	18,765	675,540

Source: Ministry of Agriculture (2011)

These firms work with certain breeders, use specific logistics, marketing, clearing and forwarding agents and sell their products to certain market outlets (Hornberger et al., 2007; ISHS, 2005; World Bank, 2004). On the other hand, the small holders have ad-hoc value chains that heavily rely on middlemen for logistics, marketing, clearing and forwarding. There is little or no investment in post-harvest cold-supply chain infrastructure, and they rely heavily on one market outlet - the auction system in Holland (Hornberger, et al., 2007; Fintrac, 2005). In 2010, the major markets for cut-flowers were The Netherlands (69%), and United Kingdom (17%). This is usually the case every year with some little variation.

On the downstream end of the chain are powerful retailers who are instrumental in advocating and enforcing standards, such as 'Milieu Project Sierteelt' or Floriculture Environmental Project (MPS), Fair trade, and Global GAP. On the other end of the chain (upstream), there are the plant and seed breeders who are organized. They are able to push new varieties into the consumer-driven chain. Between them are large numbers of Small and Medium Enterprises (SMEs) of growers and wholesalers in both developed and developing countries. The substitution possibilities of these enterprises are high, and their strategic scope is mostly limited to their respective regions (Dolan and Humphrey, 2000; Wijnands and Hack, 2000).

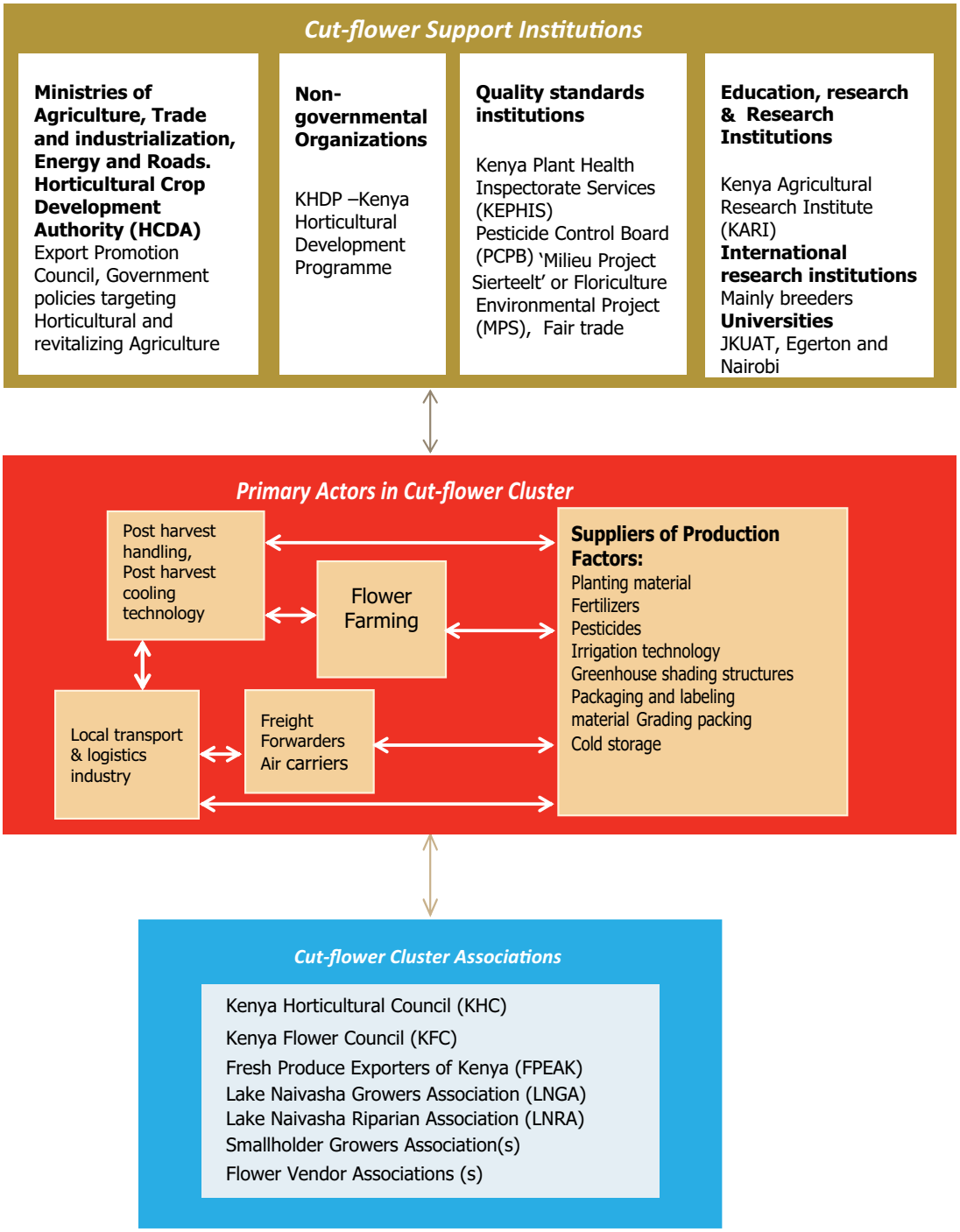
The large growers rely heavily on the expatriates mainly from The Netherlands and Israel for technical advice and assistance. The industry has little formal interactions between farm and other actors, except through their associations namely the Kenya Flower Council (KFC), the Lake Naivasha Growers Association and the Lake Naivasha Riparian Association. The latter two tend to provide a forum to safeguard their interests in maintaining the environmental and social audit as well as consumer demands on the working conditions of flower farm workers and the negative publicity it generates from time to time. The Flower Council, on the other hand, provides an avenue for self-regulation. It has developed a Code of Practice that is fully benchmarked to GlobalGAP and is undergoing a benchmarking/mutual recognition with Tescos Nature, FFP and FLP, MPS-SQ, MPS-Social, MPS-ABC and Rainforest. In addition, another important stakeholder includes the Fresh Produce Exporters Association of Kenya (FPEAK) who have benchmarked the KenyaGAP against the GlobalGAP and recently introduced KenyaGAP. In collaboration with their associations, the farms mainly interact through attending both local and international exhibitions such as the HORTEC (Kenya), and HORTFAIR (Netherlands) just to mention a few. Here, they exchange notes on issues such as market information, new technologies, new products and more. These events usually attract international participation.

The key issues that emerge from the analysis and stakeholder consultations include poor integration of small-scale farmers in the global value chain, lack of domestic research and innovation, environmental concerns, poor infrastructure, high energy costs, and weak clustering.

The challenges that are specific to the smallholders include:

1. There is a glaring contrast between the operations of large multinationals and small-scale SMEs in the cluster
2. Inadequate marketing tools and opportunities for the small-scale SMEs in the cluster
3. Inadequate capital to invest in innovations, pesticides and fertilizer
4. Poor road conditions and infrastructure in general. This affects transport of cut-flowers for international exports and domestic use
5. Many crop diseases against which sufficient knowledge and tools are not available to the growers

Figure 3.5: Cut-flower clustern map



6. High dependence on the weather conditions
7. Expensive inputs for horticulture production, and inadequate supply of quality seeds
8. Poor quality of irrigation systems, and drainage systems that affect productivity of the cut-flower clusters
9. Bureaucracy in government-related institutions
10. Agricultural research institutions are not disseminating practical knowledge to the farmers

3.5 Tourism

It is estimated that 66 per cent of tourism activities/ expenditure in the country takes place in the Coast Province, 14 per cent within Nairobi, and 8 per cent in Rift Valley Province (TTI, 1998). Areas of high concentration of tourism in the country are the Coast, Nairobi and the Masai Mara (Table 3.3).

The Kenya Vision 2030 proposes the development of three resort cities (at Isiolo, Kilifi and Diani) which, upon completion, will expand the accommodation capacity and other facilities (Ministry of Tourism, 2009). This will give the Coast beach tourism cluster a major boost, given that two of the three proposed resort cities will be located at the cluster. Nairobi and Mombasa are also major infrastructure, ICT and industrial hubs that provide key forward and backward linkages. Based on this background, tourism in Nairobi and the coastal beach locations qualified as potential tourism clusters and were selected for further analysis.

The two potential tourism clusters identified in this study are at the coast around Mombasa Island (i.e., North Coast and South Coast) and Nairobi, accounting for 66 per cent and 14 per cent of tourism activity in Kenya, respectively. Majority of the tourists coming to Kenya are from Europe (68%), followed by tourists from the rest of Africa (11%) and Asia (9%). The Coast remained the most preferred area in Kenya in 2010. Occupancy along the coast was dominated by residents of Kenya, United Kingdom, Germany and Italy (KNBS, 2011: Economic Survey).

3.5.1 Mombasa Beach Cluster

The coastal tourism zone is divided into three main areas, namely: the coast beach, coast hinterland and other coastal areas. Of the 638 tourist-class hotels in the country, the coast zone has the highest share of hotels at 205 (32.1%), of which the coast beach has 142 (22.3%), Mombasa Island has 19 (2.9%), while the coast hinterland has 44 (6.9%), (KNBS, 2010, Statistical Abstract). Over the last 6 years, the coastal beach remained the most preferred destination for leisure by tourists, accounting for 50.1 per cent of total bed-nights countrywide (Economic Survey, 2011). Bed-night occupancy in the coastal beach expanded by 48.2 per cent in 2009 compared to a decline of 44.4 per cent in 2008. This reflects a recovery in tourism recorded in 2009, following the post-election violence the country experienced in 2008. However, in 2010, the coast beach recorded slight growth of 7.7 per cent over the previous year.

The Kenya coast beach is further divided into four main areas: North coast area; South coast area; Malindi, Kilifi and Lamu area; and Mombasa Island. Table 3.4 and Figure 3.6 shows the proportion of bed-nights occupied in these areas in 2008-2010.

According to the Economic Survey (2010 and 2011), although the North Coast remained the most preferred area, the popularity of South Coast is increasing. This is reflected in the increased share of bed-nights occupied in South Coast that expanded from 20.4 per cent in 2008 to 35.9 per

cent in 2009. The proportion of bed-nights in the other coastal areas contracted in 2009, compared to 2008. In 2010, the North Coast rebounded, registering a growth of 6.5 per cent over the previous year, in comparison with a decline of 9.7 per cent in the South Coast region. The Mombasa island has the lowest number of tourist-class hotels, compared to the other three areas.

The key bottlenecks facing the cluster include:

1. Seasonality of the tourism industry; some hotels close during low seasons. This is very costly and no alternatives to this cyclical process have been identified.
2. Limited/lack of access to finance, especially for small businesses such as curios, boat owners, taxi companies and small tour companies.
3. Poor infrastructure, mainly roads and ferry services for South Coast cluster players. This makes traveling time-consuming and uncomfortable.
4. Poor garbage collection and irregularly cleaned beaches.
5. Domestic security and political stability, which are an important factor that can scare away tourists. The post-election violence in 2008 had a very strong negative impact on the Kenyan tourism industry. Others are insecurity, crime and terrorism.
6. Lack of product and market diversification.

3.5.2 Nairobi Tourism Cluster

Of the 638 tourist-class hotels in the country, the Nairobi tourism cluster has 78 hotels (12.2%) of which 24 (3.8%) are high-class hotels (KNBS, 2010, Statistical Abstract). Despite this, the

Table 3.3: Distribution of hotel bed nights in Kenya by region, 2005-2010, percentage

Zone		2005	2006	2007	2008	2009	2010
Coast	Beach	50.79	54.52	54.30	44.44	48.24	48.68
	Hinterland	1.68	1.41	3.03	2.54	3.38	1.80
	Other	0.97	1.83	2.21	3.19	2.44	2.27
	Sub-total	***53.44***	***57.77***	***59.55***	***50.17***	***54.06***	***52.74***
Nairobi	High class	19.45	15.99	14.82	19.36	18.65	16.87
	Other	4.03	4.34	4.36	6.07	7.98	6.16
	Sub-total	***23.49***	***20.33***	***19.18***	***25.43***	***26.63***	***23.03***
Other	Maasai-land	8.08	7.78	7.49	6.27	5.01	7.09
	Central	5.92	5.07	5.60	6.90	5.57	6.96
	Nyanza	4.39	4.80	3.55	5.01	3.42	4.52
	Western	2.86	2.83	3.38	6.07	5.11	5.47
	Northern	1.81	1.41	1.24	0.15	0.21	0.19
	Sub-total	***23.07***	***21.90***	***21.27***	***24.40***	***19.32***	***24.23***
Total Occupied		**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Occupancy Rate		***44.39***	***45.54***	***47.17***	***25.99***	***36.45***	***38.82***

Source: Computed from KNBS (2006-2010) Statistical Abstract and Economic Surveys

cluster accounts for 23 per cent of hotel bed-nights countrywide. Most of the conference tourism facilities and activities take place at the Nairobi cluster, which is also strategically located as a transit city for tourists on their way to other tourism areas/clusters in the country. There are over 300 registered 'tours and travel' companies in the Nairobi tourism cluster. In addition, there are over 108 registered travel agents in the cluster (but not all are IATA certified). The key business associations operate under the umbrella of Kenya Tourism Federation (KTF). Its membership includes the Kenya Association of Tour Operators (KATO), which is Kenya's leading tourism trade association, representing the interests of 300 members (tour operators). Others are the Kenya Association of Hotelkeepers and Caterers (KAHC), a representative body that brings together duly registered hotels, lodges and camps operating in Kenya; Pubs, Entertainment and Restaurants Association of Kenya (PERAK); Kenya Association of Air Operators (KAAO) and the Kenya Association of Travel Agents (KATA), which represents interests of 101 members.

Table 3.4: Bed-night occupancy at the Coast Beach, 2008 -2010 (%)

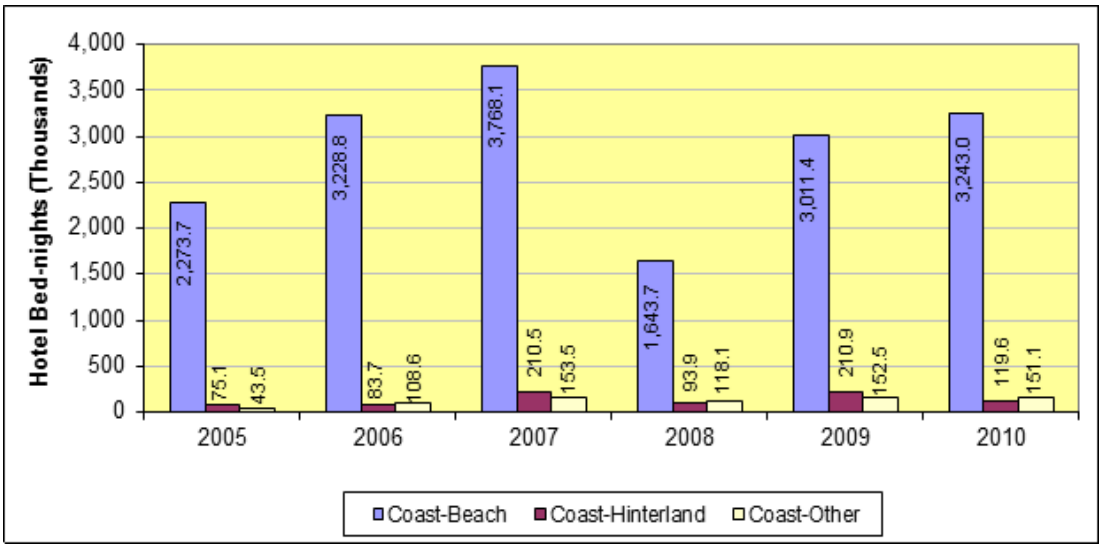
Year	Mombasa Island	North Coast	Kilifi, Malindi, Lamu	South Coast
2008	7.2	47.3	25.1	20.4
2009	4.8	36.9	22.4	35.9
2010	4.7	39.3	23.6	32.4

Source: KNBS (2006-2011) Economic Surveys

The bottlenecks facing the Nairobi tourism cluster are almost similar to those affecting the Kenya coastal beach cluster. Most of them are infrastructure-related. In addition, congestion of Nairobi city is seen as a major bottleneck now compared to Mombasa.

The key issues that emerged from stakeholder consultations include the need to develop infrastructure, especially roads, supply and cost of electricity, ferry services at the coast, the need to promote domestic tourism, improved security

Figure 3.6: Total hotel bed-nights at the coastal zone



Source: KNBS (2006-2011), Economic Surveys

and enhanced international market and product diversification.

Cluster Players and Expected Roles

Both public and private sector stakeholders are involved in Kenya's tourism industry. The public sector plays an important role encompassing formulating and implementing policy, licensing the actors, regulating the industry, developing tourism, supporting tourism sector activities, managing national parks and reserves and other public tourism resources, setting up and maintaining crucial tourism infrastructure, promoting tourism, and maintaining fair practice in tourism business (Ikiara, 2001). In this sector, the government is charged with the overall mandate for planning, policy making and coordination, regulation and monitoring, facilitation and implementation, development and promotion. Some of these tasks should move to the proposed cluster organization to work on, with guidance from government.

The key private sector players include hoteliers, airlines, tour operators and travel agents, taxi companies and security companies. Others include curio traders and firms that supply food and beverage products to the tourist hotels. In addition, various business associations play the role of promotion and coordination of tourism activities. Stakeholders in the tourism sector, majority of who are involved in the coastal beach cluster-level activities, are shown in Table 3.5.

Key Players in the Cluster

The survey finds that this cluster is interacting at high levels already, even though further communication – especially in the fields of quality assurance and taxation could be enhanced. Environmental NGOs also play a role in this cluster – especially with long-run views on the state of the environment and its effects on tourism in the longer run.

Lobbying is also done with the government through roundtable discussions with officials from government ministries and through other institutions such as the Kenya Private Sector Alliance (KEPSA). Forums for discussion include roundtable discussions, training sessions, and annual general meetings. Generally, the nature of collaboration between associations is more to do with partnership than lobbying. The government also provides some financial support to key associations such as Ecotourism Kenya, and to tourism enterprises through the Tourism Trust Fund and the Kenya Tourism Development Corporation. Usually, members of associations have to pay for an initial and annual membership fee. This varies depending on the category of membership (e.g. whether corporate or individual, or size of establishment). Figure 3.7 presents the cluster map for tourism incorporating beach tourism.

3.6 Marine and Inland Fisheries

An initial selection of potential clusters in both inland fisheries and marine fisheries that were included among the first list of 20 clusters analyzed was done based on production (fish landings). In terms of marine landings, Kwale District accounted for about 35 per cent of the total landings in 2008. Lamu followed with 2,195 landings constituting 25 per cent of the total landings. Malindi accounted for about 17 per cent of the total landings. Mombasa had 11 per cent of the total landings, while Kilifi and Tana River accounted for 10 per cent and 2 per cent, respectively. Inland fish capture dominates the production (90.3%), with Lake Victoria alone contributing 82.2 per cent of the total capture fishing. Based on these production statistics, Kisumu inland fisheries and Malindi-Kilifi (Marine fisheries) were selected for deeper analysis as potential clusters among the 20 clusters.

Table 3.5: Stakeholders in the tourism sector

Public Sector Institutions		Key Tourism Sector Associations	Key Private Sector Institutions
Key Ministries/ Institutions	**Other Collaborating Ministries/ Institutions**		
▪ Ministry of Tourism ▪ Kenya Tourism Development Corporation ▪ Kenya Tourism Board ▪ Catering, and Tourism Development Levy Trustees ▪ Kenya Utalii College ▪ Kenyatta International Conference Centre ▪ Bomas of Kenya ▪ Hotel and Restaurants Authority ▪ Tourism Trust Fund	▪ Ministry of Forestry and Wildlife ▪ Kenya Wildlife Service ▪ Ministry of State for National Heritage and Culture ▪ Kenya Ports Authority ▪ Kenya Ferry Services ▪ Kenya Maritime Authority ▪ Kenya Police and Kenya Tourism Police Unit ▪ National Environment Management Authority ▪ National Museums of Kenya ▪ Kenya Private Sector Alliance	▪ Kenya Tourism Federation ▪ Eco-tourism Kenya ▪ Kenya Association of Travel Agents ▪ Kenya Association of Tour Operators ▪ Kenya Association of Hotel Keepers and Caterers ▪ Kenya Hotels Association ▪ HACCP Certification (SGS Kenya) ▪ Pubs, Entertainment and Restaurants Association of Kenya ▪ Mombasa and Coast Tourist Association	▪ Transporters (Airlines, tours and travel firms) ▪ Accommodation (Hotels, lodges, etc.) ▪ Financial services institutions ▪ Security firms ▪ Entertainment firms ▪ Food suppliers ▪ Environmental NGOs

3.6.1 Inland Fisheries Cluster

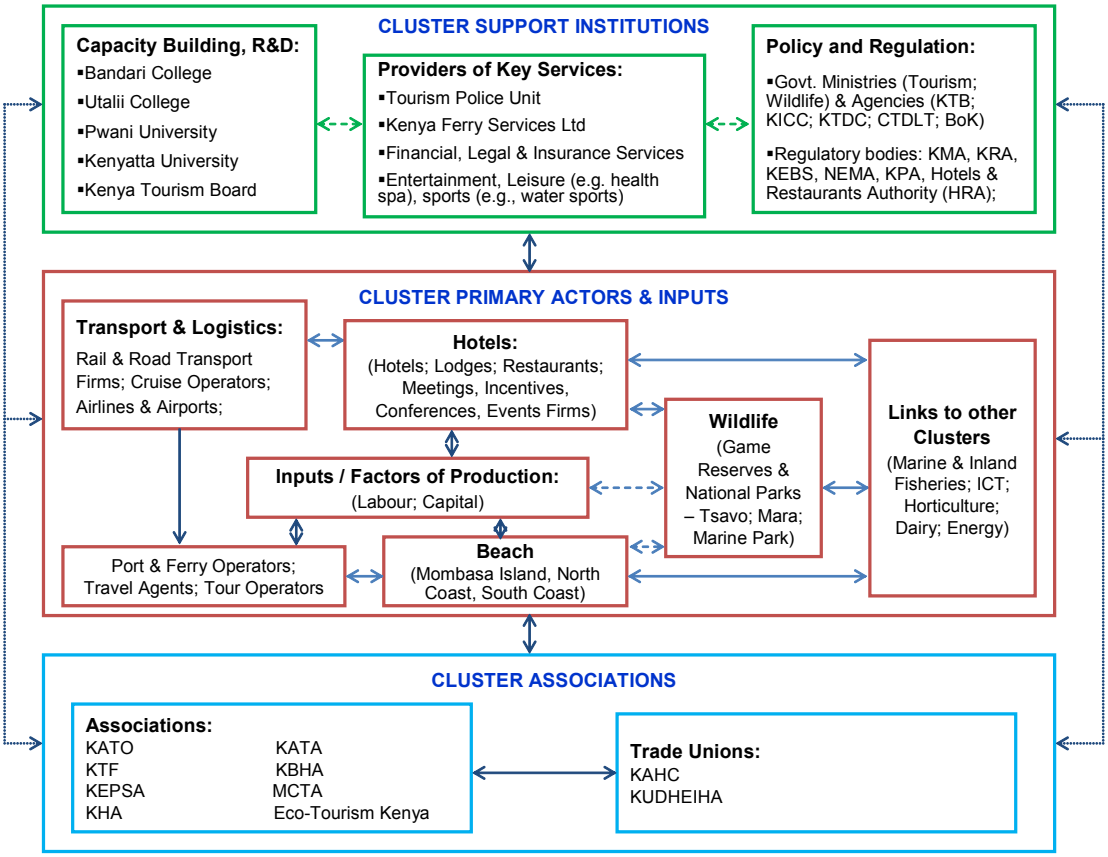
Fish production in Lake Victoria is dominated by small-scale fishermen. The fishermen supply fish to various middlemen and traders, who in turn supply to industrial processors, artisanal fish processors and domestic consumers. The fish landing sites are co-managed by Beach Management Units (BMUs) and the Ministry of Fisheries. The fish is sold in the domestic market and exported to countries such as the European Union (EU), the Far East and Australia, the Middle East and United Arab Emirates, and the rest of the world (USA, Venezuela, Colombo and Cuba). The products of Lake Victoria fisheries are estimated to have an annual value of Ksh 6.2 billion at landing.

There is a wide range of actors in the fishing cluster. These include research and marine conservation agencies such as the Kenya Wildlife Service (KWS), Ministry of Fisheries (MoF), Coast Development Authority (CDA) and the Kenya Marine Fisheries Research Institute (KEMFRI), input suppliers (local and imported), artisanal fishermen, industrial fishing/processing/export companies, wholesalers/fish dealers, and retailers. Figure 3.8 summarizes the map for the cluster.

The cluster faces various challenges including:

1. Lack of infrastructure such as a poor road network along the beaches, which makes them less accessible during rainy seasons. The beaches also lack supply of electricity,

Figure 3.7: Tourism cluster map



Key: Dotted lines represent weak linkages and full lines represent strong linkages

and therefore advanced preservation and cold storage infrastructure is lacking

2. Inadequate access to capital. Some Non-governmental Organizations (e.g. Adoktimo in Suba) are currently working with commercial banks to provide funds to the fishermen

3. Inadequate market information. KEMFRI has developed a system through which fishermen and other stakeholders can get to know the prevailing prices of various fish types in different fish markets

4. Strict quality standards required, especially for the EU market. Those unable to meet the standards have resorted to export of frozen fish products, but this is much less profitable

5. Decline in fish stock attributed to use of inappropriate fishing nets (small mesh nets, indiscriminate fishing gears and mass target fishing methods). Mean catch sizes and catch per unit efforts have also declined and at the current rates with current catching technologies, this is not sustainable

6. Weak support institutions such as fisheries department and BMUs (e.g. on more environmentally friendly fishing methods). Field surveys indicated that some of the institutions are hampered by weak financial base and low staff morale.

3.6.2 Marine Fisheries Cluster

The Mombasa/Malindi/Kilifi cluster was identified as a potential cluster due to its large production (total marine catch) and employment (number of fishermen) contribution. Marine fishing in Kenya covers marine waters and the intermediate brackish waters as well as coastal fresh water bodies. The territorial waters where the artisanal fishermen operate cover 12 nautical miles, while the Exclusive Economic Zone (EEZ) covers 200 nautical miles from the coast line. According to the Department of Fisheries (DoF, 2008), marine fishery is estimated to have a potential of between 150,000-300,000 metric tonnes per year, most of which is not exploited. The Ministry of Fisheries (2008) reports that only 8,736 metric tonnes of assorted marine fish species valued at Ksh 736,766,000 were caught in 2008 which, however, reflected an increase of 17.0 per cent from 2007.

The main strength of the cluster is its potential to produce even more tonnes of fish stocks but, at the moment, this potential is not exploited. In addition, demand for marine fish is very high, both at the coast and around the country. Another strength of the cluster is the large pool of labour available in terms of fishermen who can easily be used if the right fishing gear is available.

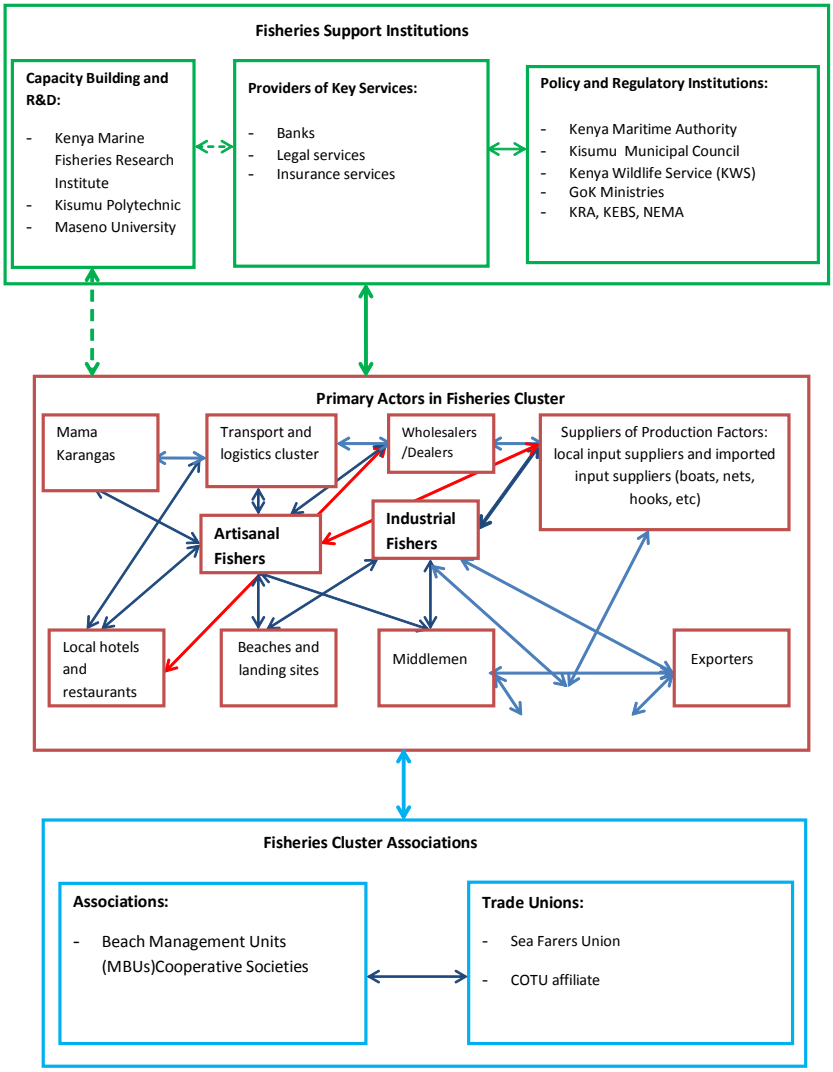
Several bottlenecks to the development of marine fishing in general and the Mombasa/Malindi/Kilifi marine fishing clusters were identified from field survey and literature review. These bottlenecks included:

1. Lack of support and collaboration with research institutions such as KEMFRI; links between KEMFRI and the local fishermen are weak
2. The use of inappropriate fishing boats and gears that are not capable of deep sea fishing, leading to over-exploitation of fish resources close to shore
3. Lack of finance to pay for the acquisition of appropriate boats and gears
4. Declining marine fish stocks due to the use of big trawler who use inappropriate fishing seins (nets) catching juvenile fish
5. Unexploited mariculture and aquaculture fill the high and unmet demand for marine fish
6. Low literacy levels and high poverty levels among the artisanal fishermen that limits the fishermen's organizational and managerial capacity and openness to new developments and techniques
7. Illegal acquisition by private developers of the public beach land, which acts as the fishermen's landing sites
8. Other constraints include lack of cold storage facilities and lack of appropriate market facilities

There exists several opportunities in the cluster that can easily propel the productivity of the cluster. These include:

- The existence of research institutions, including KEMFRI that can capably lead in research and innovation in the cluster
- The existence of strong conservancy and regulatory institutions
- The existence of unexploited export opportunities, in part due to the fact that small fishermen do not know how to meet international Sanitary and Phytosanitary Measures (SPS)

Figure 3.8: Inland fisheries cluster map



Key: Dotted lines represent weak linkages and full lines represent strong linkages

- Financial institutions exist that are capable and willing to give loans to the fishermen, provided they are organized into groups and appropriate risk sharing agreements are concluded
- The existence of financial opportunities with the government, particularly through the Youth Fund and the Women Fund and the opportunity for formation, expansion and strengthening of associations that can have access to credit facilities

Several threats are also identified. These include:

- The threat of climate change, which can reduce marine fish stocks
- Environmental degradation and over-exploitation of natural resources
- Lack of resources (both personnel and physical resources) for regulatory authorities such as the Ministry of Fisheries and Beach Management Units BMUs) to effectively monitor and regulate fishing activities and support fishermen in providing them with information and techniques that can help improve their living standards
- Laxity in the enforcement of laws by regulatory authorities, and pollution of the ocean by companies around the beach

3.7 Livestock

The top four provinces in livestock production, given the averages for the years 2002 to 2007, are Rift Valley, Eastern, Nyanza and North Eastern in descending order. Rift Valley Province alone accounts for 34.4 per cent of beef cattle available in the country. This justifies defining our study to look at a (starting) beef cluster in the Rift Valley province given the level of supply.

The census done in year 2009 had a component of obtaining an estimate of livestock population. In terms of provinces, the top four remain as above, though North Eastern takes the second position after the Rift Valley. This therefore gives an indication that a beef cluster can be located in Rift Valley and in North Eastern regions. The two provinces had a total population of animals of around 59.7 per cent as shown in Table 3.6. Once you add Eastern Province into the group, it accounts for 73.0 per cent of the total population in Kenya.

Analysis of beef cattle population by districts from the data in 2002-2007 average reveals that Transmara, Kajiado and Narok had the highest numbers of beef cattle. Given the location of these districts in the lower Rift Valley Province, the Kajiado District also appeared so strategically placed for a beef cluster, such that it can even capture the supply of animals from the lower Eastern Province. Using the census data in Table 3.8 and considering the ASAL areas, the top districts are Turkana, Narok, Mandera, Garissa and Wajir. This therefore supports the Narok-Kajiado region as a strategic place for a beef cluster.

For the North Eastern Province, the strategic district for the beef cluster is Garissa, as it is the entry to the province and has some infrastructure to rely on for the cluster. It also serves very well the other three districts in the province, given that Garissa and Wajir have the highest beef cattle population. The Kenya Vision 2030 identifies Garissa for the development of beef industry cluster, together with a tannery. The census data also supports Garissa as a good location for the beef cluster due to its strategic location.

3.7.1 Dairy Sector Cluster

Kenya has one of the largest dairy industries in sub-Sahara Africa. It accounts for over 3.5 per cent of GDP, and enjoys a growth rate of 4 per cent per annum compared with 1.2 per cent for agriculture as a whole (IFAD, 2005). Dairy production in

Kenya is undertaken under three main production systems: smallholder zero grazing, smallholder open grazing, and large-scale open grazing. Dairy production is an important source of livelihood for about 800,000 small-scale farmers. Large-scale dairy farms are owned by both private firms and public institutions, such as the Agricultural Development Corporation (ADC). An estimated 500,000 dairy cattle are kept in this system. The small-scale farmers generate jobs for a further 365,000 people, in addition to family labour (IFAD, 2005). Apart from milk, dairy animals also provide manure, other marketed products such as calves and cullings, in addition to intangible benefits such as insurance and status (Karanja, 2003). Other dairy products include fresh milk (pasteurized), Ultra Heated Milk (UHT), butter, ice cream, cheese, milk powder (dried), condensed milk, ghee, fermented milk, milk shake and yoghurt.

Selection of Potential Cluster Area

Milk production has increased over the years with the exception of 2008. In 2007, total milk production stood at 2 billion litres. Rift Valley, Central and Nyanza provinces were leading in milk production with 866 million and 258 million litres respectively, accounting for 42 per cent, 28 per cent and 12 per cent of the total milk production, respectively.

Table 3.6: Beef cattle population

	Rankings	Avearge (2002-2007)	% Total
1	Rift Valley	3,157,595	34.4
2	Eastern	1,623,008	17.7
3	Nyanza	1,466,162	16.0
4	North Eastern	1,027,403	11.2

Source: KIPPRA Agricultural Data Compendium

Table 3.7: Cattle population according to 2009 census

	Province	Cattle	Percentage
1	Rift Valley	7,350,332	43.3
2	North Eastern	2,775,208	16.4
3	Eastern	2,260,161	13.3
4	Nyanza	1,655,970	9.8
5	Western	1,063,512	6.3
6	Coast	955,456	5.6
7	Central	895,229	5.3
8	Nairobi	10,153	0.1
9	**Grand Total**	**16,966,021**	**100.0**

In 2007, the top five districts in milk production were in Rift Valley and Central provinces. The districts include Nakuru, Nyandarua, Uasin-Gishu, Kericho and Kiambu.

The total production in the five districts amounted to 737 million litres, accounting for 36 per cent of the total milk production.

According to Table 3.10, the top two districts in milk production are Nakuru and Nyandarua. The two districts are the ideal clusters in the dairy sector due to the high production, concentration of production, and high employment levels in these regions. However, the two are neighbouring districts and face the same agro-ecological and processing problems. Therefore, the two districts are classified as one cluster, and Uasin Gishu, which is the third largest in production, is taken as the second cluster. Uasin Gishu has different agro-ecological and processing challenges. The district is also far from the main consumption centres.

Table 3.8: Beef cattle population by district

	District	Av. 2002-2007
1	Trans Mara	430,406
2	Kajiado	428,359
3	Narok	404,984
4	Homa Bay	318,942
5	West Pokot	304,208
6	Machakos	295,412
7	Wajir	288,475
8	Garissa	273,516
9	Ijara	265,871
10	Baringo	247,318
11	Kitui	244,349
12	Makueni	236,750
13	Samburu	221,521
14	Mandera	199,541
15	Migori	191,954
16	Mwingi	189,392
17	Laikipia	187,908
18	Turkana	185,885
19	Rachuonyo	183,321
20	Isiolo	163,133

Source: KIPPRA (2007)

Table 3.10: Milk production by district

	District	Milk production (million litres)	% of total production
1	Nakuru	195	9.6
2	Nyandarua	166	8.2
3	Uasin Gishu	127	6.2
4	Kericho	126	6.2
5	Kiambu	121	5.9

3.7.2 Beef Cluster

The main actors in this cluster are the farmers (group ranches, individual ranches and pastoralists), traders including trades in skin, financial institutions, government, including local authorities, meat processors-Kenya Meat Commission (KMC), agro vets, non-governmental organizations, abattoirs and tanneries (Figure 3.10)

Narok - Kajiado Beef Cluster

The Kajiado and Narok districts are vast pastoral areas that used to be one district. They are now demarcated on administrative boundaries. The two are located in lower Rift Valley Province. As for the larger Kajiado in the Rift Valley Province, it has three districts: Kajiado Central, Kajiado North and Loitokitok. The larger Narok has also faced some internal demarcation into four districts, namely: Transmara West, Transmara East, Narok North and Narok South. The main economic activity in this region is pastoralism. Most of the land in this region is communally owned. Beef farming is carried out in 17 group ranches, 16 individual ranches, one company ranch, or individually. According to the National Census in 2009, the estimate of cattle population in this region is 1,828,726 animals, which is approximately of 11 per cent of the national population.

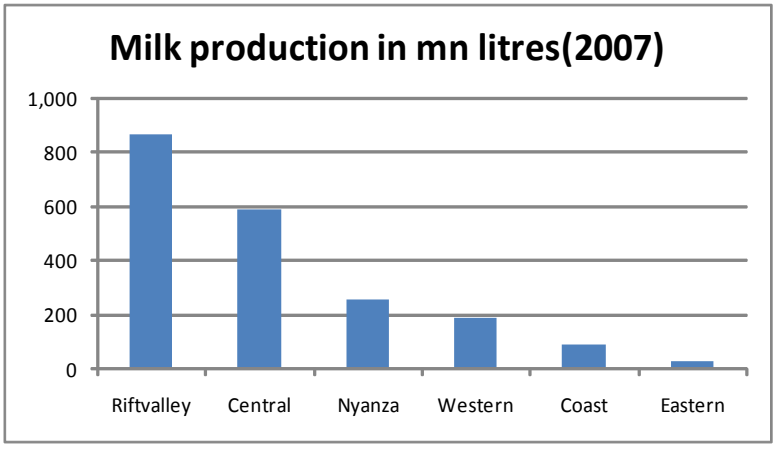
The main challenges to productivity and competitiveness that come out of the survey are:

1. Vulnerability of the cluster to adverse weather conditions, mainly drought and famine. This can affect the cluster very negatively. Nevertheless, there are some affluent years
2. Cultural constraints: Livestock is seen as a source of wealth rather than an enterprise
3. Nomadic lifestyle of the community

Table 3.9: Beef cattle population by district from 2009 census

	Districts	Cattle - 2009	Percentage
1	Turkana	1,534,612	9.05
2	Narok	1,416,886	8.35
3	Baringo/Bomet	1,304,238	7.69
4	Mandera	1,076,978	6.35
5	Garissa	903,678	5.33
6	Wajir	794,552	4.68
7	West Pokot	556,900	3.28
8	Nakuru	439,994	2.59
9	Marsabit	424,603	2.50
10	Kakamega	417,952	2.46
11	Kajiado	411,840	2.43
12	Meru	402,304	2.37
13	Homa Bay	373,543	2.20
14	Kitui	340,341	2.01
15	Machakos	339,891	2.00
16	Migori	338,801	2.00
17	Bungoma	333,522	1.97
18	Kericho	330,903	1.95
19	Nandi	309,038	1.82
20	Uasin Gishu	295,104	1.74
	Others	4,620,341	27.2
	Grand Total	**16,966,021**	**100.00**

Figure 3.9: Milk production by province (million litres, 2007)



Source: KIPPRA (2007)

makes it difficult to provide essential services such as schools and health, which are essential for short and long-term poverty alleviation

4. High illiteracy levels among the pastoral communities
5. Lack of credit facilities to farmers – they do not have sufficient access to finance through a banking system or otherwise in order to conduct and expand their businesses
6. Poor road links, especially to the large consumer centres such as Nairobi
7. Since meat is fresh produce and there are insufficient cooling facilities, animals are transported to the consumer markets and slaughtered there – this implies that value added is not created in the rural areas where the animals are kept, but near the consumer markets (e.g. Nairobi)
8. Inadequate electricity distribution and high electricity prices
9. Inadequate market information to the small scale farmers – market development, new grazing techniques, sanitary and phytosanitary measure standards, access to improved breeds, etc.
10. Lack of adequate technical knowledge and skills – much of the available information does not reach the small-scale beef farmers

Beef Cluster in Garissa

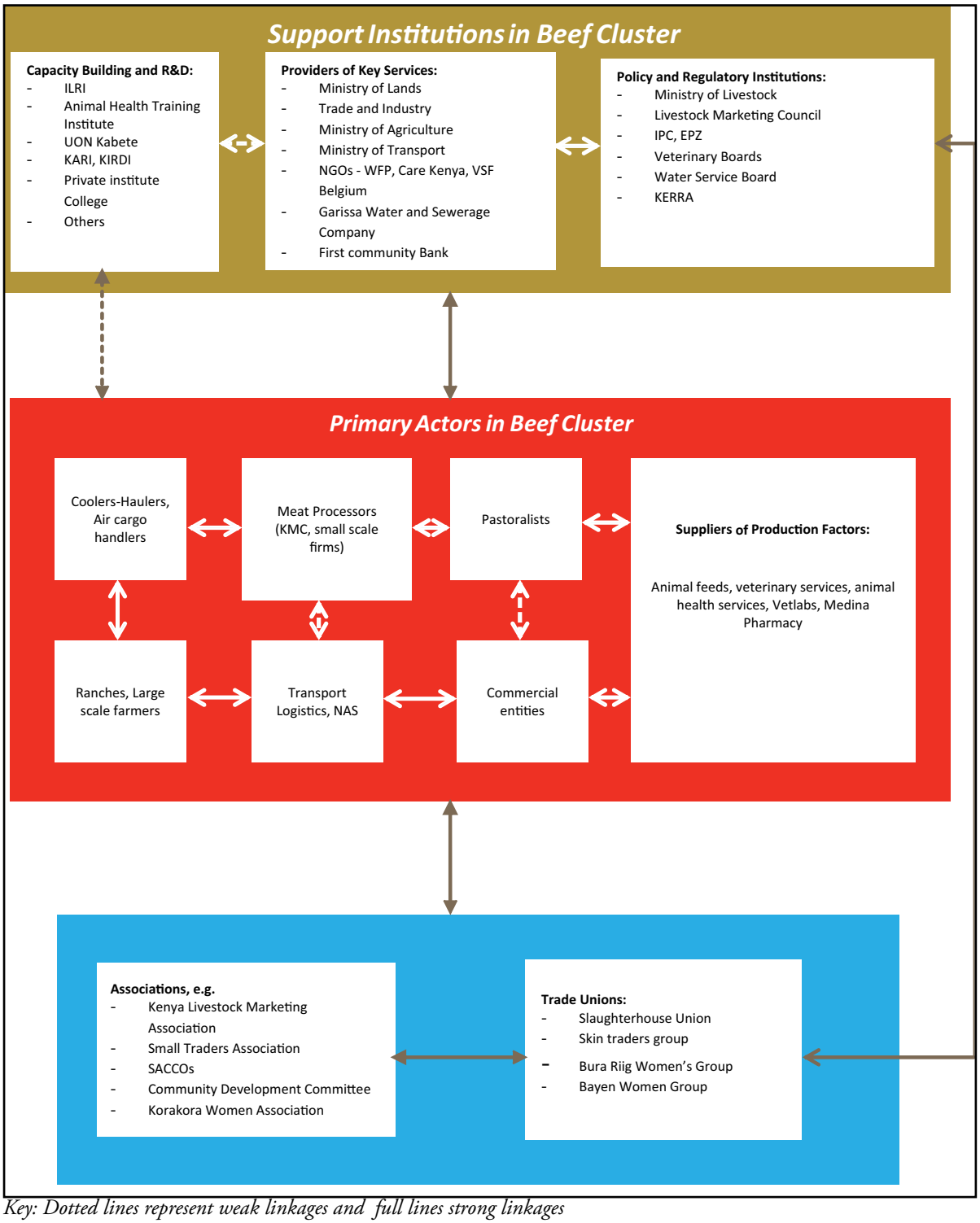
Garissa District in North Eastern Province covers an area of 5,688.1km^2. It has four divisions, namely Central, Danyere, Sankuri and Balambala. The district is characterized by water scarcity, with only 37 per cent of the population having access to clean and safe drinking water. The rest of the population uses untreated water from water pans and dams. The district is currently constructing the Rahole water canal, which is one of the flagship projects in Kenya Vision 2030. This will ensure that a wider population in the district has access to safe drinking water. The environment is degraded and inhibited by the "mathenge" plant, which is a menace to the population and livestock. The district is a predominantly nomadic pastoral area with 90 per cent of the district supporting nomadic pastoralism. Livestock production is the main source of food and income in the district, and provides 95 per cent of household income.

In the beef cluster, the primary actors are mainly the cattle farmers, who have small to large herds of animals across the district. There are also the cattle traders who buy these animals from the farmers for selling in the markets locally and abroad. Meat processors are also primary actors. There is one slaughterhouse located in the Central Division that serves the entire district. The primary actors also incorporate the input suppliers. These are include the agro vets (medinas, etc) who supply the pesticides and wormicides to the farmers. Associations are also available, with memberships from the farmers and traders in general. These associations try to uplift the welfare of the members by assisting in seeking better markets, advocacy, and at times financing and keeping the members informed. The support institutions come in handy in terms of supervisory role from the government-related institutions, while others support in terms of relief food, destocking of animals when drought sets in and supply of water through the boreholes and maintenance of the water pumps. A number of support institutions are in place, though proper coordination is required to avoid duplication and improve competitiveness.

The key obstacles to productivity and competitiveness in the beef cluster are:

1. Drought: This is a challenge to the pastoral farmer. It causes loss of animals

Figure 3.10: Beef cluster map



Key: Dotted lines represent weak linkages and full lines strong linkages

in large numbers because of lack of water and pasture

2. Farmers attach a lot of cultural value to the animals instead of commercializing the venture. This leads to the problem of overstocking
3. The climate is quite harsh and hence nomadism is to some extent, unavoidable
4. Illiteracy is quite high in the region, leading to low levels of competitiveness and access to information by the pastoral farmers
5. The breed quality of the animals is low. The animals are herded in the traditional way due to the harsh climate and, therefore, value addition in terms of better breeds is a tall order
6. Access to the market is a challenge due to long distances, poor roads and under-utilization of the Tana River which is a permanent river
7. Diseases, attacks by wild animals, expensive pesticides and low output prices also affect productivity and competitiveness

The livestock cluster in Garissa and North Eastern Province has high potential, given the number of animals available. This potential can be exploited fully if the mismatch between water and pasture is controlled. The Tana River should be exploited to improve the productivity and competitiveness of the livestock sector.

3.7.3 Dairy Cluster

The dairy sector is complex, with many different actors involved. Milk bars are the main milk outlets. They are large in number and most of them have been licensed by the Kenya Dairy Board. Some of the milk bars are involved in value addition. There are a number of processors and cooling plants in the cluster. Most of the large-scale processors only offer bulk and cooling services for transportation to Nairobi.

The support institutions include government departments and parastatals: Ministry of Livestock, Kenya Dairy Board, and Kenya Bureau of Standards. Kenya Dairy Board is the main regulatory body in the dairy sector. It has the responsibility of developing, promoting and regulating the dairy industry. The main functions of the Board are the enforcement of national standards for the dairy industry, training for the industry, facilitation of stakeholders' activities, and maintenance of the dairy industry databank, regulation of imports. Figure 3.10 presents the diary cluster map.

Nakuru-Nyandarua Dairy Cluster and Uasin Gishu Dairy Cluster

The cluster covers the Nyandarua and Nakuru districts. These are among the top districts in milk production. The average production for the period 2003-2007 was 179 and 133 million litres, respectively. The two are neighbouring districts and face the same agro-ecological and processing problems. The climatic conditions in this cluster are favourable for dairy farming. The cluster consists of both large and small-scale dairy farmers, processors, milk traders, business service providers, support institutions and farmers associations. Large-scale farms are owned by government institutions and private firms. The farms keep hundreds of high breed dairy cows on more than 50 acres of land, while small-scale dairy farmers typically keep two or three dairy cows on approximately one acre of land, with other livestock, while also engaging in arable agriculture. The cluster has a number of large and small-scale processing companies, namely: Kenya Cooperative Creameries (KCC), Spin Knit, and Supa Duka.

The KCC has the highest processing capacity, estimated at 1.2 million litres of milk per day. Milk traders include the farmers, milk bars, brokers and hawkers. Most of the milk marketing is done through these informal channels. Some of these traders are licensed by the Kenya Dairy Board.

The most important constraints prioritized by the farmers in all the cluster villages were:

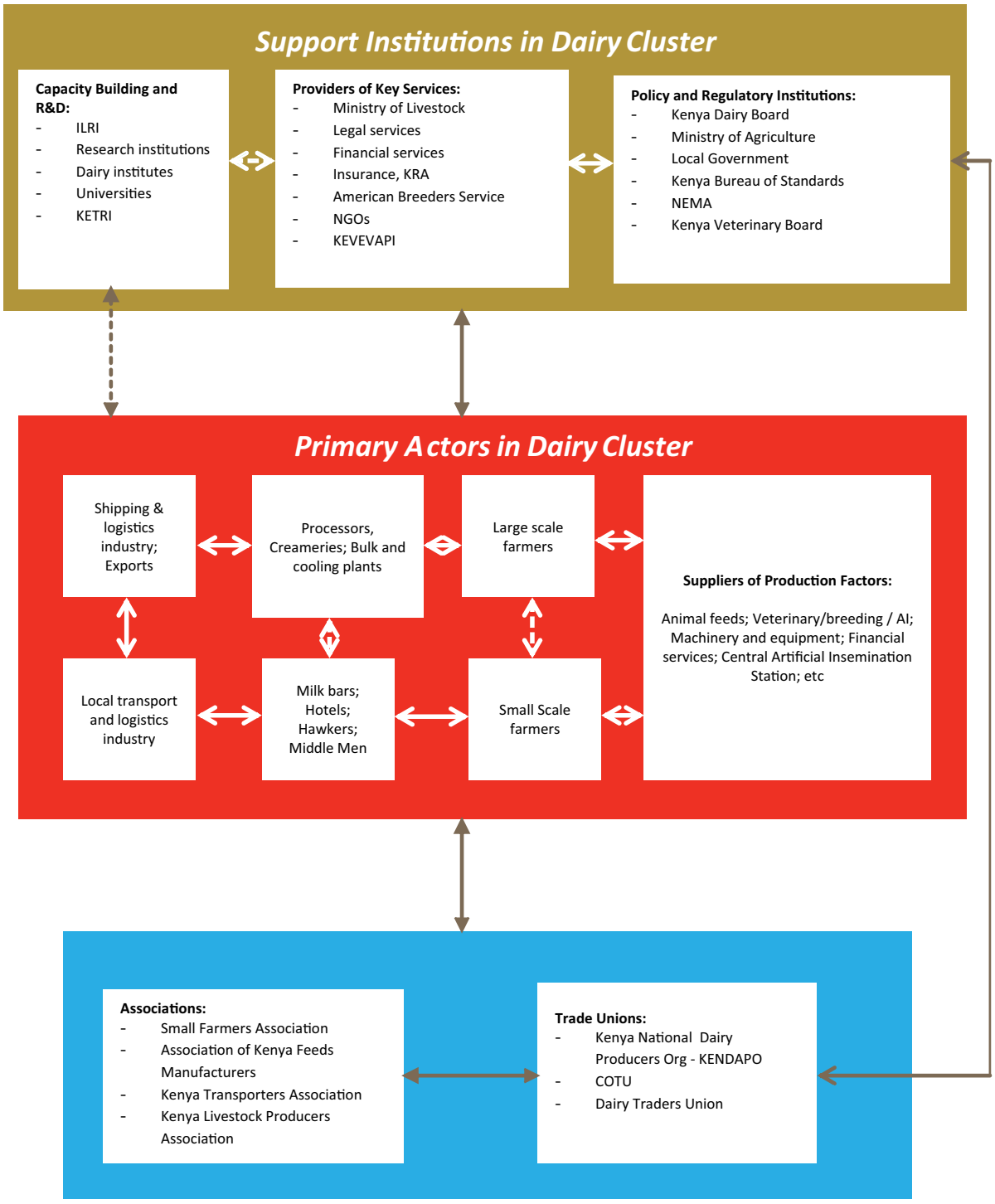
1. Scarcity of fodder and poor quality of commercial feeds.
2. Milk marketing is a big challenge, especially for the small-scale farmers. Erratic prices from the formal marketing channels have given way to informal milk outlets. These absorb most of the milk from smallholder farmers, accounting for over 80 per cent of the total milk sold. In as much as these informal marketing channels have offered expanded business opportunities and enhanced competition, they pose major challenges to the growth and development of the dairy industry. The informal marketing channels not only expose the public to health and hygiene related risks, but also continue to stifle the growth of the formal milk sector.
3. The farmers reported that repeated breeding was a serious problem in their herds. Mineral deficiencies were suspected to cause this problem.
4. Inadequate fodder conservation especially for the small-scale farmers: There is a lot of fodder going to waste, especially during the rainy season, and little is conserved. This leads to fodder scarcity during the dry season.
5. Farmers cited access to finance as a reason why most of them rear indigenous breeds. They are unable to buy good quality feeds, which would increase the productivity of the dairy cows. Investment in dairy farming is long-term and most banks do not have appropriate credit facilities fitting the dairy farmers.
6. Awareness and rate of adoption of livestock-related technologies by small-scale dairy farmers is very low, mostly due to the capital requirements.
7. The agro-eco system has led to low productivity of dairy animals. The drought experienced in 2009 caused serious fodder and water scarcity in the cluster, which led to loss of dairy animals.
8. Transportation of milk is a problem due to poor roads, especially during the rainy season.
9. The research institutions reported lack of adequate funding from the government as their biggest challenge.
10. Most cooperatives cited unfair competition by milk vendors, especially in the urban centres.
11. Small-scale processors lack appropriate technology suitable for small-scale processing. There is also lack of suitable credit for setting up small-scale processing plants.

3.8 Cotton

Cotton is grown in six out of the eight provinces in Kenya, with Eastern Province accounting for the largest share. Figure 3.12 and Table 3.12 further identify the districts where cotton production is highest.

The cotton sector has potential for growth. A study by Ikiara and Ndirangu (2003) estimates that the domestic demand for lint cotton is 120,000-140,000 bales (annually). This is over five

Figure 3.11: Dairy cluster map



Key: Dotted lines represent weak linkages and full lines strong linkages

times more than what is currently being produced. The shortfall is met by imports of cotton lint, seed cotton, yarn, fabric and clothing.

Most of these regions (excluding Nairobi) have their own ginneries, most of which are privately owned (EPZA, 2005). Ginning is an important step in the cotton value chain. It involves the separation of the seed cotton into cotton lint and cottonseed. According to the Statistical Abstract (KNBS, 2010), there are only 10 cotton ginneries in the country, which utilize only 25 per cent of their ginning capacity.

Over the years, the price of seed cotton has been increasing, from Ksh 22 per kg in 2008 to Ksh 26 per kg in 2009, which almost doubled to Ksh 48 per kg in 2010 (Ministry of Agriculture, 2011). The lint is what is sold to textile industries to develop yarn and textiles and then garments. The cottonseed is either returned to the farmers for planting, used for animal feed manufacturing or extracted for oil. Textile mills develop textiles, fabrics and yarn. This is what garment and apparel manufacturers' use. Table 3.13 lists ginners, textile millers and other related industries per region.

Review of the sector shows that two distinct clusters can be identified; cotton production, ginning and textile and apparel production. Based on the data provided in Table 3.12, Makueni was selected as the main cotton producing area. The region also has a ginnery, Makueni Ginnery. As illustrated in Table 3.13, textile and garment manufacture is mainly located at the coast region (Mombasa) and Nairobi. Mombasa, however, has a larger number of related firms compared to Nairobi, including cotton ginneries, textile mills and garment manufacturing companies.

Based on these considerations, the two clusters selected within the cotton sector are in cotton production and ginning in Makueni, and textile and garment production in Mombasa.

The cluster mapping exercise led to identification of two clusters for further study, namely: cotton production and ginning in Makueni, and textile and garments cluster in Mombasa. The cluster map for cotton growing and ginning is presented in Figure 3.13 while that of textile and garment production is presented in Figure 3.14.

3.8.1 Cotton Production and Ginning in Makueni

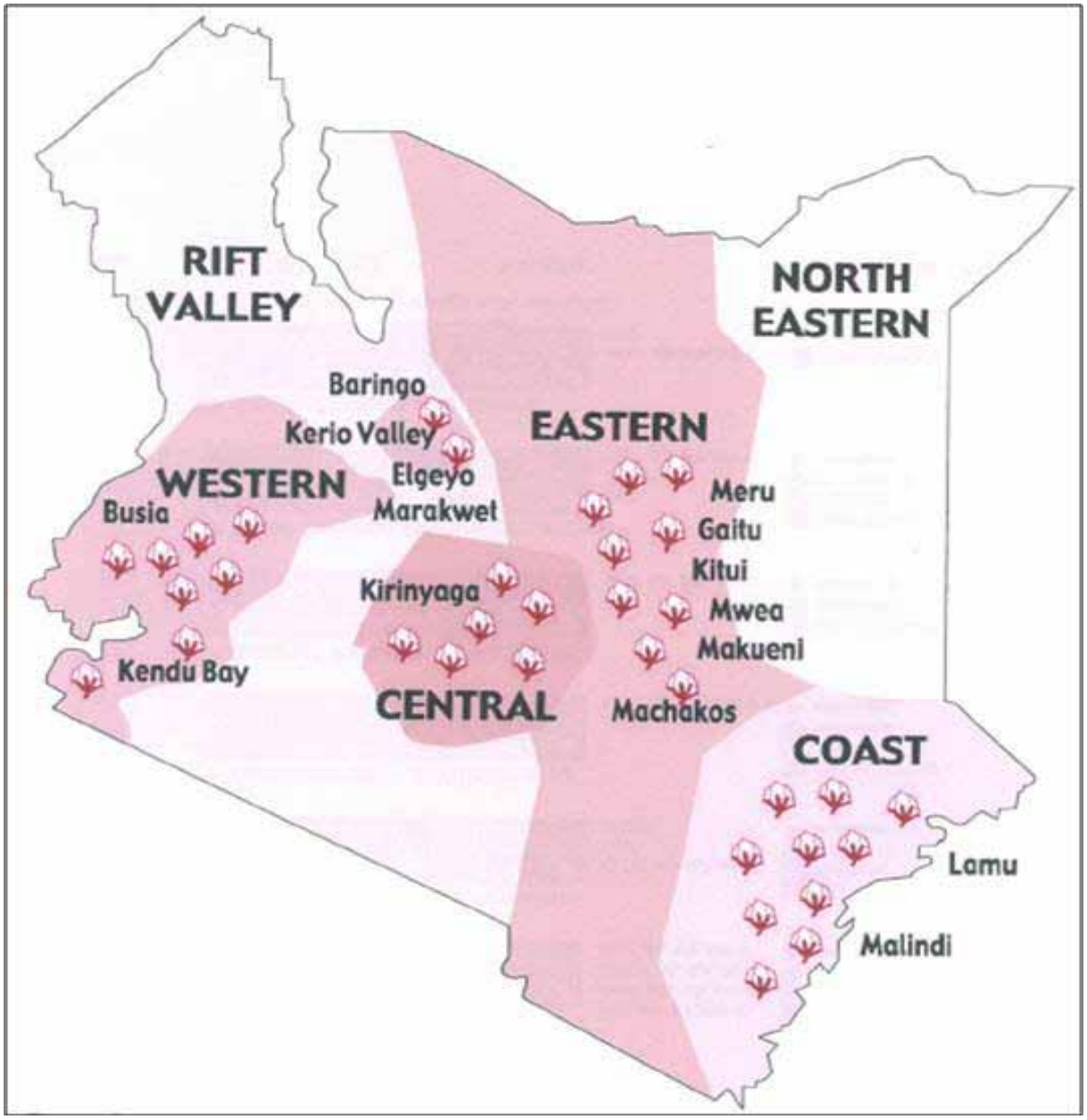
The old Makueni District has the largest acreage under cotton and highest production of lint. The

Table 3.11: Cotton production per province in 2010

Province	Production, tons (seed cotton)	Lint (Bales)
Eastern	4,320	7,776
Coast	3,600	6,487
Nyanza	2,447	4,409
Western	975	1,756
Rift Valley	247	445
Central	98	176
Total	**11,687**	**21,049**

Source: Cotton Development Authority (CODA)

Figure 3.12: Cotton growing regions



Source: Cotton Development Authority (CODA)

Table 3.12: Cotton production (high potential districts) in 2007

	District	Seed cotton production		Lint (Bales)
		Area (hectares)	Tonnes	
1	Makueni	6,274	7,529	13,565
2	Lamu	3,226	5,792	10,437
3	Rachuonyo	3,000	2,400	4,324
4	Kitui	2,500	1,500	2,703
5	Homa Bay	1,227	980	1,769

Source: Compiled from district reports, 2007

district is now sub-divided into the following new districts; Makueni, Kathonzweni, Kilungi, Mbooni East and West, Kibwezi and Mukaa districts. The old Makueni District has 64.3 per cent of the population living below the poverty line, in an area that is largely dry. However, given that cotton is relatively tolerant to dry conditions, the region is suitable for cotton growing. The newly established district of Kathonzweni is where most of the cotton farmers in the region are concentrated. The district covers 880.7km^2 and receives 200 to 600 mm of rainfall annually, with temperatures between 20 and 28 degrees Centigrade.

As is the case in most regions in Kenya, cotton growing in Makueni is undertaken by small-scale farmers, most of whom do not plant cotton exclusively. Cotton farming in this region provides great potential in rural development and income generation in the region, especially given the level of poverty in the area and the weather situation within the region.

Cotton lint production in the region takes place at the Makueni Ginnery. Production has, however, been declining over the last five years, from 1,695 bales in 2004 down to 1,057 bales in 2007. In 2008, cotton lint production at the Makueni Ginnery fell by about 50 per cent to 547 bales. This is largely attributed to drought conditions in 2007/08.

The field survey revealed that there is limited interaction between members of the cluster, namely: farmers, government and local associations. KARI does not have a physical office in the region. However, the KARI–Mwea office is mandated to conduct research on cotton and other fibre crops in the Eastern Province region. CODA's regional office is in Kitui, which is about 65km away from Makueni. Both institutions, however, conduct field visits, train and undertake capacity building in the region. Farmers view the government as very distant from them, and local associations are not functioning optimally with respect to supporting the, especially small, cotton farmers with information, new techniques and other kind of support.

The main bottlenecks facing cotton growing and ginning in Makueni within the cluster include:

(a) Lack of proper support and weak collaboration within the cluster: Absence of institutional support infrastructure, such as extension services, has contributed to poor farming techniques and post-harvest handling, leading to crop losses and sub-optimal yields.

Table 3.13: Activities in textile and apparel sector in Kenya

Eastern Province	Coast Province	Nairobi Province	Western Province	Rift Valley Province
Has cotton growers (is the largest) Has cotton ginneries • Gaitu Ginnery • Kitui Ginneries Ltd • Makueni Ginners Ltd • Meru Farmers Ginners Has no textile mills Has no garment companies	Has cotton growers Has textile mills • Kamyn Industries • Mombasa Towel Manufacturers • Nyali Textile Mills • Summit Fibres • Maximus EPZ Ltd Has washing chemical industries • Forum International • Texa Care Africa EPZ Ltd • Middle East Texco EPZ Ltd Has a Zip fastener • YKK Kenya EPZ Ltd Has cotton ginneries • Lamu Cotton Growers • Hola Ginneries • Mpeketoni Ginnery Has garment manufacturing companies • California Link EPX Ltd • BlueBird Garments (K) Ltd • Birch Investment EPZ Ltd • Chandhu EPZ Ltd • Kapric Apparels EPZ Ltd • Kenya Knit Garments EPZ Ltd • Mega Garments • Industries (K) Ltd • Senior Best Garments (K) EPZ Ltd • SinLane Link EPZ ltd • Wild Life Works Ltd • Apparel Africa Ltd • Emke Garment Kenya	Has no cotton growers Has no cotton ginners Has textile mills • Alpha Knits Ltd • Bhupco Textile Mills • Fine Spinners • Hecules Mills Ltd • Jaydees Knitting Factory • Kifaru Textile Mills • Midco Textiles (EA) Ltd • Premier Knitwear Ltd • Shawaz Textile Mills • Silver Star Manufacturers •Spinners and Spinners Ltd • Sunflag Fibres Ltd • Thika Cloth Mills •TSS Spinning & Weaving Ltd • United Textile Industries Has buying agent • Match Point Kenya Has garment accessories • Hong Kong Garments (K) EPZ Ltd Has sewing machinery firms • Premium Machinery EPZ Ltd • Al-borj Kenya EPZ Ltd Has garment manufacturing industries (24 industries in number)	Has cotton growers Has no garment manufacturing companies Has no textile mills Has cotton ginners • Africot East Africa Ltd • Amukura Ginners • Asego Holdings • Kenya Cotton Industry Ltd • Malakisi Ginnery • Muluanda Ginnery Has oil processing firm • Bulemia Oil Mills	Has cotton growers Has cotton ginners • Voi Industries Ginnery Has textile mills • Afro Spin Ltd • Bedi Investments • Lamsons Industries Ltd • Heritage Woolen Mills • Kamyn Industries • Ken Knit • Londra Ltd • Mega Spin • RIVATEX • Spin Knit Has no garment manufacturing companies

(b) Access to finance: About three quarters of farmers interviewed indicated that access to finance was poor, thus hampering the use of fertilizers and pesticides for which financial support is needed. A robust harvest requires about 12 sprayings, but most farmers can barely afford five.

(c) Poor quality of inputs: This relates mainly to two inputs: seeds and electricity. There is no system to ensure quality of the seeds for farmers. The cotton seeds are bought from the ginnery and redistributed to cotton farmers. However, no assessment of the seed quality or the variety is undertaken. Additionally, high electricity prices cause high input costs for production (at the cotton ginnery). This reduces margins and profitability, which in turn creates liquidity problems exacerbated by problems in access to other forms of finance.

(d) The ginnery in the region operates at 10-15 per cent capacity, largely due to low cotton production. The technology is based on roller technology that has been there since 1935 and ginning equipment appears dilapidated. The ginning out-turn (GOT) is relatively low. Increased cotton yields would benefit the ginnery without having to make large investments.

(e) Farmers intercrop cotton with other crops such as maize and beans as a means to hedge against risks of crop failure. Intercropping causes field thinning, thereby undermining productivity. Cotton growing in Makueni is largely rain-fed because of lack of alternative irrigation systems. It is therefore susceptible to weather changes.

(f) Delays in exporting produced textiles at the Port of Mombasa is seen by ginneries as a bottleneck to their profitability.

(g) Access to finance is a problem. A large share of farmers as well as ginneries interviewed indicated that access to finance was poor, thus hampering the use of fertilizers and pesticides (for farmers) and access to credit for production and export (for ginneries)

3.8.2 Textile and Garments in Mombasa

The Mombasa region is an important one as it has cotton growers and ginneries as well as, spinners, textile mills, garment manufacturing companies, companies manufacturing other textile, government institutions and associations. A survey conducted on the textile and garment industries in Mombasa revealed that majority of the textile and garment firms in Mombasa were not experiencing improved sales; about 70 per cent of the firms interviewed indicated that their sales were either constant or decreasing in recent years.

The key bottlenecks to productivity and competitiveness identified include:

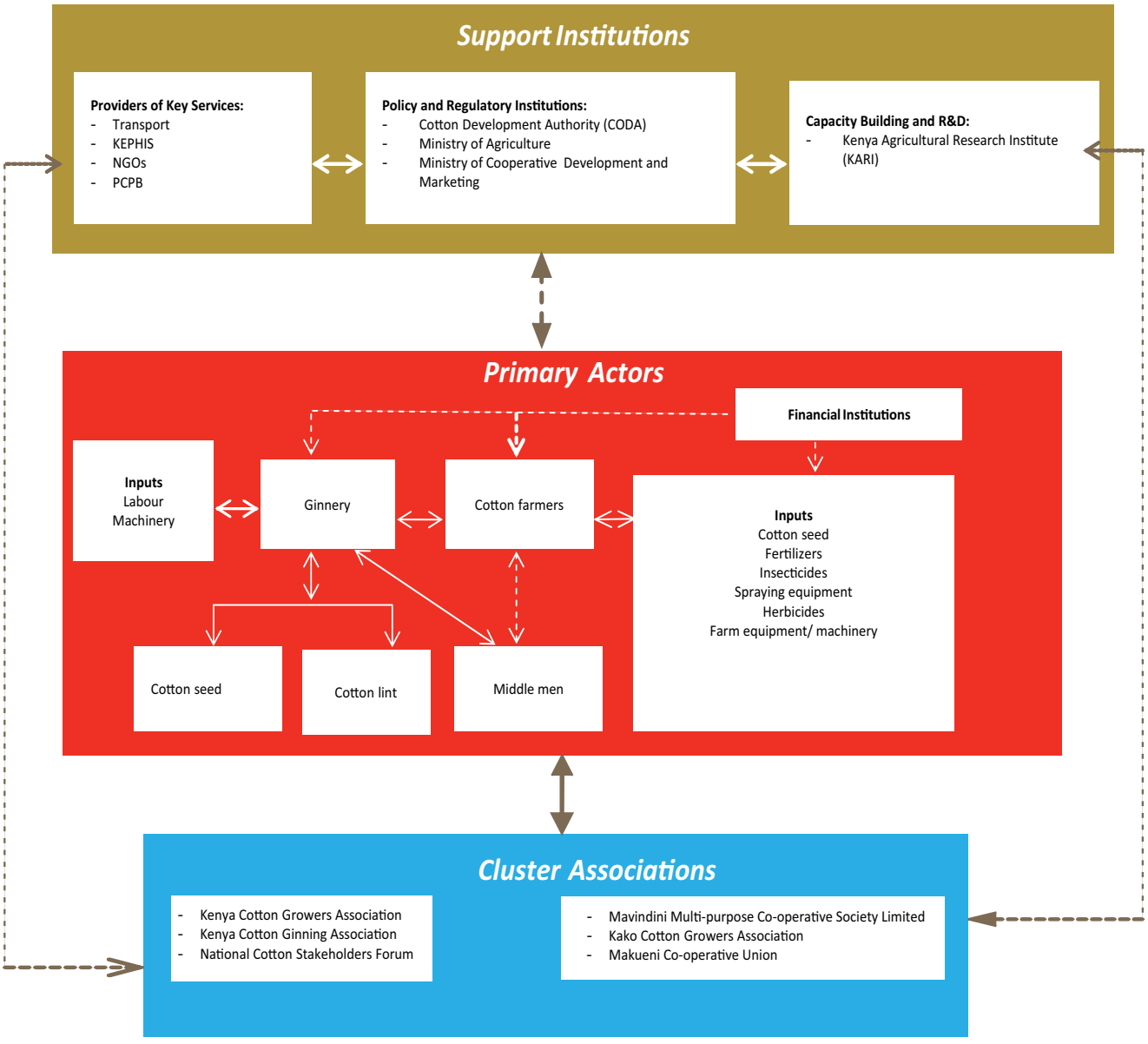
(a) Lack of support and effective collaboration between the cluster actors. This includes the link between smallholder cotton farmers and the Cotton Development Authority (CODA), the Kenya Industrial Research and Development Institute (KIRDI) as well as the Kenya Cotton Ginners Association with Ginneries.

(b) High prices of inputs, especially electricity, are seen as a major bottleneck to improve profitability and productivity. The drought that was experienced in 2009 was particularly bad. The high energy prices, and the existence of VAT on electricity adds 12 per cent (down from 16%) to electricity costs.

(c) Competition from imported secondhand clothes.

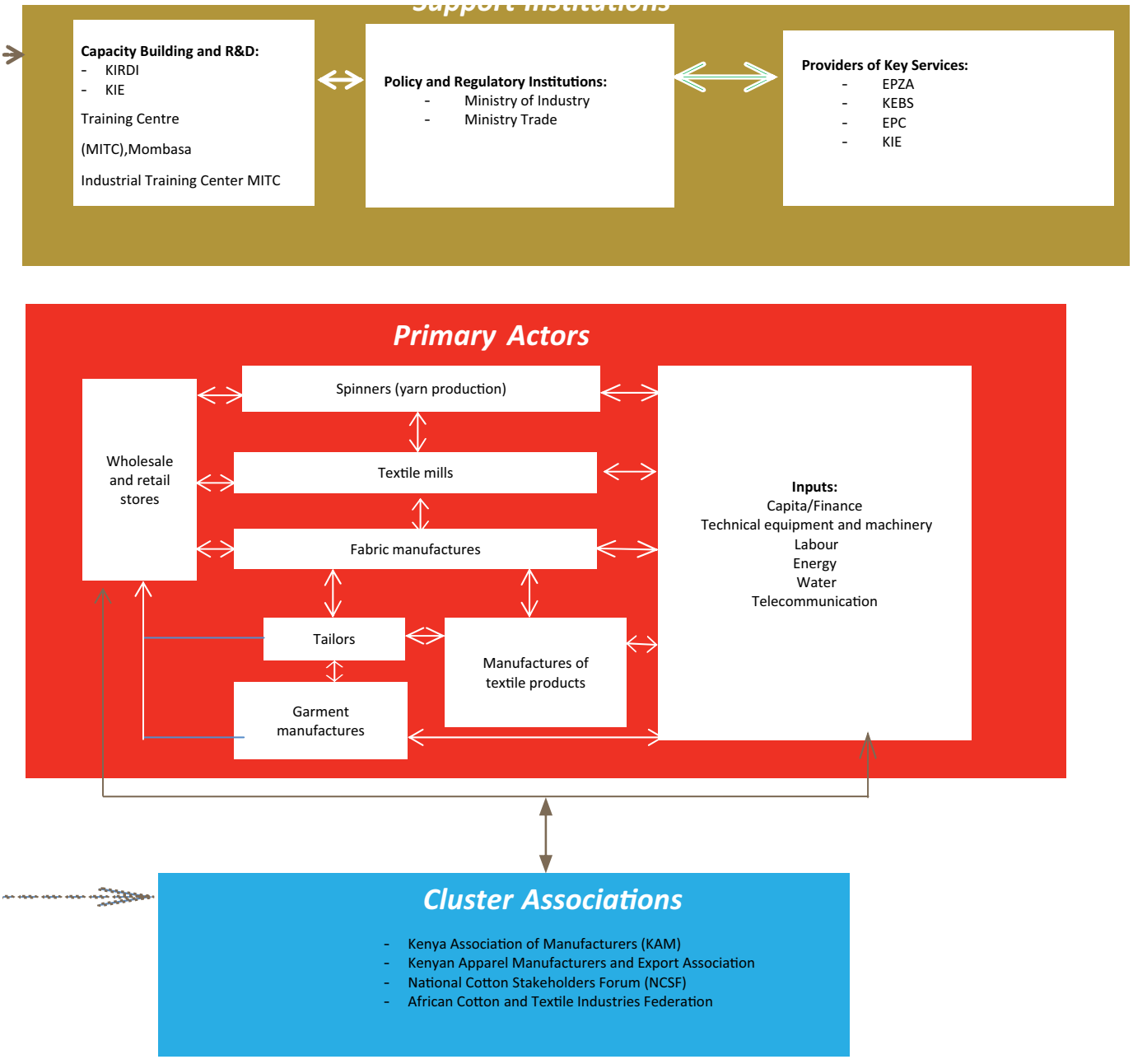
(d) Larger firms such as textile mills and garment

Figure 3.13: Cluster map for cotton growing and ginning (Makueni)



Key: Dotted lines represent weak linkages and full lines strong linkages

Figure 3.14: Cluster map for cotton textile and garment manufacturing (Mombasa)



Key: Dotted lines represent weak linkages and full lines strong linkages

manufacturing companies indicate that the quality of the roads is insufficient for efficient and cheap transport of their products.

3.9 Information, Communication and Technology

The geographical concentration of ICT industry is largely in the capital city (Nairobi) and major towns such as Mombasa and Kisumu. Most of ICT-related industries and services, however, have their headquarters in Nairobi. These include the mobile telephony companies such as mobile operators, fixed line operators, internet service providers, business process outsourcing providers, and hardware (mostly international companies) and software companies. There are also a number of private television and radio stations in Kenya, most transmitting from Nairobi. Relevant government and support institutions are also largely located in Nairobi. Additionally, most ICT users are also centralized in Nairobi. Furthermore, the planned technopolis is also going to be located near Nairobi. Nairobi is thus selected as a potential cluster for analysis.

3.9.1 ICT Cluster in Nairobi

There are cross-cutting linkages between different stakeholders in the cluster. The stakeholders identified include key ICT players, which include large, medium and small companies enterprising in ICT goods and services, industry associations, and support institutions, mainly government bodies.

The large enterprises in telecommunication sub-sector of the ICT cluster include Safaricom, Airtel, Yu, Orange and Telecom Kenya. These companies provide a range of products and services not limited to mobile services, which include internet, sale of mobile phones and other accessories, laptops, computers, data management, and money transfer services. The broadcasting industry in Kenya is very vibrant, with a number of television and FM radio broadcasters throughout the country as well as the Kenya Broadcasting Corporation, Kenya's oldest television and radio station. There are also numerous smallscale ICT enterprises engaged in retail of computers, phones and other technology and communication equipment, internet provision (internet service providers - ISPs), repair of ICT equipment, mobile-top up card, telephone services, data recovery, Voice Over Internet Protocol (VoIP), leasing lines, LAN solutions, companies offering Business Process Outsourcing (BPO), among others.

Other ICT cluster players include industry associations that offer services to members, such as policy lobbying to government, mediation and arbitration, training, information dissemination through workshops, seminars and conferences, and consultations with other stakeholders. Such associations include the Kenya Education Network, Telecommunications Service Providers of Kenya, Computer Society of Kenya, and Kenya BPO Contact Society, the Media Council of Kenya, Media Owners Association and Kenya Film Makers Association. Interactions among the key firms through sub-contracting, joint research, joint product development, joint distribution and marketing are low. Table 3.14 summarizes some of the inter-firm interactions noted through field survey.

The key regulatory institution in the communications sector is the Communications Commission of Kenya (CCK), which licenses ICT businesses and allocates broadcasting frequencies and regulates the sector. Policy implementation is handled by the Ministry of Information and Communication. Export Processing Zones Authority (EPZA) promotes investment climate by providing fiscal incentives and infrastructure support for firms operating in the zone. The

Export Promotion Council (EPC) is expected to play a leading role in export promotion of ICT products. The Kenya Bureau of Standards (KEBS) is the statutory body charged with enforcement of standards and certification of quality standards of all products and services in the country. KenInvest (Kenya Investment Authority) provides policy advocacy and investment promotion. Other critical institutions include the e-government, banks, and institutions of higher learning.

From stakeholder consultations, firm-level survey and desk research the following were identified as the key bottlenecks facing the cluster:

1. High cost of energy and frequent blackouts related to a weak business environment;
2. Vandalism and infringement of ICT products;
3. Weak clustering
4. Workforce development required for the sector;
5. Access to finance;
6. High cost of physical and digital infrastructure; and
7. Lack of effective clustering in the sector.

3.10 Energy

Olkaria Geothermal Cluster

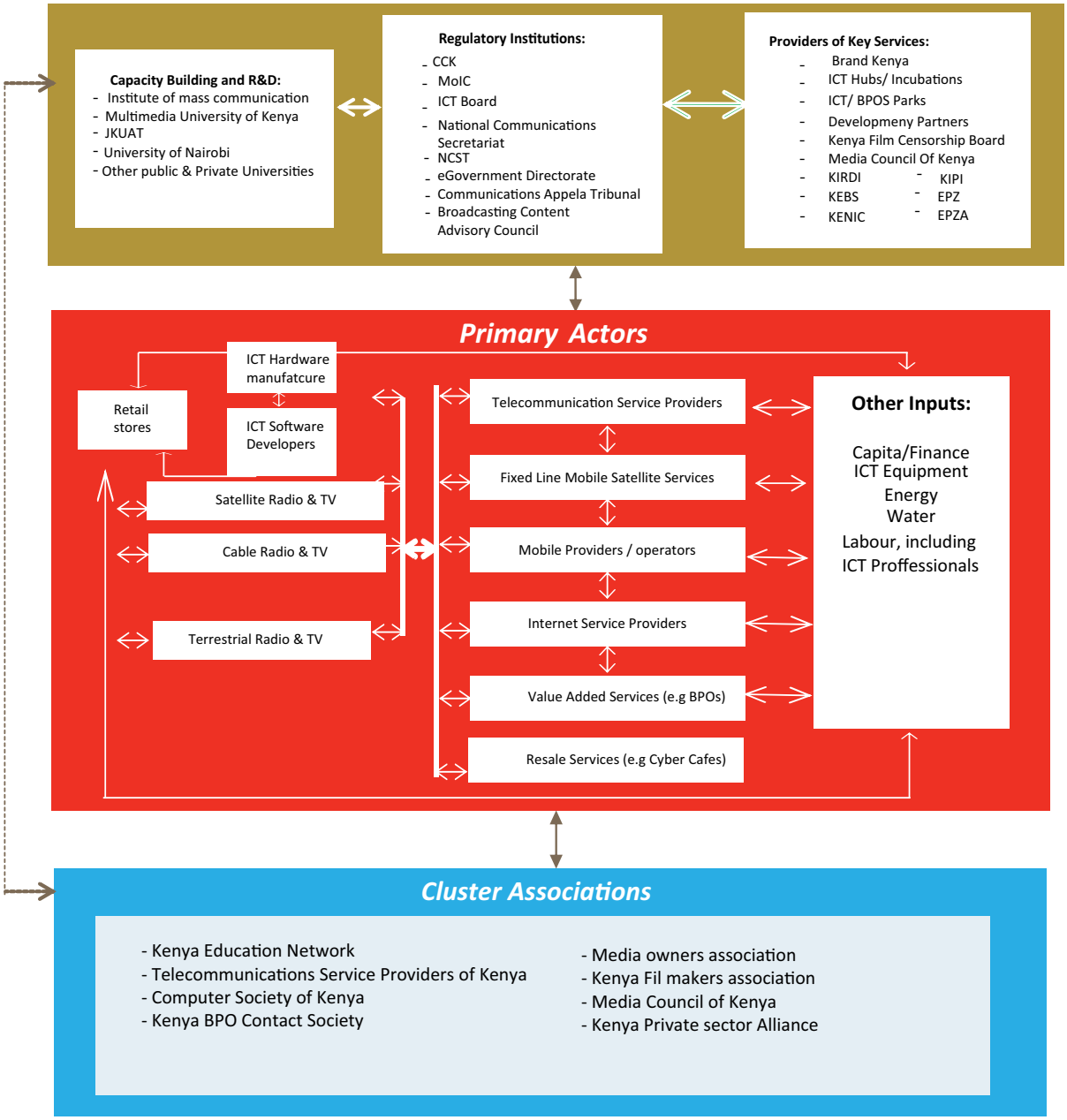
The Geothermal Development Company (GDC) was formed in 2009 for exploiting the hugely untapped geothermal energy potential. Once the completion of the drilling of wells is done, extraction and generation of electricity follows. GDC works closely with the Kenya Electricity Generating Company (KenGen), which accounts for close to 80 per cent of generation. The balance is provided by six (6) Independent Power Producers (IPPs), namely Iberafrica Power (EA) Ltd, Tsavo Power Company Ltd, OrPower4 Inc, Mumias Sugar Company Ltd, and Rabai Power Ltd. The Kenya Power and Lighting Company (KPLC) is responsible for transmission, distribution and retail supply of electrical energy to end users. KPLC purchases power in bulk from KenGen and the IPPs through bilateral contracts or Power Purchase Agreements (PPAs) approved

Table 3.14: Level of Inter-firm interactions

Form of cooperation	% respondents	Form of cooperation	% respondents
Information sharing	15.7	Joint distribution/purchasing systems	23.1
Joint marketing	7.7	Joint product development	7.7
Employ personnel	30.8	Joint transport logistics	7.7
Financial support	46.2	Sub-contracting with others	50.8
Information sharing	15.4		

Source: KIPPRA field survey on ICT cluster

Figure 3.15: ICT cluster map



Key: Dotted lines represent weak linkages and full lines strong linkages

by the Energy Regulatory Commission (ERC). Other operators include James Finlay, Sotik Tea Company, Sotik Highlands Tea Estate, Oserian Development Company, Unilever Tea Kenya Ltd, Tiomin, Tsavo Power Company Ltd, Iberafrica Power (EA) Ltd, Orpower4 inc Ltd, Oserian Ltd, and Brooke Bond (K) Ltd-Unilever, who are licensed to generate electrical energy for their own use. The Kenya Electricity Transmission Company (KETRACO) was also formed in 2009 to develop new transmission lines.

The Kenyan electricity supply industry structure is of the single buyer model, with all generators selling power in bulk to KPLC for dispatch, onward transmission and distribution to consumers. The existing transmission network consists of 220 and 132kV high-voltage transmission lines, and the distribution network consists of 66kV feeder lines around Nairobi and 33 and 11kV medium-voltage lines. To increase demand of electricity from geothermal cluster, the Rural Electrification Authority (REA) develops and updates the rural electrification master plan, implements the rural electrification programme, and promotes the use of renewable energy sources.

Electrical service contractors/companies under the geothermal cluster provide services in drilling, production, transmission and maintenance processes within the system. Through the Kenya Pipeline Company (KPC), petroleum products are transported to the geothermal clusters, which in one way facilitate in drilling, production, transmission and maintenance processes within the geothermal systems.

3.11 Maize

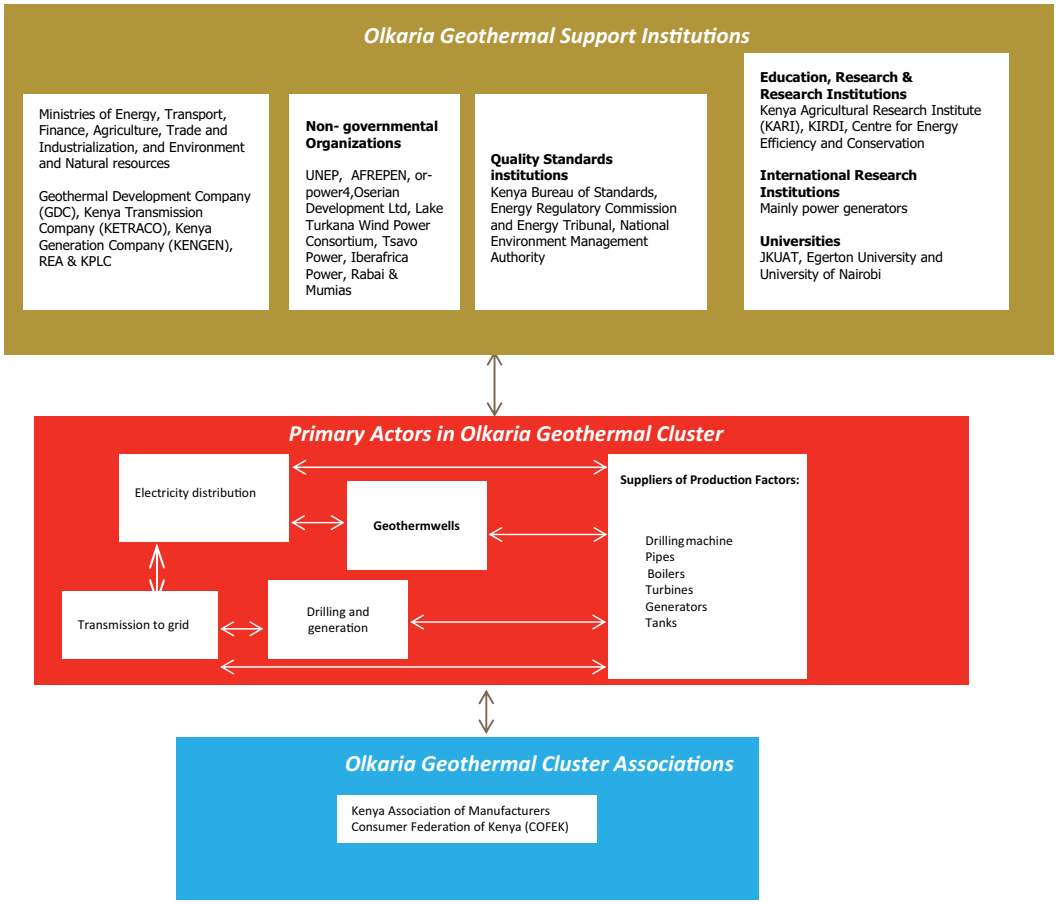
Analysis of regional data on maize production indicates that Rift Valley Province produces about 50 per cent, while Nyanza and Western, each produce about 14 per cent of national maize output. The Rift Valley also records the highest yields; about 2.36 tonnes per hectare followed by Western with 1.99 tonnes per hectare and Nyanza producing 1.84 tonnes per hectare.

District level data reveals that farmers in the high potential maize zones (which include Trans Nzoia, Uasin Gishu, Bomet, Nakuru and some regions in Kakamega) produce largely for sale, whereas most other regions do not have a surplus. Indeed, Uasin Gishu/Trans Nzoia are the main hub of commercial maize production. In this regard, this region was selected for the analysis of a potential cluster.

Trans Nzoia-Uasin Gishu falls in the high-potential maize region in the country. The region has a competitive advantage in maize production. Average total cropped land in this high potential maize zone is estimated at about 5.1 acres (in 2007) compared to about 2.0 acres in other maize growing areas in Kenya. In addition, the area has recorded steady rise in maize productivity. Maize productivity rose from 11.5 bags per acre in 1997 to 13.3 bags per acre in 2007. The proportion of households producing at least 20 bags per acre rose from 12 to 18 per cent between 1997 and 2007 in the high potential maize zone, relative to between 2 and 11 per cent in other maize growing ecological zones. In addition, unlike other regions in Kenya, maize is grown mainly for commercial purposes. About 80 per cent of households in this high potential zones use favourable farming practices, including increased use of high yielding maize varieties and fertilizer.

The cluster is characterized by large-scale commercial farmers. The region also has a relatively high concentration of upstream and downstream firms, actors and linkages. The National Cereals and Produce Board (NCPB) has a strong presence in the area and offers a ready market for maize farmers. Millers such as United Millers, Dola Millers, and Kitale Industries Millers source maize from farmers, mill and distribute to markets across the country. There are other small-scale

Figure 3.16: Olkaria geothermal cluster map



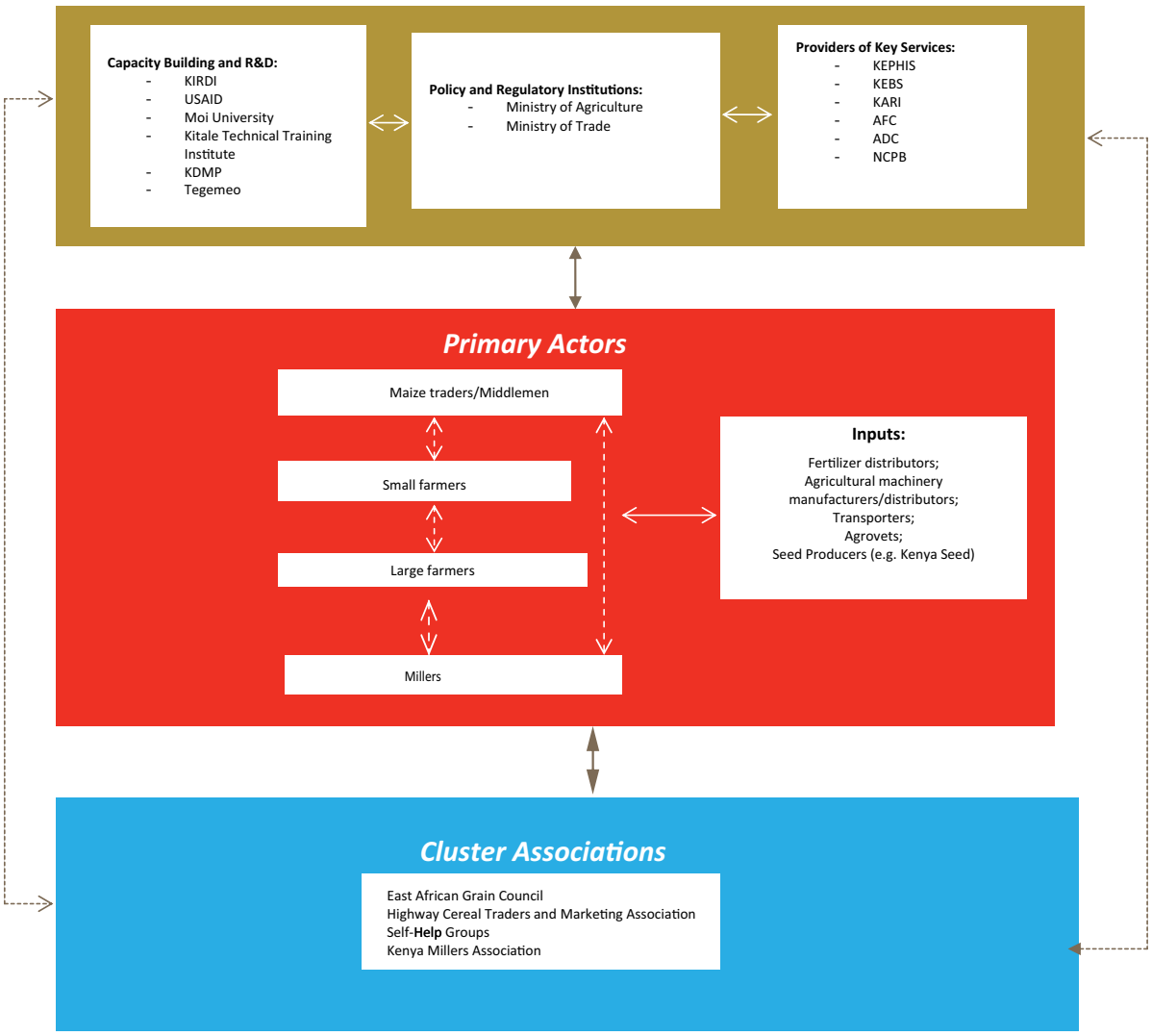
millers in Kitale town and its environs. Numerous middlemen in the area buy and distribute un-milled maize to millers and consumers in other regions in Kenya.

With regard to inputs, there are a number of seed companies (for example, Kenya Seed Company and Western Seed Company). These supply high yielding maize varieties. Some seed companies have contractual arrangements with farmers to grow maize seed. These companies also use various retail shops in the area to supply their seed products to the farmers. There are numerous fertilizer stores (agro vets) in the region that supply fertilizer and other inputs to farmers. The Central Farmers Machineries and CMC Kitale branch are the main suppliers of machinery to farmers in Kitale and its environs. Transportation of the maize is mainly by privately hired trucks. Figure 3.17 presents the cluster map for maize.

There is a network of support institutions in the area. For instance, KARI has a research centre in Kitale. The Agricultural Development Corporation

has a presence in Kitale, and offers direct farm management services such as borehole drilling services. The Corporation, on the other hand, offers agricultural credit to farmers and agribusinesses. The Kenya Plant Health Inspectorate Services (KEPHIS) has an office in Kitale. There are a number of training institutions offering capacity building to maize farmers in Kitale and its environs. Kitale Technical Training Institute offers training on agriculture mechanics, compost manure technology and agro-forestry. Manor House Agricultural Centre offers training for agricultural officers and extension linkages. The Kenya Maize Development Program (KDMP), an NGO with regional offices in Eldoret and a mobile group in Kitale, offers training to farmers, millers and traders.

Figure 3.17: Maize cluster map



Further, numerous financial organizations and banks in Kitale offer credit facilities and financial planning services to farmers. Most major banks in Kenya have offices in Kitale, while examples of non-bank financial institutions include Faulu Kenya, Small Micro Enterprise Programme (SMEP) and Kenya Agency for Development of Enterprise and Technology Ltd (KADET).

The key obstacles affecting the cluster include:

- Poor road network, which hampers easy access to farms during the rainy season
- Lack of strong cluster network to coordinate cluster activities
- High cost of inputs, especially fertilizer
- Limited access to agricultural credit
- Questionable seed quality
- Lack of titles for most farmers, thus hindering access to credit
- Volatile maize prices especially when supply is high
- Delayed payments from government to NCPB and NCPB to farmers
- Dependency on rain fed maize production
- Lack of awareness by farmers about improved farming practices

3.12 Sugar

3.12.1 Sugar Belts

There are three well-developed sugar belts existing in the country, namely the Nyando region, the Western sugar belt, and the South Nyanza sugar zone.

Nyando sugar belt comprises Miwani, Muhoroni, Chemilil, Kibos and Soin zones. Mumias, Busia, Nzoia and West Kenya sugar zones form the Western sugar belt. The South Nyanza sugar belt covers the areas of Migori, Trans Mara, Gucha, Kuria and Homa Bay.

Table 3.15 shows the acreage under sugarcane for the factories under the sugar belts discussed above for the period 1999 to 2005. Based on the sugar production, two areas have been selected for further analysis. The first is the Western sugar cluster covering Butere, Mumias, Nzoia and West Kenya, which has a large acreage under nucleus sugar estates. The second one is the Nyando, which is the second largest sugar belt after the western sugar belt. The sugar factories that fall within the two clusters have expansive out-growers' sugarcane plantations, making it difficult to confine the cluster to a single geographical region served by a particular sugar milling factor.

The area under sugarcane has increased from 131,507 hectares in 2004 to 169,421 hectares in 2008, representing an increase of 28.8 per cent. The increase in acreage is mainly at West Kenya, Mumias/Busia zone, Nzoia, Chemelil and Muhoroni with an increase of 14,670ha, 7,845ha, 4,450ha, 3,122ha and 3,113ha, respectively. There has also been new acreage under sugarcane at Soin (4,638ha) and Kibos (2,622ha) as show in Table 3.16.

3.12.2 Nyando Sugar Cluster and Western Sugar Cluster

The Nyando sugar cluster covers the region extending from Ainamoi, Muhoroni, Chemelil, Nandi Hills, Miwani and Kibos. The cluster extends beyond the administrative boundaries of Nyando District. The region is quite fertile with ample climate suitable for sugarcane farming. The Nyando sugar cluster has four established sugar milling factories, namely Chemelil Sugar Company, Muhoroni Sugar Company, Miwani

Table 3.15. Area under sugarcane in hectares (1996-2005)

COMPANY	FARMS	1999	2000	2001	2002	2003	2004	2005
CHEMELIL	Nucleus Estate	2,027	2,080	2,089	2,100	2,149	2,047	2,102
	Outgrowers	11,060	9,651	10,475	8,732	7,339	8,172	11,505
	Total	13,087	11,731	12,564	10,832	9,488	10,219	13,607
MUHORONI	Nucleus Estate	1,374	1,337	1,253	1,324	1,294	1,426	1,479
	Outgrowers	11,054	9,768	7,701	8,913	8,202	9,720	11,716
	Total	12,428	11,105	8,954	10,237	9,496	11,146	13,195
MIWANI	Nucleus Estate	1,470	1,467	1,307	NIL	NIL	NIL	658
	Outgrowers	6,439	6,435	6,442	6,270	5,800	5,560	5,750
	Total	7,909	7,902	7,749	6,270	5,800	5,560	6,408
MUMIAS	Nucleus Estate	3,247	3,438	3,340	3,370	3,433	3,477	3,325
	Outgrowers	37,016	41,728	44,850	44,983	44,911	47,905	47,971
	Total	40,263	45,166	48,190	48,353	48,344	51,382	51,296
NZOIA	Nucleus Estate	3,381	3,313	3,239	3,271	3,266	3,314	3,551
	Outgrowers	12,780	12,106	12,908	14,962	14,745	16,135	16,768
	Total	16,161	15,419	16,147	18,233	18,011	19,449	20,319
WEST KENYA	Outgrowers	4,920	4,883	11,917	11,952	7,000	7,400	12,558
BUSIA ZONE	Outgrowers	.	.	.	7,119	6,274	5,410	4,412
SOUTH NYANZA	Nucleus Estate	2,046	2,101	2,209	2,349	2,305	2,320	2,258
	Outgrowers	11,979	9,678	9,401	11,481	15,862	18,621	20,712
	Total	14,025	11,779	11,610	13,830	18,167	20,941	22,970
ALL COMPANIES	Nucleus Estate	13,545	13,736	13,437	12,414	12,447	12,584	13,373
	Outgrowers	95,248	94,249	103,694	114,412	110,133	118,923	131,392
	Total	108,793	107,985	117,131	126,826	122,580	131,507	144,765

Source: Kenya Sugar Board (KSB) Yearbook, 2008

Sugar Company, Kibos Sugar Company, and Soin Sugar Company. Miwani Sugar Company is currently under receivership, and there is not much activity taking place. Kibos and Soin sugar companies are privately owned. There is also Homa Lime Company, which operates a jaggery and produces both jaggery and brown sugar. Another important plant in this cluster is the Agro-Chemical and Food Company at Muhoroni, which uses molasses to produce spirits used in food processing and for industrial use.

The Western sugar cluster is composed of three milling factories, namely Mumias Sugar Company, Nzoia Sugar Company, and West Kenya Sugar Company. Mumias and West Kenya are private enterprises, while Nzoia is a state-owned company characterized by both inefficiency and huge debt. Mumias is the largest and accounts for nearly half of Kenya's total production. It is also the most efficient.

The major actors in the sugar clusters include input suppliers, farmers, sugarcane transporters, sugar millers, and sugar marketers, consumers of sugar and support institutions, as well as training, research and development institutions such as Kenya Sugar Research Foundation. The sugarcane farmers belong to representative out-grower institutions, including out-grower companies, societies, unions and SACCOs. The institutions are members of the Kenya Sugarcane Growers Association (KESGA), the apex institution for cane growers. Other bodies with interest in the industry include the Sugar Parliamentary Committee (SUPAC) composed of members of parliament. The Sugar Campaign for Change (SUCAM) is an independent lobby and advocacy coalition. The sugar cluster map is presented in Figure 3.18.

The sugar clusters face more or less similar bottlenecks and these include:

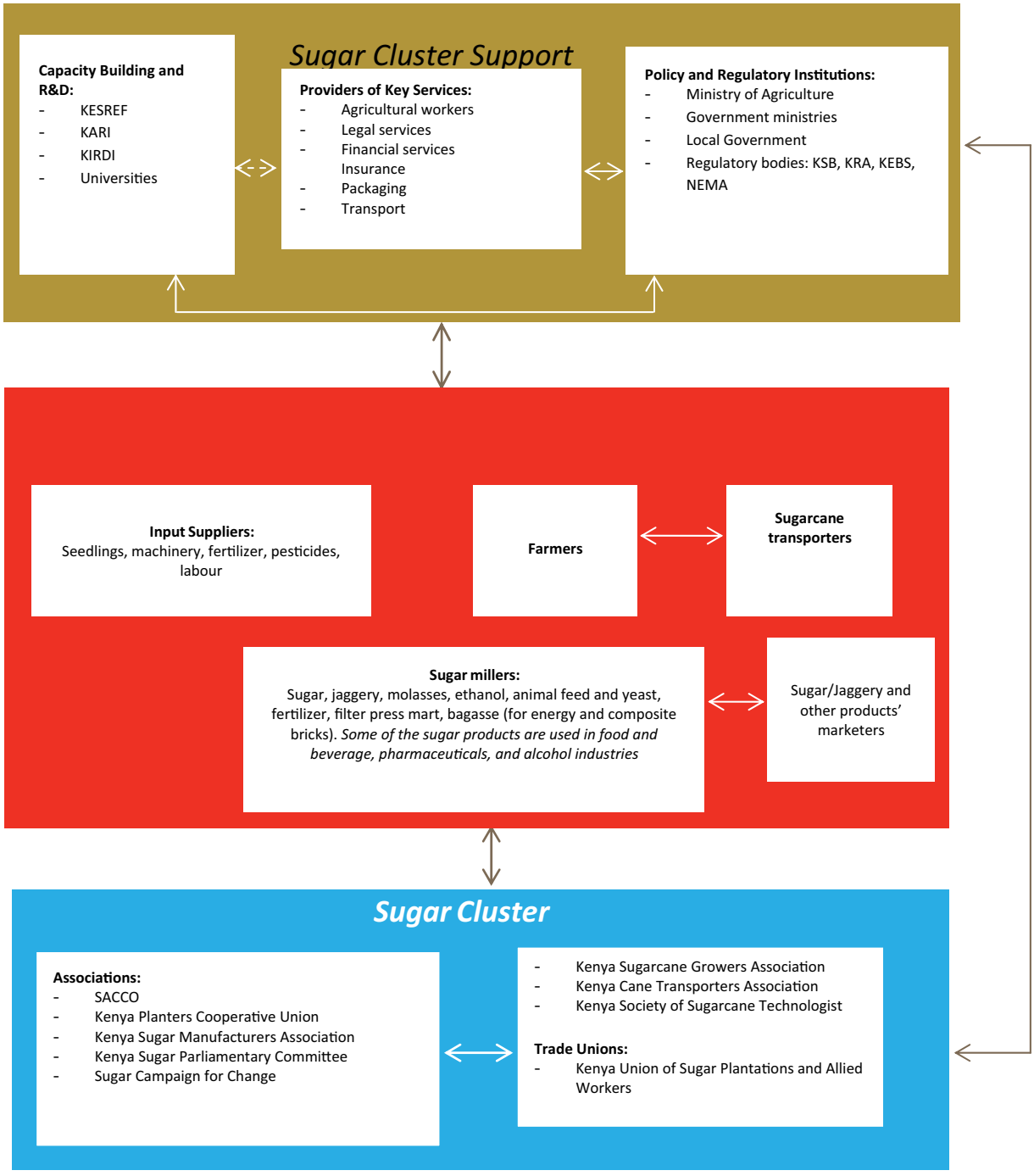
1. Farmers complained of high costs of inputs, especially fertilizer, and to a lesser extent electricity.
2. The prices for sugarcane are low, which reduces margins and profitability, increasing the need for access to finance elsewhere.
3. When sugarcane is delivered to factories, significant spillage of sugarcane occurs during transport (on the road).
4. Delayed harvesting of the cane.
5. Many levies on income from sugar following supplies of for example fertilizer.
6. Inadequate access to finance.
7. Some alleged that there is corruption. Some farmers bribe sugar factory managers in order to get their sugarcane harvested.
8. Factories reported low quality of crushed sugarcane (low sucrose content), machine breakdowns and debts as important impediments. In some factories, machinery is obsolete and inefficient and

Table 3.16: Area under sugarcane, 2004 and 2008

	Year			
Company	2004 Ha	2008 Ha	Increase/ Decrease Ha	Increase/ Decrease %
Chemelil	10,219	13,341	3,122	30.6
Muhoroni	11,146	14,259	3,113	27.9
Mumias	56,792	64,637	7,895	13.8
Nzoia	19,499	23,899	4,450	22.9
SONY	20,941	19,322	-1,619	(7.7)
Miwani	5,560	4,633	-927	(16.7)
Kibos	-	2,622	2,622	New Zone
Western Kenya	7,400	22,070	14,670	198.2
Soin	-	4,638	4,638	New Zone
Total	131,507	169,421	37,914	28.8

Source: KSB (2010)

Figure 3.18: Sugar cluster map



Key: Dotted lines represent weak linkages and full lines strong linkages

funds for purchasing replacements are unavailable.

9. Poor state of the roads for transportation of sugarcane and sugar products.

10. The Kenya Sugar Research Foundation reported low budgets for research and low uptake of high yield and quick maturing sugarcane varieties.

3.13 Summary and Type of Clusters

Having started from the NESC sectors, we have mapped these carefully into clusters. Table 3.17 provides a summarized overview of how the mapping exercise took place; i.e. how we have mapped the 12 sectors into 20 relevant production concentrations, some of which are existing clusters, while others are nascent clusters.

In Table 3.18, we have taken each of the clusters and based on the cluster mapping exercise, we have specified the stage of the cluster (stage 1, 2, 3). These three stages are:

Stage 1 clusters: An agglomeration of companies, usually across a value chain, that are in relatively close proximity.

Stage 2 clusters: A network that exchanges resources.

Stage 3 clusters: Internal and external recognition of a group identity.

The study identifies few clusters but many of them are nascent ones (i.e. stage 1 clusters). We will come back to this observation later on. It is important to recognize the type of cluster, as the actions of the key stakeholders in each cluster differ succinctly depending on what type of cluster is in place.

Table 3.17: Mapped clusters

Sector (NESC)	Potential Clusters	Selected Clusters
1. Cotton	1. Cotton growing – Makueni 2. Manufacturing of Textile and Garments in Mombasa and Nairobi	• Makueni • Mombasa
2. Tourism	1. Coast 2. Nairobi 3. Maasai Mara	• Coast • Nairobi
3. Marine and Inland Fisheries	1. Kwale 2. Malindi and Kilifi 3. Lamu 4. Kisumu/Suba	• Malindi/Kilifi • Kisumu/Suba
4. Sugar	1. Western sugar belt 2. Nyando 3. South Nyanza	• Mumias • Nyando
5. Dairy	1. Nakuru 2. Nyandarua 3. Uasin Gishu 4. Kericho 5. Kiambu	• Nakuru/Nyandarua • Uashin Gishu
6. Maize	1. Uasin Gishu 2. Trans Nzoia 3. Bungoma	• Uasin Gishu/Trans Nzoia
7. Transport & Logistics	1. Port of Mombasa	Mombasa Port
8. Energy	1. Geothermal – Olkaria	Olkaria
9. Livestock	1. Kajiado 2. Transmara 3. Narok 4. Garissa 5. Mandera	• Kajiado • Garissa
10. Horticulture	Fruits • Kilifi-Kwale Vegetables • Meru Central/Kibirichi/Kirinyaga • Olkalau-Kinangop • Molo-Olenguruone • Narok-Bomet Cut-flowers • Naivasha • Kiambu/Limuru	• Kilifi-Kwale • Naivasha/Limuru

Sector (NESC)	Potential Clusters	Selected Clusters
11. Tea	1. Kericho /Nandi 2. Nyeri/ Kiambu 3. Mombasa	• Kericho /Nandi • Mombasa
12. ICT	1. Telecommunications – Nairobi 2. Postal and Courier Services - Nairobi 3. Broadcasting and Print Media - Nairobi	• Nairobi

Table 3.18: Cluster type categorization of selected clusters

Selected cluster	Cluster type	Short explanation
1. Cotton – Makueni-Kathonzweni	I	An agglomeration of activities is present but not more.
2. Cotton – Mombasa	I	An agglomeration of activities is present but not more.
3. Dairy – Nakuru-Nyandarua	I	An agglomeration of activities is present but not more.
4. Dairy – Uasin Gishu	I	An agglomeration of activities is present but not more.
5. Energy – Olkaria		No strong cluster agglomeration.
6. Horticulture – Mombasa	I	An agglomeration of activities is present but not more.
7. Horticulture – Naivasha-Limuru	II	Agglomeration of activities and limited exchange of resources.
8. ICT – Nairobi	I	An agglomeration of activities is present but not more.
9. Livestock – Garissa	I	An agglomeration of activities is present but not more.
10. Livestock – Kajiado	I	An agglomeration of activities is present but not more.
11. Maize – Trans Nzoia/Uasin Gishu	I	An agglomeration of activities is present but not more.
12. Marine and Fisheries – Kisumu-Suba	I	An agglomeration of activities is present but not more.
13. Marine & fisheries – Mombasa-Malindi-Kilifi	I	An agglomeration of activities is present but not more.
14. Transport and Logistics – Mombasa Port	II	Agglomeration of activities and limited exchange of resources.
15. Sugar – Nyando Region	I	An agglomeration of activities is present but not more.
16. Sugar – Western	I	An agglomeration of activities is present but not more.
17. Tea – Kericho	I	An agglomeration of activities is present but not more.
18. Tea – Mombasa	I	An agglomeration of activities is present but not more.
19. Tourism – Coastal Beach	I	An agglomeration of activities is present but not more.
20. Tourism – Nairobi	I	An agglomeration of activities is present but not more.

4. PARTICIPATORY ACTION PLANS FOR SIX SELECTED CLUSTERS

4.1 Introduction and Background

The criteria for selecting six clusters for further analysis and development of Participatory Action Plans are the following:

(a) Does a cluster relate to one or more of the Vision 2030 priority sectors?

(b) Are there significant identified grassroots bottlenecks resulting from the cluster analysis?

(c) Is there already a small cluster present where initiatives would find a fertile ground? and

(d) Are there parallel policy measures being undertaken where the cluster approach could link to?

Each of the criteria is discussed below.

Vision 2030 Priority Sectors

A number of the identified potential clusters are suggested explicitly in the Vision 2030. These are Kajiado and Garissa for a meat processing and tannery, Fisheries in Kisumu and Mombasa, Tea packaging in Mombasa for the global market, and Transport and logistics in Mombasa, and fruit juice at the coast.

It is therefore important to note that through this study, some of the clusters already suggested in Vision 2030 are confirmed as potential clusters that can be developed to support Kenya's global competitiveness.

Although the ICT cluster is not explicitly identified in the Vision 2030, it is critical for the development of a knowledge economy, and will support the Business Process Out-sourcing (BPO) under the Economic Pillar. Following discussions with senior representatives of Vision 2030 Delivery Secretariat, as well as with the Office of the Prime Minister, Private Sector Development Secretariat (PSDS) and the National and Social Economic Council (NESC), this selection was further confirmed.

Grassroots Bottlenecks

On criterion 2, grassroots bottlenecks have been identified for all but energy clusters, which is largely public sector-driven. There is a variety of barriers to productivity and competitiveness that centre around: input costs (e.g. energy), quality of inputs (e.g. seeds), interactions and matching of activities with other cluster actors, access to finance, linkages and lack of research and development, lack of infrastructure (e.g. transport, digital infrastructure), and market conditions and levels of competition (e.g. counterfeits in the market, product standards and dumping). In the questionnaire, firms were asked about the level of restrictiveness for the cluster within the domestic Kenyan market.

The responses are summarized and presented in Table 4.1. Based on these levels of restrictiveness, the clusters identified based on this criterion are Transport and Logistics Mombasa, Inland Fisheries – Kisumu/Suba, Beef in Garissa and Kajiado, and Horticulture – Naivasha/Limuru.

Figure 4.1: Vision 2030 suggested clusters

Source: Kenya Vision 203064

Initial cluster activities and presence

Cluster theories emphasize repeatedly that it is not viable to start a cluster, if no cluster conditions – as described in Porter's diamond are in place. Most cluster development failures illustrate this fact. Therefore, in terms of a cluster approach for Kenya, this study uses the criterion of initial cluster activities and presence to ensure that development of the cluster initiative will find prepared and fertile ground to become effective. To that aim, we have searched for economic regional data looking for agglomerations of activities (cluster stage 1) and for proof of exchanges of information and other forms of interaction based on information from the questionnaire (evidence of cluster stage 2). In terms of agglomeration based on economic data, most identified clusters are stage 1 clusters. In terms of clustering, network data from the survey indicate that horticulture Naivasha-Limuru, Kisumu Inland Fisheries, Mombasa Transport and Logistics; Maize Cluster in Trans Nzoia/Uasin Gishu and Western Sugar Belt have more networks that have already developed.

Parallel policy measures

Various parallel policy measures are being implemented that relate to several potential clusters. The key ones relate to the Vision 2030 Flagship projects. Table 4.2 shows the most important policy measures (from Vision 2030,

Table 4.1: Level of restrictiveness per cluster

Selected cluster	Level of restrictiveness (%)
1. Cotton – Makueni	18
2. Cotton – Mombasa	15
3. Dairy – Nakuru	NA
4. Dairy – Uasin Gishu	NA
5. Energy – Olkaria	NA
6. Horticulture – Mombasa	5
7. Horticulture – Naivasha/Limuru	24
8. ICT – Nairobi	23
9. Livestock – Garissa	39
10. Livestock – Kajiado	35
11. Maize – Trans Nzoia/ Uasin Gishu	NA
12. Inland Fisheries – Kisumu/Suba	58
13. Marine Fisheries – Malindi	NA
14. Transport and Logistics – Mombasa	53
15. Sugar – Nyando Belt	NA
16. Sugar – Western Belt	NA
17. Tea – Kericho	5
18. Tea – Mombasa	22
19. Tourism – Mombasa	NA
20. Tourism – Nairobi	NA

Ministry Strategic Plans and the Medium-Term Plan 2008-2012) that relate to the potential clusters.

Final Selection

A combination of the criteria stated in the Terms of Reference and issues arising from consultations with the PSDS Goal 4 Steering Committee, Vision 2030 Delivery Secretariat, NESC, Office of the Prime Minister and others lead to the selection of the following six clusters:

1. Horticulture Naivasha-Limuru
2. Kisumu Fisheries
3. Transport and Logistics Mombasa
4. ICT in Nairobi
5. Beef in Garissa
6. Tourism – Mombasa

The cluster strategy provides a new instrument for designing and implementing economic policies aimed at enhancing productivity and competitiveness. The strategy emphasizes strategic collaboration between the government, private sector and knowledge institutions. The specific needs for the selected clusters are discussed in this section by providing a summary of the six participatory action plans (PAPs) and the proposed

Table 4.2: Potential clusters and government parallel policy measures

Policy Initiatives	Affected Clusters
Resort City Diani/Ukunda and Kilifi (Vision 2030 flagship projects)	Tourism Mombasa
Special Economic Zones (Vision 2030 flagship projects)	Port of Mombasa, Kisumu area, Lamu-Ethiopia-South-Sudan corridor
Disease Free Zones (Vision 2030 flagship projects)	Livestock Kajiado and Garissa
Economic Partnership Agreement (EPA) negotiations and AGOA	Sugar clusters, cotton cluster Makueni, cotton cluster Mombasa
ICT/BPO park (Vision 2030 flagship projects)	ICT cluster Nairobi
The East Africa Marine Cable System (TEAMS) (Vision 2030 flagship projects)	ICT Cluster
National Optic Fibre Network Backbone Initiative (NOFBI) (Vision 2030 flagship projects)	ICT Cluster
Dredging and deepening of Mombasa Port	Mombasa Port
Development of Free Port in Mombasa (Ndogo Kundu)	Mombasa Port
Nairobi Metropolitan region mass transit system	ICT Cluster, Tourism Nairobi
Co-generation of power in processing of sugar	Sugar Clusters
140MW Olkaria IV Geothermal Power Plant Built	Olkaria
Tourism Marketing (other flagship)	Tourism Clusters (Nairobi and Mombasa)
E-government (Vision 2030 flagship projects)	ICT Cluster
Second Container Terminal (Vision 2030)	Mombasa Port
Construction of 54Km canal to supply water to Garissa from Tana River	Beef Cluster Garissa

implementation framework. The preparation of these PAPs involved desk review, field survey, and cluster specific consultative workshops.

4.2 Participatory Action Plans

4.2.1 ICT Cluster: Participatory Action Plan

The ICT sector is not only recognized for its strategic application in enhancing productivity and competitiveness, but also as a sector that can contribute to growth and employment generation through production and marketing of innovative goods and services. The Kenya Vision 2030 also recognizes ICT as a priority sector and has identified BPO as a flagship initiative. The country is in initial stages of developing a technopolis (a city built up for technology firms) on a 5,000 acre piece of land, 60km south of Nairobi in Malili, Konza.

Policy Objectives

The policy objectives for the cluster emerge from the key issues identified through stakeholder consultations, firm-level survey and desk research. These issues for ICT include: to improve the business environment for ICT sector (including reviewing business regulatory procedures; registration and licensing); to increase the ICT clusters export potential; to enhance clustering; to develop and foster sharing of infrastructure and other systems; to develop the workforce; to develop sub-cluster policies; to fast-track current policy initiatives towards establishment of ICT Park in Malili-Konza; ICT systems security; and to improve access to finance.

Critical to addressing the above issues is the need to organize joint efforts between the business community, government ministries, departments and agencies, knowledge and educational institutions and development partners in the coordination, prioritization and implementation of policies for cluster upgrading. This is the cornerstone of a cluster strategy.

SWOT Analysis

In order to exploit the ICT potential, it is important to synchronize market opportunities with existing and potential capabilities and strengths. Table 4.3 shows the strengths, weaknesses, opportunities, and threats of the ICT sector, based on literature review and field study.

Plan of Action

Through desk research, stakeholder consultations and firm level survey, the key issues relate to the need to:

1. Improve the business environment for ICT sector (including reviewing business regulatory procedures; registration and licensing)
2. Increase the ICT cluster's export potential and domestic usefulness in functioning as a source of innovation that supports domestic competitiveness
3. Foster and strengthen strategic collaboration and partnerships among ICT players
4. Link ICT to the Kenyan economy, starting with the various other clusters that are being developed
5. Develop and foster sharing of infrastructure and other systems
6. Fast-track ICT technological capacities through skill acquisition and technology transfer
7. Develop and implement sub-cluster specific policies, e.g. those relating BPO

Table 4.3: Nairobi ICT SWOT Analysis

STRENGTHS	OPPORTUNITIES
▪ The ICT sector already has a number of different service and products providers who provide a myriad of ICT services and goods that are accessible to a large proportion of the population. ▪ Interest in developing the BPO sub-sector in Kenya as articulated in Vision 2030 ▪ High demand for ICT services and products ▪ There are number of innovations in the ICT sector that contribute to the social-economic development of the country ▪ The sector has its first policy paper: ICT Policy 2006 ▪ The Kenya Communication (Amendment) Act 2008 was enacted in January 2009 ▪ Revisions in licensing for ICT players introduced by CCK ▪ ICT Board has introduced a number of initiatives aimed at developing the sector. These include BPO/ITES marketing, Digital Villages, local Digital Content grants, and is in the process of developing additional innovations, including government shared services ▪ Kenya has location and geographical advantage ▪ Strong private sector participation in mobile telephony and internet connectivity enterprises ▪ There are plans to develop a ICT Park/Technopolis, 60km from Nairobi city	▪ Poor business environment: high transport and electricity costs (34.8% of respondents in the survey indentified electricity as a problematic factor) ▪ Cheap and poor quality imports of goods ▪ Flooding of counterfeit and pirated ICT products in the market ▪ High turnover of skilled workers ▪ Difficulty in obtaining capital/funds for business; 26% of respondents of the survey indicated electricity has being a problematic factor ▪ Regulatory challenges; high government bureaucracy, high priced licenses; stiff labour laws, costly environment, security, health, safety and technical standards, ▪ Cable vandalism ▪ Outdated technologies ▪ Indifferent employee attitudes ▪ Scarcity of technical personnel and inefficiency of labour ▪ Fast changing technologies ▪ Lack of awareness by clients on different ICT products ▪ Expensive ICT infrastructure and inputs ▪ Difficulty in marketing Kenya as ICT hub due to its perceived poor image abroad ▪ Political influence in ICT - related projects ▪ Poor regulations, especially those relating to competition ▪ Difficulty of some companies in divulging requested information ▪ Lack of sufficient resources to implement the flagship projects ▪ Weak contractual regulations ▪ Poor networks; most players do not know of associations relevant to them ▪ Price wars; where larger firms are often able to provide lower prices to goods and services that cannot be matched by the smaller firms
WEAKNESSES	**THREATS**
▪ The ICT sector in Kenya is growing rapidly, driven by a high demand for ICT goods and services, ▪ Government is offering incentive packages for ICT companies to locate in the park at the EPZ, ▪ Development of Special Economic Zones (SEZ) ▪ Development of digital villages in the rural areas ▪ Provision of ICT training for the growing market ▪ Fiber optics infrastructure (undersea cables hence increasing internet bandwidth and reducing costs) ▪ Exploit regional markets ▪	• Globalization and international competition • Dynaminism of the sector leading to inability of players to cope with emerging technological innovations • Lack of robust investment in the sector by both the private and public sectors due to scarce capital • Market rivalry • Lack of networking between stakeholders can lead to information asymmetry, thus lack of information for business decision making, innovation and policy intervention issues • Scarcity of technical human resources to work in the various positions in the ICT sector • Insecurity and political instability • Piracy and counterfeits are rampant • Sudden withdrawal of donor funding earmarked for ICT projects

8. Fast-track government efforts to establish an ICT Park
9. Set up ICT systems security policy in the cluster (curb vandalism, secure handling and processing of information and data, and transactions and communications in cyberspace and address counterfeits)
10. Access to finance for rapidly changing and technologically challenging industry

Table 4.4 summarizes the activities, areas and performance indicators identified through participatory and consultative process.

4.2.2 Kisumu Inland Fisheries Cluster: Participatory Action Plan

Introduction

The fishing industry is expected to benefit from various measures already in place to enhance the productivity. These include investments in storage facilities (including the ice making facility already installed in Mbita in addition to cold storage facilities under construction in Malindi, Vanga and Lamu) and putting in place necessary marketing infrastructure.

Policy Objectives for the Fishing Cluster

The overarching cluster policy goal is to enhance productivity and competitiveness of the fishing cluster in Kisumu. The key policy goals emerging from research and stakeholder consultations include; improving earnings from fishing, increasing employment, increasing fish exports and export earnings, increasing strategic collaboration between cluster players and reducing poverty. Various challenges need to be addressed, and they are the focus of this Participatory Action Plan. They include reduced fish stocks, lack of access to finance, poor infrastructure network, insecurity, high input costs, workforce and entrepreneurial development, environmental degradation and clustering.

Performance of the Lake Victoria Fishery

Lake Victoria is the second largest lake in the world and is also the largest lake by area in Africa. The lake employed 42,307 fishers on the Kenyan side in 2008. In the same year, the lake contributed about 90 per cent of the national catch. This, however, has declined to around 86 per cent in 2010 as aquaculture production increases. There was, however, an increase in value from Ksh 7,253,665 in 2007 to Ksh 9,429,764 in 2008, mainly due to steep increases in the price of fish. Fish catch in Lake Victoria has steadily declined since early 1990s as shown in Figure 4.2.

The cornerstone of a cluster strategy is the partnerships among cluster firms, public authorities and the research community in organizing efforts towards enhanced growth and competitiveness of the cluster. In order to exploit the potential of the fishing industry in Kisumu, it is important to synchronize market opportunities with existing and potential capabilities and strengths, and address challenges and weakness.

Plan of Action

The required actions summarized in Table 4.6 were identified through firm level survey and stakeholder consultations. The table summarizes the objectives, the required actions, responsible cluster players and the relevant indicators for measuring performance.

Table 4.4: ICT cluster: Participatory Action Plan

Objective	Activity	Responsibility	Performance Indicators
Overall cluster development	Set up a business driven cluster organization to represent the ICT cluster and link its members	Private sector supported by government	Name for cluster and organization set up by end of 2010
	Organize five ICT meetings for all relevant actors in the Kenyan economy with international benchmark inputs	Cluster organization	Organize one meeting in 2010 and four meetings in 2011 for ICT actors to exchange information
	Come up with a branding strategy for the ICT cluster	Cluster organization	Strategy document on development and branding by end of 2010
	Develop information and exchange of knowledge via digital tools	Cluster organization	Build a website and other online tools for ICT and national economy to use
Improve the business environment for ICT sector	Development of sub-sector specific policies, tailored to the needs of specific sub-sectors such as BPO and telecommunication	Cluster players	Implementation of sub-cluster specific policies
	Introduce polices to facilitate the laying down and expansion of ICT infrastructure	Relevant stakeholders spearheaded by MoIC, Cluster organization	Reduced cost of infrastructure
	Develop ICT indicators (for benchmarking against international best practices)	KIPPRA, KNBS	ICT indicators established ICT benchmarks established
	Hasten the Incubation project for ICT players	ICT Board, World Bank, Cluster organization	Number of ICT export companies incubated
	Organize a conference to document demands from other actors in the Kenyan economy that need ICT	Cluster organization	Conference to discuss plans and needs
Increase the ICT clusters export potential	Brand Nairobi as an ICT hub and attract leading ICT multinationals as well as domestic firms	ICT Board, Kenya Investment Authority, MoIC, Cluster organization, and other stakeholders	Increased investors in ICT within the cluster; build publicity
	Attract and set up assembly plants for computers, and mobile phones	ICT Board, Kenya Investment Authority, MoIC and other stakeholders	Numbers of ICT components locally produced
	Set-up software development facility (for instance at EPZ)	EPZA, ICT Board, Kenya Investment Authority, MoIC and other stakeholders	Establishment of the software development facility
	Allocate greater resources and develop local capacity to export	Development partners, banks, government, EPZA, Cluster organization	Number of ICT export related products
	Introduce a comprehensive business incubation strategy that will provide support in finance and other business development services	EPC, universities, MoIC	Strategy and guidelines developed Number of ICT exporters incubated
	Encourage joint ventures with foreign companies (e.g. policies, incentives)	Stakeholders spearheaded by Cluster organization, supported by MoT & MoF	Number of joint ventures
	Encourage inter-regional trade	ICT Board, EPC, EPZA, Kenya Investment Authority, EAC, COMESA	Increase in number of companies exporting ICT-related products within the region
	Encourage the investment of export-oriented ICT companies at EPZ (Take advantage of incentives)	EPZA, ICT Board, Kenya Investment Authority	Increase in ICT companies investing in the EPZ

Foster and strengthen strategic collaboration amongst ICT players	Establish an umbrella body of major stakeholders to coordinate implementation of a cluster action plan	Cluster organization, ICT Board, KEPSA, GOK	The establishment of the umbrella body
	Organize biannual roundtable meetings of key players in the industry	Cluster organization	Roundtable meetings
	Encourage the development and strengthen existing formal (registered associations) and informal networks (e.g. IHub)	Cluster organization, ICT Board, relevant associations	Improved and enhanced networking
	Strengthen knowledge management	ICT Board, MoIC, e-government (multi-stakeholder)	Development of knowledge sharing mechanism
Develop and foster sharing of infrastructure and other systems	Set up a fund, subsidies or fiscal incentives for shared infrastructure	MoF, MoIC	Funds established
	Improve public infrastructure and other common services within the cluster	MoF, MoIC, ICT Board	Common services Increased investment in public infrastructure
	Facilitate "ladder of investments approach"	MoIC, CCK	Relevant regulations established
	Fast-track the adoption of common industry protocols and inter-operability, e.g. mobile money transfer systems	CBK, CCK	Introduction of mobile transactions exchange system Introduction of relevant regulations
	Fast track the creation of a shared ICT platform/software for switching EFT POS transactions and ATM transactions as well as a uniform national cheque clearing application and CBK's Real Time Gross Settlement (RTGS) etc.	CBK, MoF, Kenya Bankers Association, KIPPRA	Shared ICT frameworks
Fast track ICT technological capacities through skill acquisitions, technology transfer and innovation	Organize and finance training for select individuals in high technology abroad	MoIC & MoF	No. of Scholarships
	Provide incentives for Kenyans in Diaspora to relocate to Kenya for such skills, or foreign experts	MoL & MoIC	No. of returnee Kenyans with specialized professional ICT training and skills
	Support local universities with special facilities for ICT skill development, for example, KU, and JKUAT	ICT Board, MoIC, MoF, MoHEST	ICT skills development
	Develop joint curriculum with leading ICT universities	MoHEST, local and leading universities	Appropriate ICT curriculum
	Organize innovation contest within the cluster (for development of products, process, services or other innovations), where winners get incentives and business support	ICT Board, MoIC	Annual innovation competitions Increase in number of ICT innovations developed as a result Strengthen IPRs for local innovators Showcase innovations both locally and internationally
		Local universities, and technical colleges	Increase in local innovations and research projects Number of technical graduates in ICT Increased funding to engineering colleges and schools
		MoIC, MoHEST, KIPPRA	Establishment of appropriate incentives
		Local ICT companies; international ICT companies	Increased interactions amongst local & international companies
	Promote FDI policies to attract hardware manufacturers and encourage the transfer of skills and technology	MoT, MoI & MoIC	Established effective FDI policies increase technological transfer Increased FDIs in ICT manufacturing

Set up ICT systems security policy in the cluster	Create awareness on intellectual property rights in ICT	KIPI, ICT Board, Kenya Copyright Board	Reduction in cases of copyrights infringement, piracy and knock-offs
	Strengthen enforcement of Anti-counterfeit agency, KIPI and Copyrights Board intellectual property rights	Anti counterfeit agency, KIPI and Copyrights Board, KEBS	Increase in number of raids to root out counterfeit and pirated products Increase court convictions
	Hasten the development of appropriate policies to protect data	MoIC, Copyright Board, ICT Board, Kenya BPO Contact Society	Established policies to be strengthened
Strengthen the provision of finance for the development of the ICT cluster	Create awareness of investment opportunities in ICT	Kenya Investment Authority, EPC, Media, Banks and other relevant stakeholders	Number of new investments in ICT Vibrant role of KenInvest
	Develop innovative investments in ICT	Kenya Investment Authority, EPC, ICT companies and other relevant stakeholders	Number of new investments in ICT
	Provide incentives for banks to introduce Private Equity (PE)	CMA, CBK, NESC, MoF	Increase in finance of early stage venture capital
	Increase sector-specific funding for R&D by universities involved in ICT innovations	R&D Institutions, universities and ICT sector players	Increased funding to universities Increased R&D
	Introduce long term financing of ICT via syndicated ICT infrastructure loans by local banks	CMA, MoF, CBK	Introduction of ICT Infrastructure loans,

4.2.3 Beef Cluster: Participatory Action Plan

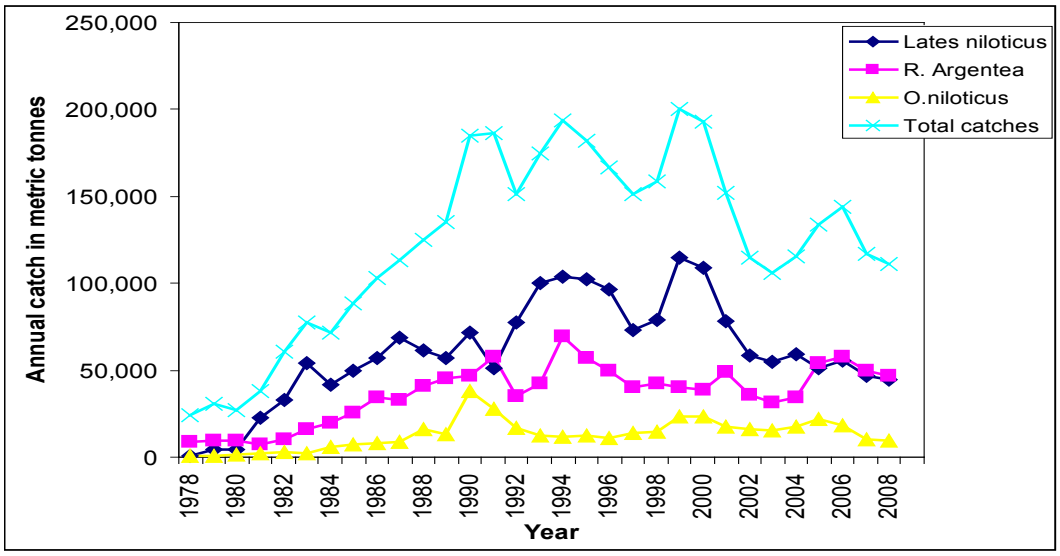
Introduction and Background

Garissa District in North Eastern Province covers a total area of 5,688.1km^2 and has four divisions namely: Central, Danyere, Sankuri and Balambala. The district is characterized as being water scarce with only 37 per cent of the population having access to clean and safe drinking water. The rest of the population uses untreated water from water pans and dams. The district is currently constructing the Rahole water canal, which is one of the flagship projects in Kenya Vision 2030. This will ensure that a wider population in the district has access to safe drinking water. The environment is degraded and inhibited by the "mathenge" plant, which is a menace to the population and livestock. The district is a predominantly nomadic pastoral area, with 90 per cent of the district supporting nomadic pastoralism. Livestock production is the main source of food and income in the district and provides 95 per cent of household income.

Cluster Policy Objectives

The policy objectives are derived from the issues identified through research, survey and consultations with cluster players. The key issues that need to be addressed include access to finance, training on animal husbandry and livestock management, increased access to water for both human and livestock use, infrastructure development, including road transport and telephone coverage, disease control and investment in industry facilities such as slaughterhouses and tanneries need to be enhanced. Inter-clan hostilities and lack of an entrepreneurial culture are also important issues that need to be addressed if the cluster is to grow and realize its potential.

Figure 4.2: Fish catch in Lake Victoria



Source: Ministry of Fisheries (2008)

Plan of Action

Table 4.8 summarizes the key strategic objectives, actions and performance indicators.

4.2.4 Cut-Flowers: Participatory Action Plan

The cut flower cluster is relatively mature especially the location around Naivasha involving large scale producers. The potential of the cluster lies in existing opportunities in innovations and development of domestic capacity to develop these innovations. The second opportunity lies in the development and exploitation of the domestic and regional markets for cut-flowers. Small scale farmers face unique challenges that include ability to meet international standards, access to finance and infrastructure deficiencies.

4.2.5 Coast Beach Tourism: Participatory Action Plan

Introduction and Background

In Kenya Vision 2030 and its first five-year medium term plan (2008-2012), tourism is one of the six sectors earmarked to accelerate the growth of the Kenyan economy to the average annual rate of 10 per cent between 2012 and 2030. Within this period, Kenya targets to join the group of the top ten long haul tourist destinations. China, Mexico and Malaysia are the leading destinations for long-haul tourists worldwide, accounting for 47 million, 22 million and 16 million annual visitors, respectively. In Africa, Egypt and South Africa are the leading long-haul tourist destinations. The government has initiated various policy changes within the Medium Term Plan 2008-2012, including

Table 4.5: SWOT analysis: Kisumu Inland Fisheries

STRENGTHS	OPPORTUNITIES
▪ Existence of unmet demand for fish ▪ There is easily available and a large pool of labour (artisanal fishermen) ▪ There is enormous potential of inland and aquaculture fishing ▪ Existence of research institutions, including KEMFRI that can capably lead in research and innovation in the sector ▪ Government policy aimed at supporting the industry	▪ Presence of large market, both locally and abroad ▪ Formation of the East Africa Community (EAC) is an opportunity for expanded market ▪ Intensification of aquaculture within the Lake Basin and beyond will defuse pressure on the Lake and promote sustainability ▪ Elevation of Kisumu Airport to international status will facilitate export of fish products ▪ EU support to fishery activities in Lake Victoria
WEAKNESSES	**THREATS**
▪ Lack of support from research institutions ▪ Lack of finance to finance the acquisition of appropriate boats and gears ▪ Declining fish stocks due to the use of illegal nets ▪ Low literacy levels limit fishermen's organizational/ managerial capacity restricting their ability to benefit from the existing group financing opportunities ▪ Lack of cold storage facilities, making fishermen to sell all their catch immediately they came out of the waters. This means selling the fish at throw-away prices ▪ Lack of adequate business management/entrepreneurial skills among fishermen ▪ Lack of appropriate market facilities and organized marketing systems ▪ The lack of resources of BMUs, and the Department of Fisheries to monitor the activities around the lake and enforce regulations ▪ HIV and AIDs	▪ Pollution ▪ Invasive weeds ▪ Soil erosion ▪ Effects of climate change ▪ Border insecurity (Migingo Ugingo dispute)

Table 4.6: Participatory action plan: Kisumu Inland Fisheries

Objective	Required Action(s)	Responsibility	Performance Indicator
• To improve networking and collaboration among cluster members	• Set up a business-driven cluster organization to represent the Fisheries cluster and link its members	• Private sector supported by government	• Name for cluster and organization set up
Increase the dwindling fish stocks and fish supply	• Restriction on the use of lake resources	• Government • Fisher folk • Cluster organization	• Defined number of boats and fishing nets • Law in place • Increase in fish stock in the lake • Reduced number of illegal fishing gears
	• Increase awareness on use of appropriate nets/ capacity building for fisher community	• Fisher community • NGOs • Government (Ministry of Fisheries) • Cluster organization	• No. of fishers sensitized
	• Increase Aquaculture	• NGOs • Government (Ministry of Fisheries) • Cluster organization	• No. of fish ponds established
	• Livelihood diversification (other income generating businesses)	• Fisher community • NGOs • Government through stimulus package • Financial institutions • Cluster organization	• Increased sources of income
Increase access to finance	• Increased savings with financial institutions	• Fisher community • Banks and other financial institutions • Cluster organization	• No. of fishers saving and accessing loans
	• Establish banks closer to fishers	• Banking institutions • Government • Cluster organization	• No. of banks established closer to fishers
	• Proper management of fishers' funds saved with fisher cooperatives/BMUs	• BMUs • Government • Cluster organization	• Fisher folk
	• Training fishers on financial management	• NGOs • Financial institutions • Government • Cluster organization	• Improvement in financial management
Improve infrastructure	• Construct/improve feeder roads to the beaches	• Government of Kenya • Development partners • Cluster organization	• Kms of roads constructed
Improve security	• Increase patrols by security agents	• BMUs • Municipal council • Police • Cluster organization	• Reduction in security cases • Increased patrols
	• Community policing (labeling gears, guarding gears)	• MBUs • Fisher folk • Cluster organization	• Reduced security cases
	• Lighting up the beaches	• KPLC • Government • Banks • BMUs • Associations • Cooperatives	• No of beaches lit
Reduce the cost of inputs and cost of production	• Setting up more input supply shops closer to the fishers	• Input suppliers • MBUs through cooperatives • Cluster organization	• Increase in the number of input suppliers near the fishers
	• Subsidies	• Government	• Increased affordability of inputs
	• Increase joint production/sharing of fishing gears	• Fishers • BMUs • Cluster organization	• No. of fishers engaged in joint fishing

Objective	Required Action(s)	Responsibility	Performance Indicator
Improve research and its links with fisheries industry	• Increased linkages between research institutes and fishers, processors, marketers, etc	• Research institutes/KEMFRI • Fishers • Processors • Cluster organization	• No. of research outputs used/adopted by the fishers
	• Increase budget for research	• Government • Financial institutions • Cooperative societies • BMUs • Cluster organization	• Amount of money allocated to research
Improve value addition	• Increased use of the media	• Media, fishers, processors, input suppliers, exporters, etc • Cluster organization	• No of media appearances
	• Improve packaging	• Fishers • Processors • Exporters • Cluster organization	• Improved prices
	• Strengthen cooperative movement to improve marketing	• BMUs • Government to facilitate (Ministry of Cooperatives) • NGOs • Fishers • Cluster organization	• No. of associations • Improved organization capacity
	• Establish cold storage facilities (ice plants, ice containers and deep freezers) at the beach	• Government • BMUs • Cooperative societies • Banks • Cluster organization	• No. of cold storage facilities established
	• Connection to electricity to facilitate cold storage	• KPLC • Government (Min of Fisheries)	• No of beaches connected to the national electricity grid
Improve literacy levels of the fishermen in different aspects, including management, environmental conservation and appropriate fishing technology	• Joint initiatives in training on fisheries related courses	• Training institutes (Ramogi training institute, • Cluster Organisation	• No. of workshops/training sessions jointly conducted
	• Workshops	• Government • BMUs • Cooperatives • Banks to finance • Cluster organization	• No of workshops organized in a year
	• On-site straining (on the beaches)	• Government • BMUs • Fishers • Cooperatives • Banks to finance	• No of on-site training sessions organized in a year
	• Distributing relevant materials	• Government • BMUs • Fishers • Cooperatives • Banks to finance	• No. of times materials are distributed to fishers and MBU officers
	• Need for extension officers	• Government • Cluster organization	• No. of extension officers
Care and management of HIV and AIDS	• Increased and continuous awareness campaigns on the effects of HIV/AIDs	• Government • MBUs • Associations	• Decrease in the number of AIDS cases
	• Care for the affected and the infected, including orphans and widows	• Government • Associations • MBUs • Cluster organization	• No. of those infected being cared for

Objective	Required Action(s)	Responsibility	Performance Indicator
Conservation of the environment around the beaches	• Repair/manage waste management plants	• Government • NEMA • Kisumu Municipal Council • Cluster organization	• No of waste management plants established
	• Introduce waste management teams	• Fishers • Associations • BMUs • Government • Local Authority	

Table 4.7: SWOT analysis: Beef cluster

STRENGTHS	OPPORTUNITIES
Proximity to River Tana	Investment in slaughterhouses and tanneries
Garissa is a transit town and gate way to North Eastern Province	Untapped market
The private sector and donor agencies are involved in various development activities in the district	Lamu-Isiolo corridor
One uniform culture	Long hours of sunshine can be exploited for solar energy
Resilient hardworking farmers	
WEAKNESSES	**THREATS**
Drought	Border insecurity
Insecurity	Immigrants/refugees

preparation of Tourism, Wildlife and Heritage policies, which have been tabled before parliament. The Tourism Bill 2010 provides for development, management, marketing and regulation of sustainable tourism and tourism-related activities and services.

Policy Objectives

The policy objectives should focus on the identified challenges that include:

(i) To reduce the cost of electricity in the cluster

(ii) To improve and expand the road network; and to improve the efficiency of ferry services

(iii) To promote domestic tourism in the cluster

(iv) To enhance clustering

(v) To improve destination marketing at international level

(vi) To improve security within the cluster

(vii) To increase Government spending in tourism by 5 per cent of total annual tourism earnings

(viii) To eliminate bureaucracies in licensing and to reduce the number of licenses required

Conservative cultural practices	Competition from Somalia
Poor infrastructure	Wildlife-human conflict
Lack of optimal management of the Livestock value chain,	Water – pasture mismatch
High illiteracy rates	Natural environmental shocks
Associated poor skills in livestock management	
Animal diseases	
Shortage of veterinary services	

Table 4.8: Beef cluster in Garissa: Participatory Action Plan

Objective	Required Action(s)	Responsibility	Performance Indicator
Set up cluster organization	Set up a business-driven cluster organization to represent the beef cluster and link its members	Private sector supported by government	Name for cluster and organization set up by end of 2010
Increase access to finance and working capital	Setting up of a livestock fund Establish a livestock insurance Encourage banking culture and provide loans and other credit facilities to farmers	Ministries of Finance, Cooperative Development, Livestock Development and Northern Kenya; Financial institutions; Saccos; CBOs and private sector Cluster organization	Livestock fund, livestock insurance and loans procured
Increase investment in human capital	Establish mobile schools Encourage adult education Training farmers on animal husbandry and better livestock management and tackle illiteracy	Ministries of Education, Livestock Development NGOs, KIRDI, CARE Kenya and farmers Cluster organization	No. of farmers trained on modern livestock keeping and husbandry techniques and the level of skills
Increase access to water for domestic use and livestock	Drill boreholes and water pans with purification facilities within 10km radius for both animals and farmers and increase canal development	Ministries of Livestock Development, Water and Irrigation, water boards and NGOs Cluster organization	No. of boreholes and water pans constructed
Improve transportation of the cattle to markets	Construct main roads to link farmers to various markets Livestock routes should have adequate pasture and water	Ministry of Roads, Roads Board, Local Authorities and CDF Cluster organization	No. of kilometres constructed
Increase telecommunication	Improve telephone coverage in the cluster	Ministry of Communication, CCK and telephone companies Cluster organization	No. of mobile telephone subscriptions and no. of telephone masts installed
Invest in research and development	Establish a livestock research institute Increase research into high quality animal breeds that are resistant to disease and adapted to local climate	Ministries of Livestock Development and Northern Kenya; Livestock research institutions, KIRDI, Community Development Committees (CDCs) and NGOs Cluster organization	Livestock research institute

Objective	Required Action(s)	Responsibility	Performance Indicator
Increase mitigation measures about the drought and control the mismatch between water and pasture	Improve rangeland management, produce local hay; Increase awareness on environmental conservation and water storage techniques, reserve (close) boreholes during rainy season	Ministries of Livestock Development, Water and Irrigation, water boards, CDCs, private sector and NGOs Cluster organization	Rangeland management in place, amount of hay produced, No. of environmental and water storage awareness seminars held
Increase use of veterinary services for disease control and Artificial Insemination (AI) services	Increase awareness about animal vaccination and treatment of common animal diseases; Increase availability of AI services within the cluster	Ministry of Livestock, Livestock research institutions, CDCs, private sector and NGOs Cluster organization	No. of veterinary doctors; No. of animals vaccinated and treated for common diseases; and AI services in place
Establish meat processing factories and related industries	Construct abattoirs and meat processing factories in the region	Ministry of Livestock, CDCs, private sector, Cluster organization, development partners and farmers associations	Factories established
Establish hides and skins' tanning factories	Establish leather tannery and related industries in the region	Ministry of Livestock, MoI, CDCs, private sector and farmers associations	Leather tannery established
Control livestock/wild animal conflicts	Control marauding wild animals; Compensate farmers for the loss of livestock and demarcate pastoral/ wildlife areas	Ministries Livestock, Forestry and Kenya Wildlife Service Cluster organization	Reduced livestock/wildlife conflict; No. of farmers compensated and pasture demarcation
Mitigate culture/clan barriers	Reduce inter-clan hostilities, encourage sharing of pasture and watering points, and lift the ban on land transactions	Ministries of Provincial Administration and National Heritage and Culture, private sector and local people Cluster Organisation	Reduced inter-clan conflicts
Establish cold storage and refrigeration facilities	Establish a large cold store	Ministry of Livestock Development, and private sector Cluster organization	Cold store established
Reduce the high dependency syndrome	Awareness creation on self-dependent, commercialize livestock keeping and create financial literacy among farmers	Ministries of Livestock, Northern Kenya and Youth, private sector and farmers' associations Cluster organization	Reduced dependency syndrome
Reduce high levies charged by local authorities	Introduce single and specific charge for livestock transportation nationally	Ministries of Local Government and Livestock	One and specific levy
Facilitate sedentary lifestyle	Provide water and establish pasture production	Ministries of Livestock Development, National Heritage and Culture and Northern Kenya	Pasture produced, water provided and no. of people settled

4.2. 6 Transport and Logistics: Participatory Action Plan

Introduction and Background

Modernizing and expanding seaport facilities is one of the priority programmes outlined in Kenya Vision 2030 and the MTP. A competitive transport and logistics cluster triggers positive feedbacks through the important role that transport and logistics plays in business transactions. It therefore has the potential of reducing the cost of doing business and contributing to the development of the economy by serving as an efficient gateway to the region.

Policy Objectives

The policy priorities emerging from this study are consistent with the current development agenda for the port, namely: port expansion and modernization to help increase efficiency and cargo handling capacity. There are on-going policy initiatives in this regard. For instance, dredging the Port of Mombasa is within the medium-term policy targets over the period 2008-2012, with a view to increasing the port's capacity to accommodate the larger post-panamax vessels (bigger vessels too big for the size limits for ships travelling through the Panama Canal). The ferry services programme is intended to improve water transport accessibility on lakes and the ocean. Increased volumes of

Table 4.9: SWOT analysis: Cut-flower

STRENGTHS	OPPORTUNITIES
▪ Private sector investments in technology and innovative systems both for production and value addition ▪ Adherence to standards through compliance to Codes of Practice, traceability, due diligence and ethical trading ▪ Available reliable transport and logistics infrastructure ▪ Good climatic conditions providing quality produce throughout the year ▪ Availability of both skilled and semi-skilled labour force	▪ Availability of research institutions; KARI, education and training institutions ▪ Business associations that can support linkages ▪ Government policy support
WEAKNESSES	**THREATS**
▪ Over reliance on the export market ▪ Over reliance on research and technological developments from the Netherlands and Israel. We lack our own innovations and technologies	▪ The effects of climate change. An expected characteristic of global climate change is a likely increase in the variability of environmental conditions ▪ Environmental degradation due to intensive input use Water bodies, especially Lake Naivasha are largely affected ▪ Very vulnerable to external shocks such as carbon foot prints and the virtual water trade

Table 4.10: Participatory action plan: Cut flower

Objectives	Required Action (s)	Responsibility	Performance Indicator
Establish a cluster organization	Set up a business-driven cluster organization to represent the cut-flower cluster and link its members	Private sector supported by government	Name for cluster and organization established
Provide incentives to encourage investment in cut flower production - Market Availability - inadequate market information - High taxes and licenses - High cost of doing business	- Market research - Market sourcing - Review taxes and licenses - Reduce taxes and merge some licenses - Reduce cost of inputs - Introduce subsidies	HCDA, Government Government Government	- Increased volumes of export - Increased investment in cut-flowers
Reduce the high energy cost	- Reduce cost of electricity - Investment in alternative sources of energy	Government Private sector	Reduced cost of production
Improve poor road Infrastructure	Improve infrastructure	Government	- Reduced losses to producers - Improved quality, Increased productivity
Enhance linkages and collaboration between the Government regulatory bodies and producers	- Improve Linkages - Improve communication channels between the actors - Improved Information Flow	- Ministry of Agriculture - Regulatory bodies - Private sector	Improved quality and reduced complaints
Reduce reliance on imports for technology and inputs	- Increase research funding - Create awareness of available research - Dissemination of research findings - Networking between research institutions and producers	- Government - Research institutions - Cluster association	- Increased new local technologies - Increased adoption of new technology - Increased production - Decreased imports

Objectives	Required Action (s)	Responsibility	Performance Indicator
Encourage adherence to regulation and standards	- Awareness creation - Increased lobbying to markets - Increase producer representation in regulatory organizations	- Government - NEMA - KEPHIS - Flower Council - Cluster organization	Improved market access
Encourage breeding of Indigenous flower varieties	- Increase research on local species - Keep an inventory of available varieties - Aggressive promotion of local varieties - Increase awareness of plant breeders rights/ Intellectual property rights	- Government - Research institutions - Producers - Brand Kenya - HCDA - Cluster organization	- Increase in indigenous Kenyan flower varieties - Identification of a Kenyan variety
Reduce land rates	Put in place a national Land Policy	Government	Operational Land policy Reduce land rates
Encourage social accountability	- Enforcement of laws - Enforcement of environmental laws - Increase manpower	- Government - NEMA - Cluster organization	Improved working conditions, social and environmental standards Increased productivity
Reduce freight charges	Research on alternative ways of shipment	- Government - Private sector - Cluster organization	- More volumes shipped through alternative ways - Reduced costs of shipment
Enhance production of clean planting materials	- Increased research and research labs - Set up more labs at KEPHIS	- KEPHIS - Government - KARI - Private sector	- Improved quality - Availability of clean planting materials - Increased production
Increase research funding	- Government to increase funding for research - lobbying for research	- Government - Research institutions - Cluster organization	Increased research allocations; Improved varieties and technology
Enhanced domestic market	- Set up an auction for flowers in Kenya - Have a designated flower market - National flower exhibition - Incentives for exporters' selling locally	- Flower Council - HCDA - Private sector - Government - Cluster organization	- Increase domestic demand - National exhibition - Budget allocation
Improve transport and logistics	- Cooling facilities to be put in place - Improvement of feeder roads - Reduce cost of fuel by lowering taxes	- HCDA, Government - Cluster associations - LATF - Cluster organization	- Functional and adequate cooling facilities put in place - Reduction of freight charges
Upscale and encourage innovative technology	- Update existing technology - Awareness creation of available technology - Adjust education curriculum to adapt to market demand - Networking between university, research institutions and primary actors	- Ministry of Education - KEPHIS - KIRDI - KARI - Universities - Development partners - Cluster organization	- Established partnership between universities, research organizations and producers - Joint forums
Enhanced environmental issues- Resource sustainability vs. production	- Spread out cut-flower production to other areas - Create awareness to farmers to diversify to other types of flowers that are less resource demanding, e.g. summer flowers - Increase productivity per unit resource through capacity building	- Ministry of Agriculture - HCDA - NEMA - Flower Council - Cluster organization	- Increased productivity - Resource sustainability increased

cargo and passengers are expected as a result. Expenditures averaging about Ksh 600 million every year from 2008 to 2012 had been planned for. A new container terminal that can handle 1.2 million TEUs per annum is planned for completion by 2013 to help accommodate the port's rising throughput, projected to be in excess of the existing capacity of 20 million tonnes (BMI, 2011).

Matters of enhancing security have also received emphasis and the IMO under the International Ships and Port Security (ISPS) code already recommended the construction of surveillance towers at both sides of the Likoni channel (Government of Kenya, 2008 - Sector Plan for Transport 2008-2012). ISPS code recommends separation of regulatory functions from port operation, with a view to improving service delivery.

SWOT Analysis

The following analysis was informed by field investigations involving stakeholders at the port and the situation analysis.

Plan of Action

There are various reform and policy measures required to strengthen the transport and logistics cluster. The stakeholders who attended the consultative forum in Mombasa on 24th June 2010 participated in designing an implementation plan. The following objectives were ranked as top three:

- To increase efficiency and cost-effectiveness of port operations
- To enhance maritime reform capacity at the

Table 4.11: SWOT analysis: Coastal beach cluster

STRENGTHS	OPPORTUNITIES
▪ A priority sector in the country ▪ Competitive price of hotel rooms ▪ Attractions to tourists ▪ Mombasa has beautiful beaches	▪ Promotion of domestic tourism ▪ Training national and local policy makers ▪ Defining new tourism markets ▪ Foreign Direct Investment ▪ Regional tourism marketing ▪ National tourism perception; Preferred destination by foreign tourists
WEAKNESSES	**THREATS**
▪ Unreliable water and electricity supply ▪ Lack of product and market diversification ▪ Lack of harmonization between national policies on land use ▪ Lack of equitable sharing of benefits and opportunities of tourism ▪ Inadequate workforce development ▪ Bureaucracy in licensing ▪ Legal and technical barriers in on-line booking services ▪ Lack of Research and Development ▪ Poorly equipped tourist police unit ▪ Poorly maintained / cleaned beaches	▪ Deterioration in infrastructure ▪ Insecurity / terrorism ▪ Political instability

Table 4.12: Coast beach tourism: Participatory action plan

Objectives	Required Actions	Responsibility	Performance Indicator
1. To strengthen strategic coordination among cluster actors	Set up a business-driven cluster organization to represent the Coastal Beach Tourism cluster and link its members	Private sector supported by government	Name for cluster and organization
2. To develop infrastructure			
Improve and diversify electricity supply	▪ Invest in wind energy; set up a wind turbine for the cluster ▪ Invest in solar energy - hotels to install solar panels for heating water and lighting	Government through its agencies: KPLC, KENGEN hoteliers	Decrease in the cost of doing business
			Consistent supply of electricity
			Presence of wind energy
			Solar energy supply available
Road network	Feeder roads in and out of the port that are completely worn out	Government through the Ministry of Roads	Reduced traffic congestion
	Pave the road from Kinango to Mariakani	Government	Kinango-Mariakani road built
	Ndogo Kundu bypass to link the south coast to the mainland. This will decongest the island as development of south coast depends on its accessibility	Government	Ndogo Kundu bypass built
	The main road in Diani needs overhaul. The assessment was done for the 10km stretch from Ocean Hotel to Neptune Hotel (include pedestrian pavements and proper lighting so tourists can walk and cycle during the day as well as at night)	Government	Safety improved, upgrade of Diani resort
Ferry services	Rehabilitation of the 4 old ferries and deploy one to Mtongwe	Kenya Ferry Services	Increased frequency of ferry services, reduced waiting time for the ferry
3. To promote local tourism	Leisure and business tourism	Kenya Tourist Board (KTB)	
	Create awareness campaigns to reach all Kenyans	Brand Kenya, and Hotel management to train their staff on understanding the domestic market Cluster organization	Improved hotel occupancy by domestic tourists
		Tour and travel companies should make it easy for domestic tourists by developing attractive packages based on consumer ability	Improved hotel occupancy by domestic tourists

Objectives	Required Actions	Responsibility	Performance Indicator
4. To strengthen marketing at international level	Participation in trade fairs by industry players at 50 per cent cost (KTB bears the other 50 per cent cost)	▪ KTB to market the destination ▪ Cluster organization	Increased marketing expenditure; policy on tourism earnings plough back developed, e.g. 5 per cent of tourist earnings to be devoted to marketing the destination
	Consumer advertising and trade partnerships	▪ Individual hotels to enforce KTB prior advertisement of destination ▪ Cluster organization	More tourist arrivals in the cluster
	Seasonality can be addressed through market segmentation, e.g. between April to June target, India, China and the Arab gulf as at that time the weather in their countries is adverse	▪ Hoteliers ▪ Cluster organization	More tourist arrivals from emerging markets
	Product diversification to include modern convention centres such as KICC in Nairobi, with shopping malls such as the Westgate.	▪ PPP ▪ Cluster organization	Modern convention centre built
	Good international entertainment is lacking in the cluster, and this needs to be addressed	▪ Government/ PPP ▪ Cluster organization	Presence of modern casinos, discos and spas in the cluster
Improving security	Adequately equip Tourist Police Unit (TPU) with bicycles for easy access to most tourist areas; Proper housing for the TPU near tourist sites	Government	Reduced number of crimes on tourists and general public in the cluster
	TPU should report to the Ministry of Tourism (such as KWS police)	Government/Legislation	Bill passed
	Introduce CCTV / surveillance systems in tourism areas (e.g. beaches; hotels) to monitor crime	Hoteliers	Reduced number of crimes on tourists and general public in the cluster
		Government	Reduced number of crimes on tourists and general public in the cluster
	Reduce political uncertainty in the country, especially during tourism high seasons	Government	Improved security and reduced uncertainty
To streamline licensing procedures	There should be one single license for each operator (Hotels need various types of licenses for operation that can be combined to one, same with tour companies as well as taxi/car hire)	Central Government/legislation	Reduced number of licenses, reduced administration costs
	Centralized licensing to avoid unnecessary bureaucracy. One-stop-shop, as in Rwanda where, for example, if license takes longer than required/set time target, the licensing officer is reported to respective authorities and action is taken	▪ Government ▪ Cluster organization	Duration of getting license reduced

Table 4.13: SWOT analysis: Transport and logistics cluster

STRENGTHS	OPPORTUNITIES
• Existence of strong well established key players and regulatory bodies such as KPA, KMA, IMO, KRA and KEBS • Vantage geographical location in the region, close to other regional harbours • Relatively modern and reliable infrastructure and technical equipment • Port dredging and expansion initiatives by government • Positioned as a gateway to East and Central African hinterland	• Potential for a Free Trade Zone in Lamu and Ndogo Kundu • Transport master plan for improving regional rail network, and expansion of motor lanes and walkways (proposed second transport corridor from Lamu through northern Kenya to Ethiopia and Southern Sudan) • Fibre optic cable • Labour abundance • Port community-based system • Efficient procurement and regulatory procedures • Growing international trade and regional economic cooperation • Reducing the cost of electricity and fuel • Vast opportunities in trans-shipment trade • Planned resort cities in Isiolo and Lamu, with prospects for increased tourism and trade with Ethiopia and Southern Sudan
WEAKNESSES	**THREATS**
• Weak transport and logistics infrastructure, especially railway • Overall port logistics accounts for over 90 per cent of total transit time to Nairobi • Weak linkages among cluster firms • Inadequate data and information management • Low level of vessel ownership • Insufficient human capacity and inadequate R&D due to lack of strong focused maritime innovation and capacity building institutions • Weak linkages among cluster firms • Weak maritime reform capacity at the Ministry of Transport • Low level of creativity and innovation at the port • Inadequate number of containers • Congestion at the port • Shallow channel unable to accommodate post-panamax vessels	• Stiff competition from other ports in the region • Bureaucracy and corruption • Piracy and insecurity • High cost of electricity • Low investment in the cluster

Ministry of Transport

- To develop and maintain an integrated, safe and efficient inland transport network (road, rail, pipeline)

The second set of three objectives that followed in perceived order of importance was:

- To enhance innovation and quality of infrastructure at the port
- To increase access to working capital
- To strengthen joint ventures towards regional mobility and connectivity

Going by the view of these stakeholders, the six objectives above are the most strategic as far as improving the transport and logistics cluster at the Port of Mombasa is concerned.

The following six objectives were given a lower ranking than the above in terms of strategic importance. The stakeholders were of the view that the achievement of the objectives below will rely heavily on the achievement of the preceding six (above).

- To enhance private sector participation and integrate ICT in maritime transport and logistics
- To identify, develop and retain adequate human resource to support the transport and logistics cluster
- To intensify collaboration among the firms in the port community
- To reduce government bureaucracy and corruption at the port
- To enhance data and information management at the port
- To revamp, modernize and expand seaport facilities for improved capacity and delivery of services

4.3 Implementation of the PAPs

The matrix of required action was populated mainly by issues of adequate and sustainable funding, capacity building, inter-firm and multilateral collaborations, advanced technology, and eradication of corruption and lengthy procedures at the port. The entire matrix with all the details as discussed with stakeholders is shown in the table of implementation plan. Particular attention has been given to addressing the weaknesses and threats, while utilizing the strengths and opportunities arising from the SWOT analysis.

Table 4.14: Implementation plan

Objectives	Required action	Responsible actors	Performance indicators
To strengthen strategic coordination among cluster actors	Set up a business-driven cluster organization to represent the Transport and Logistics cluster and link its members	Private sector supported by government	Name for cluster and organization
To increase efficiency and cost-effectiveness of port operations	Human resource development and review of working procedures	GoK Universities Colleges Cluster organization	Number of staff trained per year Time for cargo clearance reduced to a day
	Detach politics from port operations	GoK KPA	Level of autonomy Degree of openness in appointments
	Establish professional training colleges	GoK KPA Cluster organization	Number of relevant training colleges
	Adequate provision of professional services such as legal, accountancy and engineering services	Professional societies, e.g. LSK, IEK, AAK, ISK Cluster organization	Level of transparency/ corruption index Level of professionalism
To enhance reform capacity at the Ministry of Transport for maritime service delivery	Reform regulations Create department focusing on maritime transport	MoT, MoF, KRA	Number of effective reforms Department of Maritime Transport established
	Reform tax system	KRA	Number of effective reforms
	Provide training to decision makers in the MoT	PSC KIPPRA Cluster organization	Number of staff trained per year
To develop and maintain an integrated, safe and efficient inland transport network (roads, railway, pipeline)	Develop and mobilize resources to implement an integrated transport master plan	EAC NTCCA ISCOS MoT KPA PMAESA Cluster organization	Port throughput Turnover of trains Turnover of turnaround times for ships Moves per hour for port productivity Turnover time for lorries Truck performance Port dwell time of containers Improved documentation Regional cargo tracking system Reduction in demurrage
	Construction and upgrading of more roads, railways and pipelines linked to the port	MoT	Number of roads constructed and upgraded The condition of the railway and pipeline

Objectives	Required action	Responsible actors	Performance indicators
To enhance creativity, innovation and quality of infrastructure at the port	Provide conducive environment for innovation	KPA GoK KIPI Private research institutes Cluster organization	Number of innovative solutions Patents
	Increase branding and marketing of business at the port	Port community Cluster organization	Consumer awareness and satisfaction
	Improve port facilities and equipment	KPA GoK Cluster organization	Equipment precision and reliability
	Establish relevant research institutes	GoK	Number of relevant training and research institutes
To increase access to working capital	Reduce interest rates	CBK thro MoF	Cost of borrowing
	Provide credit facilities to the businesses at the port	Banks NGOs	Number of firms accessing credit facilities
To strengthen joint ventures towards regional mobility and connectivity	Multinational PPP	Regional country governments and private sectors Cluster organization	MoU among the actors
To enhance private sector participation and integrate ICT into maritime transport and logistics	Port Community Based System	KPA KRA MoT MoIC KEBS IT companies Shipping agents Freight forwarders Cluster associations Cluster organization	Number of automated port logistics (Single Window Electronic Document processing) Amount of time taken to deliver goods and services to the clients
	Appropriate legal structures for PPP	GoK	Proportion of privatized services
	Incentives to private firms to set up ICT companies	GoK IT companies Cluster organization	A working PPP
To identify, develop and retain the adequate human resource to support the transport and logistics cluster	Develop integrated training curriculum Harmonize training Explore and secure exchange programmes	Universities KPA/Bandari College Polytechnics Middle level colleges Cluster organization	Proficiency certificates issued Number of graduates Labour turnover

Objectives	Required action	Responsible actors	Performance indicators
To intensify collaboration among the firms in the port community	Enhance integration of IT systems and processes Offer incentives for firms that collaborate with others	Entire port community IT companies MoT Cluster organization	Time for cargo clearance reduced to 24 hours Number of joint products, logistics and transport facilities developed
To reduce government bureaucracy and corruption at the port	Deploy KACC officers at the port of Mombasa	KACC, KRA, KPA, KMA, KEBS	Corruption index at the port Container dwell time Time taken for clearance
	Sensitization of the public on corruption eradication	Civil society Police Cluster organization	Number of corruption awareness and prevention seminars
	Rationalise customs and clearance procedures Simplify and inform the port clients on the port procedures for different activities	KRA Private shipping and logistics firms Maritime TLC associations Cluster organization	Time taken to get a service in the port
	Provide corruption reporting channels at the port	KACC Police	Number of corruption cases reported at the port
To enhance data and information management at the port	Integrate transport sector data into that of port and revenue authorities Geophysical monitoring	KPA KRA IT companies Transporters associations MoIC MoT Cluster organization	Use of integrated electronic and spatial data Establishment of a port database Early warning systems on natural risks such as tsunamis, hurricanes and other climatic events, etc
To revamp, modernize and expand seaport facilities for improved capacity and delivery of services	Hasten the expansion of container terminals	KPA MoT	Size of container terminal Port revenue The number of vessels that dock at the port Number of privately-run berths
	Acquire more containers	Private sector Cluster organisation	Number of containers
	Dredging	KPA GoK	Use by bigger/post-panamax vessels Height of port channel
	Landlord port	GoK KPA	Landlord port realized

5. CONCLUSIONS AND WAY FORWARD

As clusters have proliferated across the world, the body of literature of case studies has followed the same trend. The formulation and implementation of clusters (including how they are initiated, financed and governed) take many forms. Each cluster has its own specific factors. It is therefore important that Kenya combines the specific local conditions and best practices elsewhere.

In the clusters analyzed and the broad Kenyan landscape, there are various actors that can play an important role in the implementation process. Nevertheless, they are currently not operating as cluster facilitators, but rather focus on their own turfs and responsibilities. For instance, at the macro level, there are bodies such as the National Economic Social Council (NESC), Kenya Private Sector Alliance (KEPSA) and Kenya Association of Manufacturers (KAM). In the tourism and flower industry, at the cluster level, there are various private sector-led associations such as Mombasa and Coast Tourist Association (MCTA), and Fresh Produce Exporters Association of Kenya (FPEAK). In the same clusters, there are public sector bodies such as the Horticulture Development Authority (HCDA) and Kenya Tourism Board (KTB). These arrangements vary across all the studied clusters. Any cluster would need the support from these institutions, but having that support is no guarantee for development unless all actors synchronize their ideas and ways forward to create a joint momentum and exchange of information and vision.

Cluster development approaches have extended to urban and regional development in form of Special Economic Zones and city clusters. This involves multi-sectoral integrated urban and regional planning development in provision of infrastructure and services to benefit industrial cluster nodes.

Key Issues in Cluster Initiatives Implementation

The Cluster Initiative Greenbook (2003) based on a survey of about 250 cluster initiatives has attempted to distill some of the success factors.

- The social, political and economic setting and cooperation are important for the success of a cluster initiative – even for starting them
- Establishing exchange of knowledge and experience within and between clusters is crucial
- Facilitation in terms of a good infrastructure and stable macroeconomic climate are imperative for economic trust, and following from that, development
- Cluster initiatives limited to domestic companies perform poorly
- Successful clusters build a clear explicit framework (Vision and activities to perform) bundling main actors into cluster organizations that coordinate and facilitate
- Long-term sustainability requires that clusters are private sector-led but supported by government
- Financing needs to be stable over time from government/donor seed money to membership fees

- Successful clusters have an office, a budget and a work plan that is synchronized with and discussed with the main cluster actors. However, the cluster staff remains small
- All cluster actors need to work and be willing to work together in platforms – represented by cluster organizations
- Information and knowledge has to be exchanged at high level and permanently to avoid miscommunications and diverging policies
- It is proven to be not successful to start developing non-existent clusters without some favourable conditions
- A strong interaction between long- and medium-term policymaking and the cluster organizations has to take place on a semi-permanent basis

The key challenges to implementation of cluster initiatives in developing and transition economies include:

- Little general knowledge of clusters, which makes it difficult to build common frameworks
- Trust and company collaboration is low
- Entrepreneurs face a wider spectrum of challenges than in developed countries, such as under-developed financial markets
- Where government is not involved especially in donor-financed initiatives, it becomes difficult to address weaknesses in the business environment, and yet this may be very critical
- Local environments in most developing and transition countries are relatively highly politicized. An open and transparent selection process could be used in the form of competitive bidding, but this approach entails a longer startup period as noted by the Macedonia's National Entrepreneurship and Competitiveness Council for the USAID funded Competitiveness Activity (MCA) project (Ketels et al., 2006).

Ketels et al (2006), in examining experiences of Mauritius and Mexico in Cluster Initiatives in industries under threat, concluded that there is need for strong facilitation and technical assistance as the initiative moves from strategic planning to implementation.

6. SELECTED REFERENCES

Abila, R.O. (2007). Assessment of Fisheries Product Values along Kenya's Marketing Chain. FAO Fisheries Technical Report No. 819, FIIU/R819, FAO, Rome.

Adero, N. and Aligula, E. (2011). Challenges Facing Transport Infrastructure in the East African Community. Nairobi: African Research and Resource Forum.

Betty, Kibaara, Joshua Ariga, John Olwande and T.S. Jayne (2008). Trends in Kenyan Agricultural Productivity: 1997-2007, WPS 31/2008, Tegemeo Institute of Agricultural Policy and Development.

Bolo, M. (2006). Knowledge, Technology and Growth: The Case Study of Lake Naivasha Cut-Flower Cluster in Kenya. World Bank Institute, World Bank.

Bortagaray, I. and Tiffin, S. (2000). Innovation Clusters in Latin America. Paper Presented at the 4th International Conference on Technology Policy and Innovation, Curitiba, Brazil, 28-31 August 2000.

Business Monitor International - BMI (2011). Kenya Freight Transport 2011, London: Business Monitor International.

Coast Province Eastern and Southern Africa Geographical Journal, Vol. 5 No. l, 1994, p28-43

Communications Commission of Kenya - CCK (2010). Quarterly Sector Statistics Report, 2nd Quarter Oct-Dec 2009/2010).

Communications Commission of Kenya - CCK (2007). Internet Market Analysis Study: Final Report Prepared by Netcom Information Systems Ltd for Communication Commission of Kenya.

Communications Commission of Kenya - CCK (2007). Internal Market Analysis Final Report Prepared by Netcom Information Systems Ltd.

Communications Commission of Kenya - CCK (2008). Annual Report 2007/2008.

Communications Commission of Kenya - CCK (2010). Quarterly Sector Statistics Report 2nd Quarter, October-December 2009/2010.

Communications Commission of Kenya - CCK (2011). Quarterly Sector Statistics Report 2nd Quarter October-December 2010/2011.

Dick, Foeken (1994). Climatic Seasonality in Kenya with Special Reference to Economic Review of Agriculture, 2009, Ministry of Agriculture.

Dolan, C. and Humphrey, J. (2000). "Governance and Trade in Fresh Vegetables: The Impact of UK Supermarkets on the African Horticulture Industry", *Journal of Development Studies*, Vol. 37 No 2: 147–76.

Encyclopædia Britannica (2009). Transportation. Encyclopædia Britannica 2009 Multimedia Edition, Chicago: Encyclopædia Britannica.

Euro-Africa Awareness Workshop, School of Computing and Informatics, University of Nairobi.

Export Processing Authority (2005). Kenya's Information and Communications Technology Sector.

Export Processing Zones Authority - EPZA (2005). Kenya's Sugar Industry, Nairobi: EPZA.

Export Promoting Zones Authority – EPZA (2005). Kenya's Apparel and Textile Industry 2005.

Fintrac Inc. (2005). Summary Report: Baseline Survey of Kenyan Smallholder Flower Sector, Nairobi, Kenya.

Frohberg, K., Hartmann, M. (1997). Promoting CEA Agricultural Exports through Association Agreements with the EU - Why it is not Working, Discussion Paper No. 1, IAMO, Halle.

Government of Kenya (2000). Interim Poverty Reduction Strategy Paper for the Period 2000–2003, Nairobi: Government Printer.

Government of Kenya (2000-2009). Economic Surveys, Nairobi: Kenya National Bureau of Statistics.

Government of Kenya (2000-2009). Statistical Abstracts, Nairobi: Kenya National Bureau of Statistics.

Government of Kenya (2001). Position Paper on the Textile Industry.

Government of Kenya (2005). The National Tourism Master Plan (2005).

Government of Kenya (2006). Kenya Integrated Household Budget Survey 2005/6, Nairobi: Kenya National Bureau of Statistics.

Government of Kenya (2008). Kenya Vision 2030: Sector Plan for Transport 2008-2012, Nairobi: Ministry of Transport.

Government of Kenya (2009), Ministry of Tourism, Tourism Survey and Tourism Business Survey, June 2009.

Government of Kenya (2009). 2009 Population Census, Nairobi: Kenya National Bureau of Statistics.

Government of Kenya (2009). Ministry of Tourism.

Government of Kenya (2009). State of the Coast Report: Towards Integrated Management of Coastal and Marine Fisheries.

Government of Kenya (2009). Statistical Abstract 2009, Nairobi: Kenya National Bureau of Statistics – KNBS.

Hayek F.A. (1945). The Use of Knowledge in Society.

HCDA (2010). Volume and Values of Exports Various Years, Nairobi: Horticultural Crops Development Authority.

Hornberger, K., Ndiritu, N., Ponce-Brito L., Tashu, M. and Watt, T. (2007). The Kenyan Cut-Flower Cluster Final Paper for Microeconomics of Competitiveness, May 4.

Ikiara, G.K., Nyandemo, S.M. and Ikiara, M.M. (2005). Emerging National, Regional and Global Issues in Kenya's Services Sector, In: Mwega, F.M. and Nyangito, H.O. (2005). African Imperatives in the World Trade Order: Case Studies on Kenya, Nairobi: African Economic Research Consortium and KIPPRA.

Ikiara, M. M. (2001). Policy Framework for Kenya's Tourism Sector Since Independence and Emerging Policy Concerns, KIPPRA, Nairobi.

Ikiara, M. and Oketch, C. (2002). Impact of Tourism on Environment in Kenya: Status and Policy. KIPPRA Discussion Paper No. 19, Nairobi: Kenya Institute for Public Policy Research and Analysis.

Ikiara, M.M. and L.K. Ndirangu (2003). "Developing a Revival Strategy for Kenya's Cotton-Textile Industry: A Value Chain Approach", KIPPRA Working Paper No. 8, Nairobi: Kenya Institute for Public Policy Research and Analysis.

Institute of Economic Affairs - IEA (2006). Trade Policy Reforms and Poverty in the Cotton Sub-Sector: Challenges and Policy Issues. Policy Brief No. 5.

ISHS (2005). Sustainable International Networks in the Flower Industry: Bridging Empirical Findings and Theoretical Approaches, ScriptaHorticulturae.

James K. Nyoro, Lilian Kirimi, and T.S. Jayne. Competitiveness of Kenyan and Ugandan Maize Production: Challenges for the Future, Tegemeo Institute of Agricultural Policy and Development, Tegemeo Working Paper 10.

Japan International Cooperation Agency, and Ministry of Planning and National Development (2007). The Development Study for Regional Development Programme in Nyando and Homa Bay Districts in the Republic of Kenya. Sanyu Consultants Inc, Tokyo, Japan.

Japan International Cooperation Agency and Ministry of Trade and Industry (2007). The Master Plan Study for Kenya Industrial Development in the Republic of Kenya. Sanyu Consultants Inc and KRI International Corporation, Tokyo, Japan.

Jun Wang and FangminYue (2010). Cluster Development and the Role of Government: The Case of Xiqiao Textile Cluster in Guangdong, In Douglas Zhihua Zeng (ed), Building Engines for Growth and Competitiveness in China: Experience with Special Economic Zones and Industrial Clusters.

Kenya Investment Authority, http://www.investmentkenya.com/index.php.

Kenya Ports Authority - KPA (2009). Annual Review and Bulletin Statistics 2009.

Kenya Sugar Board (2009). Kenya Sugar Board Strategic Plan 2009-2014, Nairobi: Kenya Sugar Board.

Kenya Sugar Board (2010). Kenya Sugar Industry Strategic Plan 2010-2014, Nairobi: Kenya Sugar Board.

Kenya Sugar Board, http://www.kenyasugar.co.ke.

Kenya Tree Nut Update Report 2006.

Ketels, Christian, Göran Lindqvist, and ÖrjanSölvell (2006). Cluster Initiatives in Developing and Transition Economies, May 2006.

Kilifi District Development Programme–KDDP (2001). Kilifi District Long Term Strategy 2001-2015. Programme Support Unit.

KIPPRA (2007). The Kenya Agricultural Sector Data Compendium, Vol 2: Crop Production, Ministry of Agriculture, Ministry of Livestock and Fisheries Development and Ministry of Cooperative Development and Marketing.

KIPPRA (2009). *Kenya Economic Report: Building a Globally Competitive Economy*, Nairobi: Kenya Institute for Public Policy Research and Analysis.

KIPPRA (2011). Kenya Economic Transformation. Report Prepared for Africa Centre for Economic Transformation (ACET).

Krain, E. and Ngugi, A. (2008). Promoting Mango Sub-sector in Kenya through Value Chain Development. PSDA/GTZ.

Mbora A., Jamnadass R., Lillesø J-PB (2008). Growing High Priority Fruits and Nuts in Kenya: Uses and Management, Nairobi: World Agro-forestry Centre.

Michael J. Enright and I. Ffowcs-Williams (2000). "Local Partnership, Clusters and SME Globalization", OECD Conference on Enhancing the Competitiveness of SMEs in the Global Economy: Strategies and Policies, Bologna.

Ministry of Agriculture (2010). Production Statistics (various years), Nairobi: Ministry of Agriculture.

Ministry of Agriculture (2011). Economic Review of Agriculture 2011.

Mutunga (2009). Organization of Mango Value Chain. Kenya National Federation of Agricultural Producers (KENFAP) National Mango Conference, 11-12 February 2010.

Nalo, D. (2007). The Place of ICT in Growth of Business: Kenya's Vision 2030 in Perspective. Annual Strathmore ICT Conference, 8 September 2007.

National Cotton Stakeholders Forum – NCSF (2006). Strategic Plan 2006-2010.

National Environment Management Authority - NEMA, Resources in Kenya.

Orjan Solvell, GoranLindqvist and Christian Ketels (2003), Cluster Initiative Greenbook.

Otieno, W. (2009). Sanitary and Phytosanitary Requirements, Nairobi: Kenya Plant Health Inspectorate Service.

Porter, M.E. (1990). *The Competitive Advantage of Nations*, New York: Free Press.

Porter, M.E. (1998). *The Competitive Advantage of Nations*, New York: Free Press.

Republic of Kenya (2008). Information Communication and Technology Sector Report.

Republic of Kenya, Kenya Vision 2030.

Rodrigues, A.J. (2008). ICT Research Capacity: Challenges and Strategies in Kenya. Euro-Africa Awareness Workshop, School of Computing and Informatics, University of Nairobi.

Tourism and Transport Consult International – TTI (1998). Impact of Tourism on the Economy of Kenya. 1996 Final Report.

Tschirley, D., Mutuku, M. K. and Weber, M.T. (2004). Improving Kenya's Domestic Horticultural Production and Marketing System: Current Competitiveness, Forces of Change, and Challenges for the Future, Volume II: Horticultural Marketing. Working Paper No. 08B/2004, Tegemeo Institute of Agricultural Policy and Development.

UNCTAD/WTO (ITC) (2002). Assessment of the Situation and Development Prospects for the Cashew Nut Sector, International Trade Center UNCTAD/WTO.

UNIDO/UNCTAD (2011). Economic Development in Africa Report 2011, United Nations.

Van Rooyen, F. (2007). "Africa's Maritime Dimension: Unlocking and Securing the

Potential of its Seas: Interventions and Opportunities." *African Security Review,* 16 (2): 110-117.

Waema, Timothy, Adeya Catherine and Ndung'u Margaret Nyambura (2010). Kenya ICT Sector Performance Review 2009/2010: Towards Evidence-based ICT Policy and Regulation, Volume 2, Policy Paper 10.

Waema, Timothy (2009). Development of a Business Process Outsourcing Industry in Kenya: Critical Success Factors.

Walter Jamieson, Harold Goodwin and Christopher Edmunds (2004). Contribution of Tourism to Poverty Alleviation: Pro-poor Tourism and the Challenge of Measuring Impacts, UNESCAP, http://www.haroldgoodwin.info/resources/povertyalleviation.pdf.

Wijnands, J. and Hack, M. (2000). Dutch Flower Business: Competitiveness and Marketing Strategies. Proceedings of the XIVth International Symposium on Horticultural Economics.

World Agro-forestry Center (2003). Mango Growing in Kenya, available at http://www.cglrc.cgiar.org/icraf/mangoBook/default.htm#Introduction/Production.htm.

World Bank (2004). Opportunities and Challenges for Developing High–value Agricultural Exports in Ethiopia. Poverty Reduction and Economic Management. Country Department for Ethiopia. Africa Region, available at www.worldbank.org/wbiep/trade/c_papers/Roses2KenyaSupplychain.pdf

World Bank (2005). Kenya Growth and Competitiveness, Private Sector Unit, Africa Region Report No. 31387-KE.

World Bank (2008). Kenya Investment Climate Assessment (ICA). Regional Programme for Enterprise Development (RPED), Africa Finance and Private Sector (AFTFP).

World Bank (2009). World Development Indicators 2009.

World Bank. World Development Indicators, available at http://data.worldbank.org

World Economic Forum (2007). The Travel and Tourism Competitiveness Report: Furthering the Process of Economic Development, Geneva: World Economic Forum.

World Economic Forum (2008). The Travel and Tourism Competitiveness Report: Balancing Economic Development and Environmental Sustainability, Geneva: World Economic Forum.

World Economic Forum (2009), The Travel and Tourism Competitiveness Report: Balancing Economic Development and Environmental Sustainability. Geneva: World Economic Forum.

Kenya Institute for Public Policy Research and Analysis
Bishops Garden Towers, Bishops Road
P.O. Box 56445-00200, Nairobi, Kenya
tel: +254 20 4936000; +254 20 2719933/4
fax: +254 20 2719951
email: admin@kippra.or.ke
website: http://www.kippra.org

ISBN 9966 777 83 0