



The Kenya Component

SAFE AND HIGH QUALITY FOOD SUPPLY CHAINS AND NETWORKS (SAFEACC) PROJECT

VEGETABLE AND FRUIT, FISH AND BEEF PRODUCTS

By

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TABLE OF CONTENTS

TABLE OF CONTENTS	2
ACKNOWLEDGEMENT	3
1 INTRODUCTION	3
2 THE HORTICULTURE, FISH AND BEEF SECTOR	3
3 THE SAFEACC PROJECT	4
4 METHODOLOGY	4
5 INVENTORY OF THE STAKEHOLDERS IN AGRICULTURAL SECTOR	4
6 LEGISLATION ON FOOD SAFETY AND STANDARDS	5
6.1 <i>The fruits and vegetable sector</i>	5
6.2 <i>The fish sector</i>	5
6.3 <i>The beef sector</i>	6
7 STANDARD AND STANDARDIZATION	6
7.1 <i>Fruits and vegetables</i>	6
7.2 <i>Fish and fish products</i>	7
7.3 <i>Beef</i>	7
8 NATIONAL STANDARDS AND AUDITING ORGANIZATION	7
8.1 <i>The Kenya Bureau of Standards (KEBS)</i>	8
8.2 <i>Kenya Plant Health Inspectorate Services (KEPHIS)</i>	8
8.3 <i>Department of Fisheries</i>	9
8.4 <i>Department of Veterinary Services</i>	9
8.5 <i>Ministry of Health</i>	9
8.6 <i>Other stakeholders</i>	9
8.7 <i>Laboratory Services</i>	9
9 BOTTLENECKS IN FOOD QUALITY AND SAFETY	10
9.1 <i>The Fruits and vegetables sector</i>	10
9.2 <i>The Fish sector</i>	10
9.3 <i>The beef sector</i>	10
9.4 <i>Cross cutting constraints in the three sectors</i>	11
10 MARKET TRENDS ON FRUIT, FISH AND BEEF PRODUCTION AND CONSUMPTION	11
10.1 <i>Fruits and vegetables</i>	11
10.2 <i>The Fish sector</i>	13
10.3 <i>The Beef Sector</i>	14
11 ORGANIC FARMING IN KENYA	16
12 NICHES AND OPPORTUNITIES IN THE ESTABLISHMENT OF THE FOOD AND QUALITY NETWORK	16
12.2 <i>Publicity</i>	16
12.3 <i>Organic farming</i>	16
12.4 <i>Availing storage and processing facilities</i>	16
12.5 <i>Market access</i>	16
12 CONCLUSION	17

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1 OVERVIEW

Kenya is a land of contrast in that it is closed by the Equator and has a striking landscape, ranging from snowcapped Mount Kenya to rich farmlands, lakes, barren deserts and tropical beaches. The government is pursuing an industrial and export oriented policy where agriculture, being the backbone of the economy, will be expected to play an important part. Of late, there has been concern at the national and international level on the question of food safety and quality standards. Such concerns lead to an initiative by 12 countries of ACP, the EU and the Mercosur countries to try and establish an international research and knowledge network on cross-border food supply chains and networks for fruits and vegetables, fish and beef products. The work reported herein is based on work package 3 of the project. The "Yellow Pages" on major public and private players was constructed and highlights of the legislation, standards and standardization, the auditing organizations, bottlenecks, national market trends and niches and opportunities related to the three sectors provided. The National Stakeholders workshop is planned for 22 October 2003.

2 THE HORTICULTURE, FISH AND BEEF SECTOR

Kenya is on the eastern coast of Africa and has a land area of 583,000 Sq. Km. It is crossed by the Equator and has borders with Ethiopia, Sudan and Somalia to the north, Uganda to the west and Tanzania to the south. It is a land of striking landscapes, ranging from snowcapped Mount Kenya to rich farmlands, barren deserts and tropical beaches. The Great Rift Valley with its lakes and volcanoes bisects the country from north to south. A temperate climate prevails in the highlands where daytime temperatures ranging from 22 - 30 degrees and nighttime from 6 - 12 degrees. In 1999, the population was recorded at about 28.8million persons with a population growth rate of 1.59.

Since independence, the country has been faced with many challenges revolving around the basic problems of economic development. Agriculture is the backbone of Kenya's economy and will continue to influence the development trend. It is the base for economic growth, generation of employment opportunities and earning of foreign exchange. It contributes about 50% of the Kenya's export earnings and employs 80% of the population. Its contribution to Gross Domestic Product (GDP) averaged about 26.2% between, 1990 to 1998. The government is currently pursuing an outward-oriented industrial policy in order to redirect industrial production in favour of exports. As part of this policy, the government has introduced various export promotion schemes, including the Export Compensation scheme, Manufacturing Under Bond (MUB) and more recently the Export Processing Zones (EPZs).

Kenya has a long tradition of growing horticultural crops for both domestic and export markets. The country is able, from its agro-ecological zones to grow a very wide range of horticultural produce,

from French beans, exotic fruit to cut flowers. There are 2.57 million Small-scale producers of which 70% or 1.8 million (Mungai et al, 2000) are involved directly and indirectly engaged in the horticultural activities of production, processing and marketing (Okado, 2003). Horticultural production offers the best possible undertaking among the existing agricultural enterprises. The fishing sector has been performing well, though under difficult conditions sometimes. The EU countries are the main market for fish and fish products from Kenya. At the national level, livestock accounts for about 10% of Kenya's GDP and over 30% of the farm-gate value of agricultural commodities. It employs over 50% of the agricultural labour force, and provides substantial raw materials for the local dairy, meat and meat processing industries, as well as hides and skins for tanneries; wool, and hair. The Government owned beef farms form an insignificant proportion of meat produced in the country after the collapse of the government owned feedlot beef farms in the early 1980s. The private sector continues to play an important part in the development of the beef industry. The Government is working on a crush programme to revive the Kenya Meat Commission (KMC), which used to export beef. There are a number of opportunities that exist for the three products in the East Africa Community (EAC), the Common Market for Eastern and Southern Africa (COMESA), The ACP, Middle East and lately in the United States under the Africa (AGOA) Duty-Free Treatment.

3 THE SAFEACC PROJECT

There has emerged a great concern on the food safety and quality standards at the national and international arena as consumers' mounting concerns regarding food quality and safety standards. Government implemented trade regulations and tough retail standards have increased the requirements for producers throughout the world. In developing countries and emerging economies, companies face particular challenges in adapting to these changing requirements. How the private sector, in partnership with government and the regulatory authorities, respond to these challenges is of critical importance to the future of the international food system. The producers, the private and the public sector are not spared either, as they are required to play their primary role in ensuring high quality of food.

To ensure that the basic minimum standards are met, the Global Food Network has the objective of establishing an international research and knowledge network on cross-border food supply chains and networks. The project brings together 12 countries from the developed and developing countries (Latin America, Africa and Caribbean and European union) to develop research-attuned agendas on Cross-border Safe High Quality Food Supply Chains and Networks. This report covers the results of some of the activities that are being implemented in Kenya under Work Package 3 and its drawn from the planning meeting that was held in the Netherlands on 1-2 November 2003.

4 METHODOLOGY

The objective of the Work Package 3 was to collect market-related information from stakeholders along the production-consumption-and-market continuum for fruits, fish and beef products. To construct the "Yellow Pages" on major public and private players and an inventory of legislation, standards, etc.

In undertaking the activities, the implementation team used scheduled interviews with stakeholders directly or indirectly involved from production, handling, storage, processing and exportation of horticultural (fruits and vegetables), beef and fish products. Telephone interview was also used as well as literature search. Additional information was collected during the 2003 Nairobi International Trade Fair.

5 INVENTORY OF THE STAKEHOLDERS IN AGRICULTURAL SECTOR

An inventory of the stakeholders in the food safety and quality was undertaken. There are many actors involved in this subject area. A summary report has been provided elsewhere of the

stakeholders, contact and their area of competence in as far as food quality and standards is concerned. A stakeholders meeting to fine tune the report has been planned for 17 October 2003.

6 LEGISLATION ON FOOD SAFETY AND STANDARDS

The public and the private sector are highly involved. There are specialized stakeholders charged with the responsibility of ensuring the safety and standard concerns are taken into account. The Government of Kenya has been in the forefront of putting up guidelines to ensure that the expectations of the consumers are addressed right from the planning-production-marketing to consumption continuum. As such, a number of regulation and standards have been put in place to influence the development of the fruits and vegetable, fish and beef sector.

6.1 *The fruits and vegetable sector*

The Agricultural Act, Cap 318 governs the agricultural sector and includes condition under which fruits and vegetables are grown. The Food, Drugs and Chemical Substances, Cap 254 provides for among other issues: -standards of foods; preparation of food under sanitary conditions; and establishes the Public Health (Standards) Board, including issuing of certificates of analysis and prescription. It regulates the labeling, packaging, and sale of any food and the use of ingredient in any food. Other regulations of this Act include: (1) The Food, Drugs and Chemical Substances (General) Regulations to provide for: - procedure for taking samples and form of certificate of analysis or examination, etc. (2) The Food, Drugs and Chemical Substances (Food Hygiene) Regulations which highlights nature of premises, sanitary facilities and controls, health measures to be taken in a food plant, offences and penalties; fees for food hygiene licenses, etc. (3) The Food, Drugs and Chemical Substances (Food labeling, additives and Standards) Part xiii of the regulation on fruits, vegetables and other products contains: -standards for vegetables and fruits including labeling, standards for spices, dressing and seasonings; vinegar; offences and penalties, etc.

The Agricultural Produce (Export) Act Cap 319 provides for the grading and inspection of agricultural produce to be exported and generally for the better regulation of the preparation and manufacturing of agricultural produce for export. The regulations of this Act include Agricultural Produce (Export) (Horticultural Produce Inspection) and the Agricultural Produce (Grading of fruits and vegetables for export).

Inspection and standards: - Regulations and standards for fresh produce horticulture are done at the port of exit by KEPHIS. Each exporter is expected to have an export license issued by HCDA. The license is renewed every year. There are specific standards for containers used for export. The produce must meet certain specification. A summary of legislation, standards, etc. for horticultural products is highlighted in Figure1, Annex 1 and 2.

6.2 *The fish sector*

Regulations on fish are highlighted in ‘the Fisheries Act Cap 378’ of 1991, which provide for the development, management, exploitation, utilization and conservation of fisheries. It outlines provisions for general administration including limitation of fishing; registration of fishing vessels, provision of licenses, validity and local fishing vessels license, validity and issuing of foreign fishing license; offenses and enforcement (including prohibition, method of fishing, monitoring etc); fisheries vessels, licensing of fishermen (import and permit; export of aquarium fish; fish movement permit; fish trader’s license; trout fishing license; registration of sport fishing clubs); administration of license, permits and certificates of registration; importation of LIVE fish; prevention of pollution and protection and conservation of fishery waters; private marks for fishing gears; concealment of numbers of vessels registered; transfer of certificates of registration; un-seaworthy vessel; enforcement provision, licensing of foreign vessels; control of the foreign fishing vessels and fishery waters; Fisheries scientific research (conduct, consent and permit) and fee payable. There are a number of forms for registration.

The export standards are based on EU Standards as outlined in the Kenya Gazette Supplement No. 55 'The Fisheries (Fish Quality Assurance) Regulations, 2000'. In addition to regulation, there are also the standard operating procedures for exports. All have been adapted from the European Council i.e. 91/493 EU and 91/942 EC. The fish sub-sector is also covered by provision in the Public Health Act, Cap 242 and the Food, Drugs and Chemical Substances, Cap 254

6.3 *The beef sector*

The beef sub-sector is governed by the Stock and Produce Theft Act, Cap 355; the Meat Control Act, Cap 356 and related regulations such as the Meat Control (Export Slaughterhouses) Regulations, The Meat control (Local Slaughterhouses) Regulations, The Meat Control (Poultry Meat Inspection) Regulations, and the Meat Control (Transport of Meat) Regulations. Cap 356 of the Meat Control Act enables control to be exercised over meat and meat products intended for human consumption, and over slaughterhouses and places where such meat is processed and to provide for imports and export control over such meat and meat products.

There are plans by the current Government, through the Department of Veterinary Services (DVS) to revive the Kenya Meat Commission (KMC). The KMC used to export beef to European Market. It will be covered by the Kenya Meat Commission Act, Cap 363 and will provided for a commission to purchase cattle and small stock, and to acquire, establish and operate abattoirs, meat works, cold storage concerns and refrigerating works for the purpose of slaughtering cattle and small stock, processing by-products, preparing hides and chilling, freezing, canning and storage beef, mutton, poultry and other meat foods for export or for consumption within Kenya, and to confer certain exclusive rights upon the said commission.

Other important regulations include: the Branding of Stock Act 356, the Cattle Cleansing Act Cap 358, the Hide, Skin and Leather Trade Act Cap 359, the Prevention of cruelty to Animals Act, the Animal Disease Act Cap 364, the Veterinary Surgeon Act Cap 366

7 STANDARD AND STANDARDIZATION

7.1 *Fruits and vegetables*

The standards for fresh fruit and vegetables ensure that produce is of acceptable quality, accurately labeled and that produce of unsatisfactory quality is kept off the market.

Standards are applied to meet the qualitative aspect of demand from the importers, inclusive of packaging, sizes and quality, requirement of health etc. Plant quarantine check is applied to all horticultural exports by inspectors of MOAL&M at the airports, seaports, and extracting samples from a lot of produce.

The horticultural production policy is embroidered in the agricultural policy. The legislation is borrowed from the developed countries. The standards and standardization aims at protecting the consumers of the products. The Kenya Bureau of Standards (KEBS) is the main body charged with the responsibility for the protection of consumers, by: - promoting and introducing Quality Management Tools in fruits and vegetable; Implementation of Kenya Standards to realize Quality Products (Goods and Services); Handling Customer Complaints; and ensuring that the products meet the QMS-ISO 9000, EMS-ISO 14000, HACCC (Hazard Analysis Critical Control Points), and Statistical Quality Control standards.

In exporting fruits and vegetable, Kenya complies as much as possible to the United Kingdom's Food Safety Act of 1990. The testing laboratories are accredited to ISO 17025; 2000 by United Kingdom Accreditation Services (UKAS).

7.2 Fish and fish products

The fish export standards are based on EU Standards i.e. 91/493 EU and 91/942as outlined in the Kenya Gazette Supplement No. 55 and other policy documents. There are a number of standard procedures adapted from the European Council. The main concern on standardization focus on, among other issues: the pesticide residue, effluents, Good Management Practice (GMP), microbiology levels, mercury analysis, and implementation of the Hazard analysis Critical Control Point (HACCP) plan, etc.

The fish processors have formed an umbrella organization, the Kenya Fish Processors and Exporters Association (AFIPEK). The Association has a code of Good Manufacturing Practise (GMP) for handling and processing fish and fishery products. The role of the Association is to ensure that the stipulated standards, regulations and code of conduct are followed. AFIPEK further aims to harmonize policies on surveillance, monitoring and processing standards in the three East African states. The Fish Inspection and Assurance Unit (FIAU) ensure that the standard of the exported fish is attained.

Generally, the fish sub-sector has to meet conditions as set out in the three main EEC Community Acts i.e. (1) Council Directive 91/493/EEC of 22 July 1991 laying down the health conditions for the production and the placing on the market of fishery products, (2) The Council Directive 92/48/EEC of 16 June 1992 laying down the minimum hygiene rules applicable to fishery products caught on board certain vessels in accordance with Article 3 (1) (a) (i) of Directive 91/493/EEC and (3) The Commission Decision 98/140/EC of 4 February 1998 laying down certain detailed rules concerning on-the-spot checks carried out in the veterinary field by Commission experts in third countries.

The Department of Fisheries is the competent Authority responsible for ensuring fish standards are met. There are other regulatory bodies that perform related works such as the Laboratory of Government Chemist (This laboratory is the official laboratory for forensic analyses, the Laboratory of Kenyan Bureau of Standards (KEBS) and KEPHIS. The EU's Standing Veterinary Committee (SVC) regularly monitor the fish standards in Kenya

In an effort to provide more effective and efficient services to her clients, KEBS established a Certification Unit (CU) in August 2002. It is accredited by the Quality Systems Accreditation Committee (QSAC) to carry out certification services in the following areas: Quality management system (QMS) Certification (ISO 9000); Environmental management system (EMS) Certification (ISO 14000); HACCP (Hazard Analysis and Critical Control Points) Certification –CODEX HACCP Principles 1997; Product Certification – assurance of Diamond Mark of Quality; Training – Internal and External (Industry); Accreditation of measurement laboratories; Consultancy Services: - (Quality management, Product Certification, HACCP certification accreditation of measurement labs. Etc; and Contractual services. Basis of certification services: The services are carried out in conformity with ISO/IEC Guides:- (1) QMS-ISO/IEC Guide 62; (2) EMS- ISO/IEC Guide 65; (3) HACCP-Codex HACCP Principles 1997; (4) Accreditation-ISO/IEC Guide 17025; (5) Training-ISO Guide 10015 etc.

7.3 Beef

The Department of Veterinary Services (DVS), the Public Health Department under the Ministry of Health and the Kenya Bureau of Standards (KEBS), are the main bodies that regulated and enforce standards and standardization in the beef sub-sector.

8 NATIONAL STANDARDS AND AUDITING ORGANIZATION

A highlight of Kenya's national standard and auditing organization is provided below:

8.1 *The Kenya Bureau of Standards (KEBS)*

The Kenya Bureau of Standards was established by an Act of parliament, THE STANDARD ACT, and chapter 496 of the Laws of Kenya. It started its operations in July 1974. The KEBS Board of Directors is known as the National Standards Council (NSC). It is the policy-making body for supervising and controlling the administration and financial management of the Bureau. The Managing Director is the Chief Executive responsible for the day-to-day administration of the Bureau within the broad guidelines formulated by the NSC.

Auditing

The aims and objectives of KEBS include preparation of standards relating to products, measurements, materials, processes, etc. and their promotion at national, regional and international levels; certification of industrial products; assistance in the production of quality goods; quality inspection of imports at ports of entry; improvement of measurement accuracies and dissemination of information relating to standards. To keep close liaison with and render efficient service to industry, trade and commerce in different parts of the country, KEBS operates Regional Offices in Mombasa, Kisumu and Eldoret. There are plans to open more Regional Offices in other parts of the country

The Kenya Bureau of Standards (KEBS) is the officially designated WTO-TBT National Enquiry Point (NEP) for Kenya. Kenya's NEP is bound by the WTO-TBT Agreement to regularly notify the WTO Secretariat of all proposed government regulations, conformity assessment procedures and standards-related trade information that might significantly affect international trade.

KEBS is charged with the responsibility of: developing the Kenya standards; certification; import/export quality inspection, consumer protection work, quality Assurance, testing services Laboratories

8.2 *Kenya Plant Health Inspectorate Services (KEPHIS)*

KEPHIS was formed through an act of Parliament to provide a dependable effective and efficient regulatory service for ensuring the quality of agricultural inputs and produce, thereby promoting sustainable agriculture. The strategic objectives of KEPHIS could be summarized as: to ensure compliance to set quality standards and to develop an appropriate regulatory framework in collaboration with stakeholders. To adequately address its mandate, KEPHIS has formed the following service units: Plant Breeders Rights Registration Services, the Quality Control Services, and the Plant Protection Services.

Among the services offered by KEPHIS include: coordinate all matters relating to crop pests and disease control; establish service laboratories to monitor the quality and levels of toxic residues in plants as well as their soils and produce. The Analytical Chemistry Laboratory at the KEPHIS Headquarters in Nairobi analyses agrochemical formulations and residues in a wide range of agricultural produce, soil, water and animal tissues at a fee; advise the Director of Agriculture on appropriate seeds and planting materials for export and import; undertake inspection, testing, certification, quarantine control, variety testing and description of seeds and planting materials; undertake grading and inspection of plants and plant produce at the ports of entry and exit; award scholarships for the study of Plant health services or any other related subject which the Board of Directors considers to be of benefit to the study of plant health; enforce standards for good husbandry and the control of pests and diseases; develop and implement standards on both imported and locally produced seeds; approve all importation and exportation licenses for plants and seed issued by the Ministry responsible for Commerce and Industry before such importation is implemented; implement the national policy on the introduction and use of genetically modified plant species, insects and micro-organism in Kenya; establish posts at convenient locations for quarantine, inspectorate and quality control of fertilizer and seed, and monitor agricultural inputs and their environmental effects; establish strong linkages on collaboration with various local and international governmental organizations so as to execute its tasks more professionally; and award scholarships for the study of

Plant health services or any other related subject. The Board of Directors of KEPHIS formulates policies through its two committees namely the Finance & Administration, and Technical Committees.

8.3 Department of Fisheries

The Department of Fisheries under the Ministry of Livestock and Fisheries undertake regulations and standards for fish. The fish processors have formed an umbrella organization, the Association of Kenya Fish Processors and Exporters of Kenya. The role of the Association is to ensure that the stipulated standards, regulations and code of conduct are followed. The Fish Inspection and Assurance Unit (FIAU) ensure that the standard of the exported fish is attained (refer to Annex 1 and 2).

8.4 Department of Veterinary Services

The DVS under the Ministry of Livestock Development has the responsibility to oversee the provision of statutory disease control, vaccination, vaccine production, tick control, artificial insemination, diagnosis, meat inspection and clinical services. Of late, the non-governmental organizations in collaboration with public animal health personnel are assisting in the provision and delivery of inputs and animal health services. Community based animal health services have been introduced where members of the community identify some individuals to be trained as paravets. The Paravets help in attending to cases in their immediate neighbourhood and can keep some essential drug supplies for emergencies. They report their activities to veterinarians located at specific areas. This has enhanced the availability of services.

8.5 Ministry of Health

The department is the main custodian of formulating provision for securing and maintaining of health. The role of the department include ensuring protection of foodstuffs including regulation governing buildings used for storage of foodstuff; maintaining of public health for meat, fish etc

8.6 Other stakeholders

There are many other stakeholders involved Some of these include (see Figure 1): Ministry of Agriculture and Ministry of Livestock Development and Fisheries (The Department of Veterinary Services and the Department of fisheries), Fresh Produce Exporters Association of Kenya (FPEAK), Kenya Agricultural Research Institute (KARI), Export Promotion Council (EPC), Kenya Plant Health Inspectorate Services (KEPHIS), Pest Control Product Board (PCPB), Kenya Bureau of Standards (KEBS), Kenya Industrial Research and Development Institute (KIRDI), Universities, Ministry of Environment and Natural Resources (MENR), Ministry of Roads and Public Works(MoR&PW), Ministry of Trade and Industry; Kenya Marine and Fisheries Research Institute (KEMFRI), Association of Fish Processors & Exporters of Kenya (AFIPEK), Ministry of Information, Transport and Communication (MoIT&C), regional Development Authorities and Local Authorities.

8.7 Laboratory Services

For the laboratory analyses of pesticides residues, the following laboratories are employed: Laboratory of Government Chemist (This laboratory is the official laboratory for forensic analyses. The Director of the Institution is the Chief Chemist of Kenya) and Laboratory of Kenyan Bureau of Standards (KEBS). The Kenya Industrial Research and Development Institute (KIRDI) and the Universities also offer laboratory services.

9 BOTTLENECKS IN FOOD QUALITY AND SAFETY

There are a number of constraints to the development of the fruits and vegetables, beef and fish sector.

9.1 *The Fruits and vegetables sector*

Although Kenya has favourable climatic conditions with equitable temperatures throughout the year, inadequate infrastructure and in particular poor access roads to the production areas and to the market; insufficient and yet expensive electricity; inefficient railway system are major hindrances to the development of this sector. Other constraints include (1) Low quality produce and low yields leading to high production costs (2) High cost of farm inputs, including seed, fertilizer and chemicals (3) Insufficient horticultural services, ineffective extension messages and poor delivery system and adoption of fruit and vegetable technologies (4) Poor post-harvest handling leading to post harvest loss (6) Un-streamlined marketing channels and exploitation of farmers by the middlemen, and (7) Lack of adequate market promotion.

The industry is faced by the following threats: (1) The expiry of the Lome Convention may affect the present competitiveness of the industry (2) the MRL (Maximum Residue Limits) on vegetables and fruits – requires more attention (3) Competition from other countries for market share, offering new varieties of traditional Kenyan products – e.g. French beans. (4) Lack of investment by Kenyan growers/exporters in European Union standard packhouses for supermarkets, mainly due to duty/VAT constraints in Kenya on imported equipment required for cool chain and (5) Airfreight rates from other countries lower than from Kenya.

9.2 *The fish sector*

The following are the main bottlenecks facing the fishing industry in Kenya: (1) Ecological changes in the trophic structures with the introduction of exotic fish species, e.g. Nile Perch in Lake Victoria (2) Over-fishing as a result of using unauthorized fishing gears and methods e.g. trawling and poisoning (3) Changing in water quality and chemistry (anoxic conditions, eutrophication, algal blooms etc) due to pollution, siltation, etc (4) Lack of statistical information on fish stocks (resource valuation) (5) Loss of valuable biodiversity (reduction in number of species, population sizes of endemic fish species and decrease of several stocks) (6) Urbanization and agricultural expansion leading to loss of critical habitats e.g. wetlands, mangroves, estuaries and lagoons (7) Invasive alien species e.g. water hyacinth and salvinia, resulting in disruption of breeding grounds, interference with light penetration, dissolved oxygen, fishing, fish transportation, and harbouring of disease vectors (8) Underdeveloped landing beaches and exclusive fish farming zone not developed (9) Lack of credit to the stakeholders (10) Limited trained manpower (11) and Inadequate funding for research

9.3 *The beef sector*

A number of challenges face the beef sector in Kenya. They include: (1) Major shifts from beef to dairy production and cropping activities constrain growth in the sector. (2) Disease is a major issue in beef production. Tick borne diseases such as East Coast Fever (ECF), Red water and Anaplasmosis cause mortality due to prevalence of Rinderpest and Tsetse (3) Slaughter facilities are generally located far off production points. Those available are small in size and capacity thus only suited to meet demand for consumption within their locations. Most animals from these production zones are exported to major consumption towns notably Nairobi and Mombasa. There is need to encourage development of modern slaughter facilities closer to production points as this would stimulate better producer prices and lead to farm level investments in industries related to beef and beef products. The planned revival of the KMC will be a big boost to the beef sector (4) The level of infrastructure development is poor. This increases transaction costs substantially (5) The major by-products of beef include hides and skins, blood and bones. The quality of hides and skins is poor due to flaying cuts, tick marks, indiscriminate branding and slaughter of immature, sick and emaciated animals. Blood

and bones are not processed. This leads to loss of revenue for the producers, traders and the nation (6) Pastoralist keep animals for provision of food (milk), as a source of wealth and for prestige. Beef is a by-product from livestock in pastoralist traditional production systems. Commercialization of livestock (beef) production would hinder provision of mainstream products. The need for milk and prestige coupled with lack of alternative economic activities necessitates every household member to keep some livestock (7) Producers (small scale) lack information on price and price shifts in forward markets. They do not know prices fetched by animals in markets. Traders (first level), however, have access to such information, which they use against the producers by providing them with asymmetrical information. (8) Genetic Material Ownership Rights and Markets: Boran, an economical beef producer is indigenous to Kenya. This breed is desired in many parts of the world and there is a huge market for the genetic material. Current embryo exports are well below the market potential. (9) Post liberalization beef markets operate without policy guidelines and are characterized by market failures that work to erode farm level incomes. The marketing system operate without structures to promote beef products (locally and in external markets) and that which can cushion farmers from mortality and weight losses to drought and diseases both of which are factors that cannot be exclusively controlled at farm level. There is a need for a regulatory body to manage the sub-sector and channel investments towards beef production (10) Re-entry into the export market is constrained by certain factors. These include; lack of disease control programs, poorly finished stock and testing facilities, and (11) inadequate research funding

9.4 Cross cutting constraints in the three sectors

Generally, the following constraints are cross cutting: - (1) poorly developed infrastructure (2) Inadequate trained manpower on food safety and quality and also for bargaining (trade negotiations) (3) Underdeveloped marketing information systems – market prices and prices, the supply and demand dynamics (4) Information gap:- Inadequate/lack of information on the expectation of the requirements by the consumers and especially on the expected standards. It is only a small group of farmers who exports are aware (5) Lack of regulatory body, especially in beef (6) Management of pests and diseases (7) Lack of knowledge flow through the supply chain (8) High cost of farm inputs, including seed, fertilizer and chemicals (9) Un-favourable terms of trade, (10) Lack of organized marketing system for beef sector, (11) Lack of research funding, among others.

10 MARKET TRENDS ON FRUIT, FISH AND BEEF PRODUCTION AND CONSUMPTION

10.1 Fruits and vegetables

Production trends

The total area under horticultural crops is currently estimated at about 275,000 hectares of which 82,000 hectares are under vegetables, 93,000 under fruits, 98,000 are under potatoes while 11,400 hectares are planted to flowers. Production of horticultural crops has grown tremendously over the years. In 1978, horticultural produce was 0.5 million tonnes and this increased to 3.2 million tonnes in 1998. Out of the 0.5 million tonnes, 250,000 tonnes are supplied to processing factories and about 90,000 tonnes to the export market and the rest sold in the fresh local market. In 1997, the horticultural sub-sector generated KShs.49 billion of which KShs.35 billion was from locally marketed produce and KShs.14 billion generated from the export market. In the year 2000 approximately 3.0 million tonnes of horticultural crops valued at Kshs. 45-50 billion were produced of which, 99,211 tonnes of fresh produce valued at Kshs. 13.9 billion were exported while 250,000 tonnes were processed.

The industry provides employment and plays an important role in poverty reduction by providing food and income to small-scale farmers. The major horticultural crops (fruits and vegetables) for both local and export markets include:- fruits (banana, citrus, mango, avocado, passion fruit, pawpaw, pineapple, apples) and vegetables (cabbages, kales, tomatoes, onions, carrots, peas, chilies, brinjals,

okra, karela, dudhi, ravaya and indigenous vegetables). They are exported to Holland, Italy, United Kingdom, France, Switzerland, Germany, Belgium, Denmark, Sweden, Spain, Norway, Portugal, Austria, South Africa, Qatar, UAE, Dubai, Seychelles, Bharain, Saudi Arabia and Kuwait.

Marketing trends

Particular market gains have been achieved in the European Union. Currently, the UK is the principal market, taking a 34 per cent share of total exports, followed by the Netherlands on 31 per cent, France 15 per cent and Germany 5 per cent. Kenya ships 80% of its vegetables and fruit by air and 20% by sea. The overall trend is one of expansion in vegetable exports, boosted by increased emphasis on specialty and prepared lines. Sendings of French/Bobby beans rose by 28 per cent, okra by 21 per cent and sugar snap peas/snow peas by seven per cent. Further expansion is forecast. In the five-year period to 2003, exports of French beans are expected to increase by 24 per cent, babycorn 36 per cent and snowpeas 30 per cent. Bobby beans, sugarsnap peas and prepacked beans have also been earmarked for expansion. Currently, the largest vegetable exports by volume are French beans, followed by Asian vegetables and snow peas (Table 1). Figure 2 shows the normal channel of Kenya horticultural export produce. A typical flow of produce and the traders involved is highlighted in Figure 3.

Table 1: Major vegetable production /forecasts 1999 – 2003 (tonnes)

Commodity	1999	2000	2001	2002	2003
<i>Asian vegetables</i>	7,366	7,366	7,919	8,315	8,730
<i>Beans</i>					
- Bobby	371	389	419	440	462
- Canned	8,143	8,753	9,410	9,880	10,374
- French	27,729	29,116	31,299	32,864	34,507
- Frozen	500	550	591	621	652
- Prepack	627	690	741	778	817
<i>Okra</i>	2,758	2,895	3,113	3,268	3,432
<i>Peas</i>					
- Sugarsnap	1,237	1,361	1,463	1,536	1,613
- Snow	2,357	2,593	2,787	2,926	3,073
<i>Others</i>	337	388	417	438	459

Source: Adapted from Okado (2003)

In 1999, Avocados sendings rose to 45 per cent to 9,233 tonnes, of which eight per cent were channeled to the UK. Mangoes, 59 per cent increase in sendings to 3,995 tonnes and passionfruit 46 per cent to 932 tonnes, with volumes to Britain put at 300 tonnes and 443 tonnes, respectively (Table 2). The transport logistics for mangoes, avocados and pineapples has changed from air to sea transport, with bulk deliveries at competitive prices.

Table 2: Major fruit production/forecasts 1999 –2003 (Tonnes)

Commodity	1999	2000	2001	2002	2003
Avocados	9,233	10,156	10,918	11,463	12,037
Macadamia Nuts	810	851	915	960	1,009
Mangoes	3,995	4,794	5,153	5,411	5,681
Passion fruits	932	978	1,052	1,104	1,160
Pineapples	67,070	70,424	75,705	79,491	83,465

Source: Adapted from Okado (2003)

10.2 The Fish sector

Production and marketing

The average production of fish and fishery products in Kenya is 170,000 metric tons per year, valued at about KSh 6.5 billion (\$83 million). Over 120,000 tonnes (70 per cent) of the total annual catch goes to the export-based fish processing industries. Nile Perch fillets constitute over 80 per cent of exports. There are about 40,000 fishermen, mainly artisanal, employing about 11,000 fishing boats, both in marine and inland waters. About 92 per cent of the total catch (approximately 160,000 metric tons) valued at KSh 6.2 billion is landed by fishermen from Lake Victoria. Marine fishery contributes about 7,000 tons while fish farming 0.5 per cent of the total production. The rest come from the other lakes, rivers and dams. Kenya has 12 nautical mile (nm) of territorial waters, producing approximately 715 metric tons of crustaceans and molluscs annually. An average of six modern fish vessels trawl for prawns in the territorial waters. The Exclusive Economic Zone (EEZ) consisting of 200 nm is least utilized and generally exploited by foreign vessels that pay royalties to the government (Table 3 and 4)

Table 3: National fish landings and the corresponding export data 1990 – 1999

Total national annual production				
Year	Quantity (M.Tons)	Value ('000 Kshs)	Quantity (M.Tons)	Value ('000 KShs)
1990	201,780	1,810,631	12,464	658,662
1991	198,637	1,812,523	11,474	658,700
1992	163,139	3,443,588	11,762	658,662
1993	183,091	3,765,681	15,351	1,445,641
1994	202,865	3,967,690	12,903	1,278,781
1995	193,789	5,204,309	12,052	1,492,432
1996	180,354	6,562,782	18,892	3,426,023
1997	161,172	4,630,761	16,937	2,975,675
1998	172,937	5,221,211	14,912	2,534,896
*1999	167,601	6,793,785		

* Data should be treated as preliminary

Source : Statistics Section - Fisheries Department

Table 4: Fresh water and marine fish catches by species, weight and value (1995 – 1997)

Fresh Water	1995	'000 Kshs	1996	'000 Kshs	1997	'000 Kshs
	M. tons.		M. tons.		M. tons.	
Alestes	23	247	26	206	130	2247
Bagrus	127	1,302	157	1,207	206	3470
Barbus	248	2,659	294	2,472	234	2431
Black bass	9	561	15	1,136	7	664
Clarias	574	13,156	405	10,453	2,049	9,620
Rastrineobola	56,827	740,747	49,670	713,758	40,318	531,094
Labeo	605	6,395	1,462	11,191	1,227	12,538
Haplochromis	4,822	90,187	3,914	78,789	2,454	49,216
Lates niloticus	102,546	3,315,503	97,145	4,786,009	73,549	242,815
Momyrus	141	3,275	113	2,735	53	1,484
Protopterus	408	11,523	199	6,850	1,704	8,521
Schilbe	25	633	21	545	20	673
Synodonts	28	785	24	651	398	14,349
Tilapia niloticus	12,363	393,088	10,903	397,851	13,953	501,307
Tilapia others	7,568	200,832	7,720	184,452	20,371	574,104
Trout	190	40,850	11	1,337	65	16,250
Cray fish	20	2,339	13	1,185	24	1,635
Carp	717	25,413	360	7,059	227	4,817
Eels	0	18	2	105	3	70
Sardines	0	9	2	32	1	18
Unspecified	533	5,918	2,332	111,722	949	11,981
TOTAL	187,774	4,855,440	174,788	6,319,745	157,942	433,795
Marine fish						
Dermsal	2,170	82,045	2,296	95,407	2,117	89,229
Pelagic	972	42,465	1,000	46,508	936	44,552
Shark/ Rays	176	5,007	191	5,681	140	4,652
Sardines	112	3,573	217	7,252	189	6,420
Commercial	373	37,259	1,690	117,221	1,774	138,878
Fishery Unspecified	862	41,165	1,187	57,647	1,006	127
TOTAL	4,665	211,514	4,891	212,495	4,388	144,980
Crustacea						
Spiny lobster	119	25,734	177	33,142	136	21,749
Prawns	207	24,279	378	42,638	491	58,414
Crabs	70	4,241	112	6,503	100	5,976
Others	59	8,138	101	12,342	109	12,921
TOTAL	455	62,392	768	94,625	836	99,060
MOLLUSCS						
Oysters	13	510	32	1,106	16	811
Squids	345	17,464	389	23,667	317	30,653
Octopus	461	48,779	117	8,122	393	33,654
Be-che-de-mers	56	8,211	15	2,827	41	8,826
Others			84	5,358	115	11,091
TOTAL	875	74,964	637	41,080	882	85,035
TOTAL MARINE	5,995	348,870	7,986	465,421	7,880	516,953
GRAND TOTAL	193,769	5,204,310	182,774	6,785,166	165,818	4,854,907

10.3 The beef sector

Production and market trends

The estimated livestock populations for the 1999 were: cattle, 12-13 million; sheep, 8.2 million; goats, 10.5 million; pigs, 0.3 and poultry, 20-25 million. The livestock population statistics in Kenya is summarized in Table 5.

Table 5: Livestock Production Statistics

Production	1994	1995	1996	1997	1998
Meat Production					
- Beef Production	220,000	245,000	252,000	260,000	270,000
- Mutton and Chevron Production	70,000	69,800	79,050	82,200	7,800
- Pork Production	4,000	4,300	4,900	4,980	4,900*
- Poultry Meat Production	13,900	17,370	18,117	18,672	19,227
Milk Production (Million (lt.))	2,368	2,362	2,272	2,449	2,500
Wool Production (MT)	643	1,929	1,198	1,970	22,029*
Honey Production (MT)	17,259	18,908	19,071	19,803	20,400
Hides and Skins Production (Pieces-'000)	5,387.50	4,733.61	5,451.67	6,287.60	4,906.83
Eggs (Billion)	0.981	1.09	1.12	1.14	1.19

Source: Adapted from Kilungo and Mghenyi(2001)

The total meat production statistics in the country account for only 70% of the meat production in the country, originating from food animals slaughtered and inspected by Ministry of Livestock Development and Fisheries (Table 6).

Beef production fluctuates between 230,000MT and 350,000MT in the last five years. The total demand for beef in the country was estimated in 2000 at 336,000 tonnes. Beef in Kenya is produced mainly by pastoral and small-holder systems and a few commercial farms and ranches. The small-holder and pastoral ranches supply over 70% of the total beef consumed in the country. The main meat products are carcass beef, processed (conned) beef, beef extract, sausages and edible offals. The market in Kenya is dominated by large private abattoirs handling a total of 1000 to 1200 heads of cattle per day in Nairobi alone (Table 6).

Kenya's quota under the 1979 EU/ACP agreement is 142 tons. The country has not maintained a disease free zone. Kenya has continued to be licensed under UK and may regain the quota if the conditions are complied with. Other ACP countries have taken up the quota.

Table 6: Annual National Slaughter Figures

Year	1993	1994	1995	1996	1997	1998
Cattle	568,951	464,747	446,345	424,010	391,229	383,038
Sheep	133,160	156,202	130,178	154,887	157,999	129,524
Goats	155,260	161,897	158,964	190,820	206,074	153,926
Pigs	63,289	9,705	80,855	91,388	93,912	87,438
Poultry	2,518,738	2,270,839	2,566,413	3,034,352	2,688,825	2,562,469
Camel	3,857	1,619	1,583	1,671	1,551	1,153
Game	1,485	2,963	3,309	3,359	2,113	1,879

Source: Adapted from Kilungo and Mghenyi(2001)

According to Kilungo and Mghenyi (2001), there is an elaborate livestock marketing system for cattle and beef in Kenya. They fall into three main market system:- (1) *primary markets*: comprising of local herders while the main buyers are other producers, local butchers and small-scale "itinerant" traders; (2) the *secondary markets*: dominated by local herders and small-scale "bush" traders. The main buyers are butchers and larger and more established traders, and (3) the *terminal markets*: dominated by the *traders*, while the main buyers are traders and butchers. Figures 4 shows the present cattle and beef marketing system

11 ORGANIC FARMING IN KENYA

A number of public and private organizations have introduced organic farming in the country. The Ministry of Agriculture is working hand in hand with other development partner to implement policies that emphasizes organic farming.

12 NICHES AND OPPORTUNITIES IN THE ESTABLISHMENT OF THE FOOD AND QUALITY NETWORK

12.1 Coordination and establishment of linkages

Partnerships are key to the delivery of food safety education programs. These partnerships are varied and can include public and private players (government ministries, Community based Organizations (CBOs), NGOs, Churches, industry groups. More specifically, food producers, consumer groups, public health officials, and State and local offices. One way of doing this would be to establish comprehensive database of food safety and quality. Where such information is not available, the government, industry, academia, etc can provide it.

12.2 Publicity

Different stakeholders, e.g. KEBS, Research Institutions, Universities, NGOs and Regulatory bodies could also play a role in educating the consumers on the importance of food quality and safety standards. Educational materials, e.g. publications, brochures, fact sheets targeting the consumers could also be made available and distributed during seminars, workshop, and farmer's field days and the Agricultural shows. Production of quarterly/half yearly or yearly newsletter on food safety educational programs and materials as well as emerging science concerning food safety risks could also be initiated. This could be distributed throughout the country including public health offices, extension educators, schools, industry, and consumer groups. Web-based consumer information could also be encouraged.

12.3 Organic farming

Lately, there has been a shift towards organic farming by many NGOs. They are encouraging more and more farmers to practice organic farming. There is a move towards putting up policies in place for granting official organic certification. Without certification, foods cannot be marketed or sold as premium organic products. One way of recognizing the important role organic farming play in the production of safe and quality food is to institutionalize the organic farming in Kenya. It is only by doing so that the country will be able to gain full access to the lucrative overseas market for organic food.

12.4 Availing storage and processing facilities

Another important area that the stakeholders in safety and quality food products need to focus on is that of availing storage facilities. This requires capital investment in both rural and urban areas. Such facilities would be useful in reducing losses to farmers.

12.5 Market access

For the beef industry, more effort will be required to put in place mechanism for ensuring that the country retains the beef quota to EU countries. The country will need to enforce policies that encourage trade in vegetable and fruits, fish and beef products. The country continue to benefit from special access and duty reduction programmes at regional markets (EAC and COMESA), through the ACP/COTONOU Agreement, Africa Growth and Opportunity Act (AGOA); and Generalised System of Preference (GSP).

12 CONCLUSION

More resources are required for human and institutional development so as to build the capacities of the Country to that of the EU countries in as far as the three sectors are concerned. In particular, there is need to direct resources to research geared toward developing safe and quality standard infrastructure for research institutions and other government bodies. The regulations and standards are still being enforced to meet the challenges that the consumers and governments are demanding. This therefore calls for establishment of networks to ensure maximum benefits accrue to stakeholders and the end users of the products in the long term. More effort should be channeled to ensuring that the safe and quality standards are institutionalized in both the public and private. Exchange programmes should be initiated within the project to enable researchers visits countries to familiarize themselves with what happens in the developed countries.

Appendixes

Annex 1

Details of an exporting license (HCDA license)
Policy and regulation

HORTICULTURAL CROPS DEVELOPMENT AUTHORITY

Kenya Subsidiary Registration 1995

Form 1 (Para. 4 (1))

HORTICULTURAL CROPS DEVELOPMENT AUTHORITY APPLICATION FOR EXPORT LICENCE

1. Full Name of Applicant
2. Postal Address
3. Location of premises
4. When was the exporting firm established
5. Is the Applicant registered
6. Is the Applicant engaged in any other business
7. If so give particulars :Name, Address
8. How long has the applicant been exporting fruits, vegetables and flowers?
Name and Address of your Bankers.....
9. Overseas markets supplied
10. Frequency of shipments
11. Please specify months when export will be made
12. Produce returns: January..... December

I hereby declare that the particulars which I have given are true and accurate to the best of my knowledge and belief.

Date.....

(APPLICANT)

NOTES

1. Consideration of this application will be conditional on the applicant's information which must satisfy the Authority that the applicant is capable of complying with standards of export quality as laid down in the Agricultural Produce (Export) (Horticultural Produce Inspection) Rules (Cap. 319. Sub. Leg.) and operating such methods of quality control as the Authority may from time to time prescribe. The Authority may require the personal attendance of the applicant for interview before granting a licence.
2. The exporter shall produce such documentary evidence as requested to support the statements made above.
3. Should the Authority wish to restrict the quantity of certain crops to be exported, it shall be empowered to do so by giving the exporter written notice of such restrictions.
4. An exporter shall pay all dues to the Authority before his application can be considered.
5. A licence issued under this order shall be valid for three years from date of issue.
6. The licensee will be required to present annual returns of foreign exchange remitted into Kenya against invoices.

Note:- Note elsewhere stated.

Annex 2

HORTICULTURAL CROPS DEVELOPMENT AUTHORITY

FORM 2
(PARA. 4(20))

APPLICATION FOR EXPORT LICENCE FOR TH YEARS.....

Name of Applicant

(a) List of Shareholders/Directors, their citizenship and percentage shareholding for each.

NAME	CITIZENSHIP	% OF SHARES
------	-------------	-------------

(b) Location of offices including telephone, fax numbers.

Location _____ Tel: _____ Fax: _____

(c) Overseas markets to be supplied and terms of payment. _____

Specify the prices by the customers _____

(d) Name and Address of your Bankers _____

(e) Frequency of shipments and estimates requirements for cargo capacity for the period of export.

(f) Types and quantity of produce intended for export _____

(g) Main sources of supply for produce and whether from small holders or large scale farms.

(h) Arrangements made in order to meet the quality specifications for the produce in accordance with agricultural produce (Grading of fruits and Vegetable for Export)

Rules (Cap 319, Sub Leg.)

HORTICULTURAL CROPS DEVELOPMENT AUTHORITY

(i) Price contracts with farmers for the various types of produce

(j) All agreements entered into with farmers are to be attached to the application.

FOR OFFICIAL USE ONLY

Approved/Not Approved

Chairman/Marketing Committee

FIGURE 1: HORTICULTURAL TRADE POLICY PROCESS IN KENYA

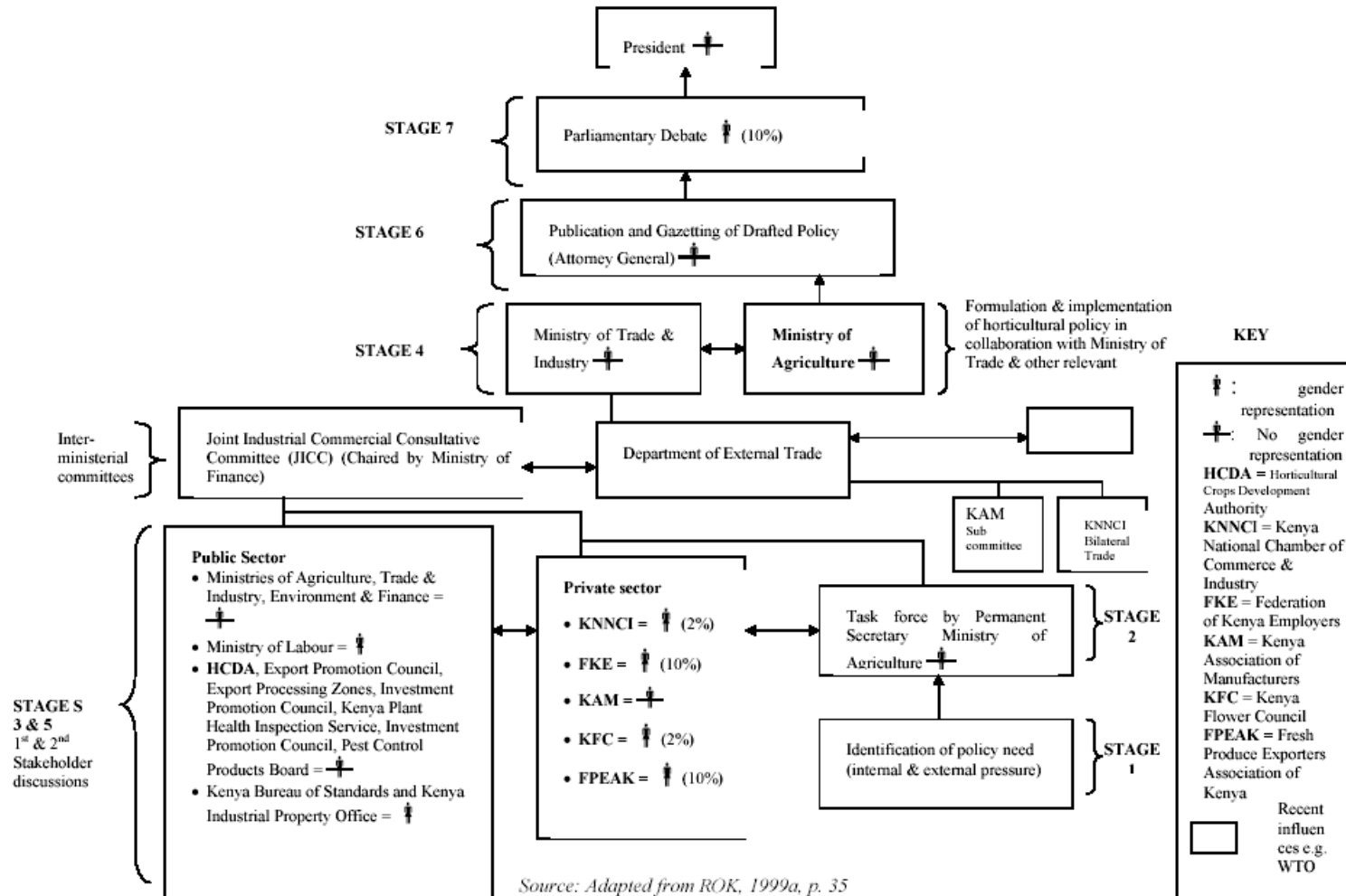
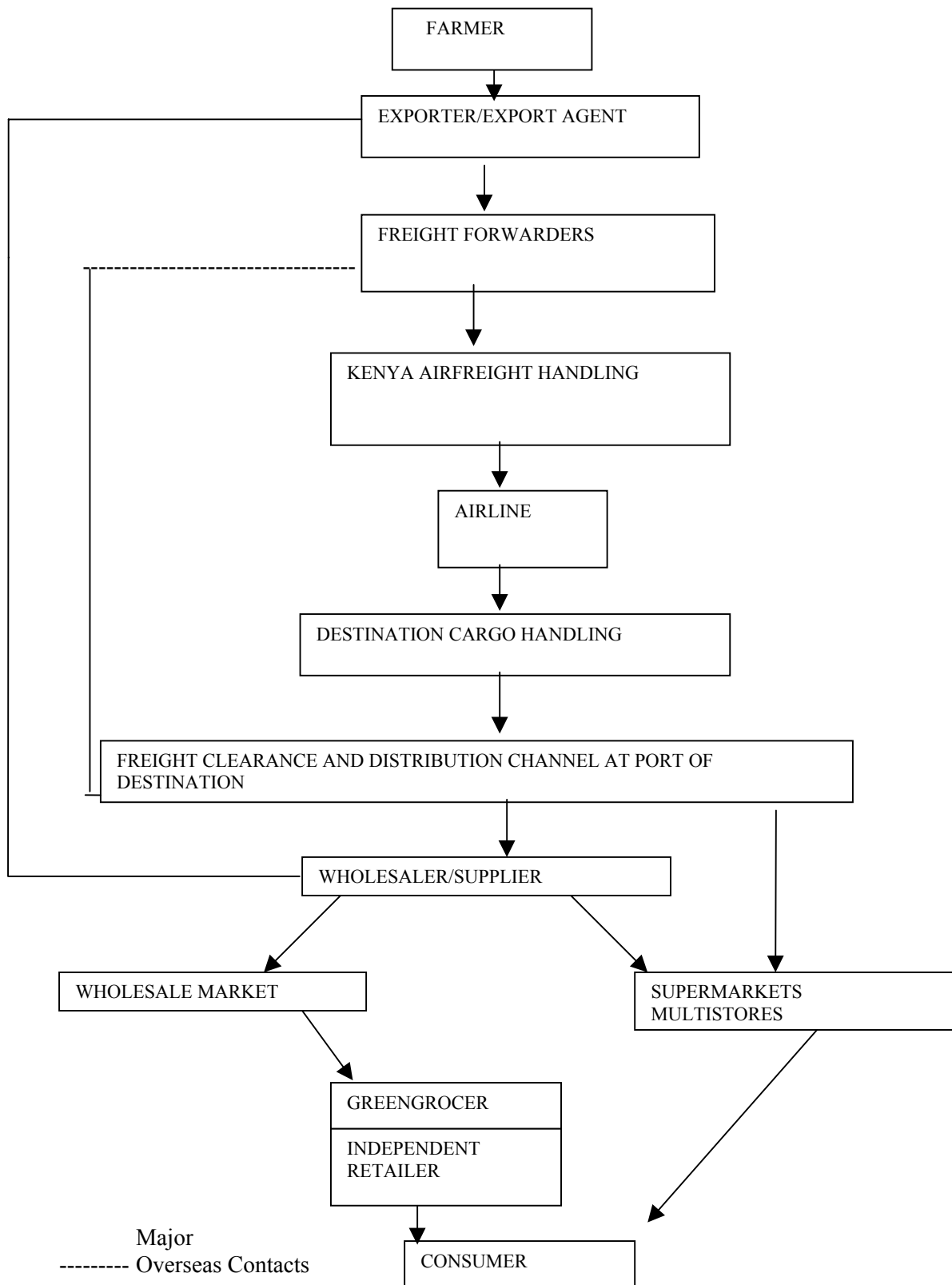
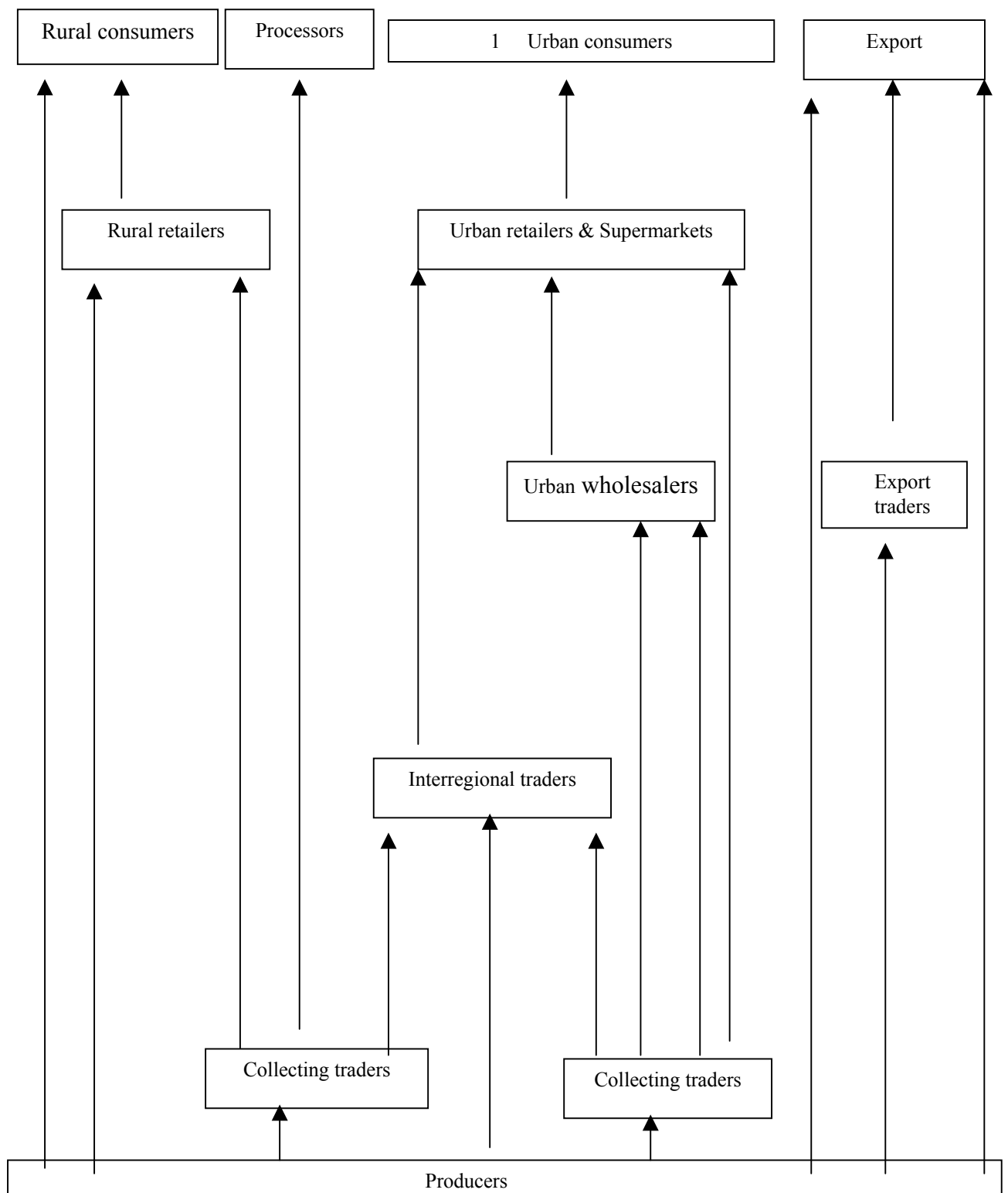


Figure 2 A normal channel of Kenya horticultural export produce



Source: Adapted from Okado (2003)

Figure 3 A typical flow of produce and the traders involved



Source: Adapted from Okado (200)

Annex 3: The Fisheries (Fish Quality Assurance) Regulations, 2000

THE FISHERIES ACT (Cap. 378)

APPLICATION FOR CERTIFICATE OF COMPLIANCE WITH KENYA STANDARDS FOR FISH HANDLING AND PROCESSING. THE FISHERIES (FISH QUALITY ASSURANCE) REGULATIONS, 2000

- (1) I/We hereby apply for a certificate of compliance with Kenya Standards for handling and processing of fish and products.
- (2) (a) Name of applicant (b) Mailing address
(c) Location I.R. No Street (d) (i) Town (ii) District
(e) (i) Description of premises and details of processing (ii) Capacity of the factory/vessels
(iii) Previous certificate of compliance No
3. (a) Other than processing of fish for which this application is made, are you involved in any other processing of fish and fishery products? Yes/No
(b) If answer to (a) above is yes, please specify the nature and type of processing
(c) Do you intend to process fish for local or export market?

Kenya Subsidiary Legislation, 2000

- (d) If answer to (c) is export, please specify the countries you wish to export to
- (4) Details to be supplied by corporate body applicants.
(a) (i) Name of company
(ii) Number of certificate of incorporation of the company.....
(please attach copy)
(b) State:
(i) Nominal shares of the company
(ii) Issued shares
(c) Details of directors:

<i>Name</i>	<i>Nationality</i>	<i>ID/No. No. of Shares</i>
	<i>Citizenship</i>	<i>P/No.</i>
- (5) Details for mode of transport of fish and fishery products. (a) Specify the form of transport to be used
(b) If mode of transport if own vehicle, state
(i) Make (ii) Registration mark and No (iii) load capacity
(c) If fish processing is vessel, state:
(i) Name of vessel
(ii) Type of vessel.....
(iii) Type of hullGeneral length
(iv) Registration No District of Registration Registration tonnage
(v) Prime mover.
(vi) Engine type

Kenya 'Subsidiary Legislation, 2000

- (vii) Intended fishing area Target fish species.....
Intended processing
Number of processing equipment including other details
- (d) Details of the crew (Attach crew list showing nationality)
- (6) I/We declare that, the particulars and information as supplied by me/us herein are true, accurate and correct in every respect. I/We understand clearly that discovery of any false information provided by me/us will render this application invalid.
- SignatureDate
- Name (of signatory) : Position (in business)

OFFICIAL USE ONLY

Application approved/not approved

Reasons/conditions

Director of Fisheries/Authorized Fish Inspector

Annex 4: Kenya Subsidiary Legislation, 2000

FORM DF/CCI
(r8(3))

THE FISHERIES ACT (Cap. 378)

**CERTIFICATE OF COMPLIANCE WITH KENYA STANDARDS FOR FISH HANDLING AND PROCESSING
THE FISHERIES (FISH QUALITY ASSURANCE) REGULATIONS, 2000**

1 (a) Name of processor/company

(b) Address

(c) If a company, registration certificate No

2 Location of the processor/company

District Division/Town

Location Village

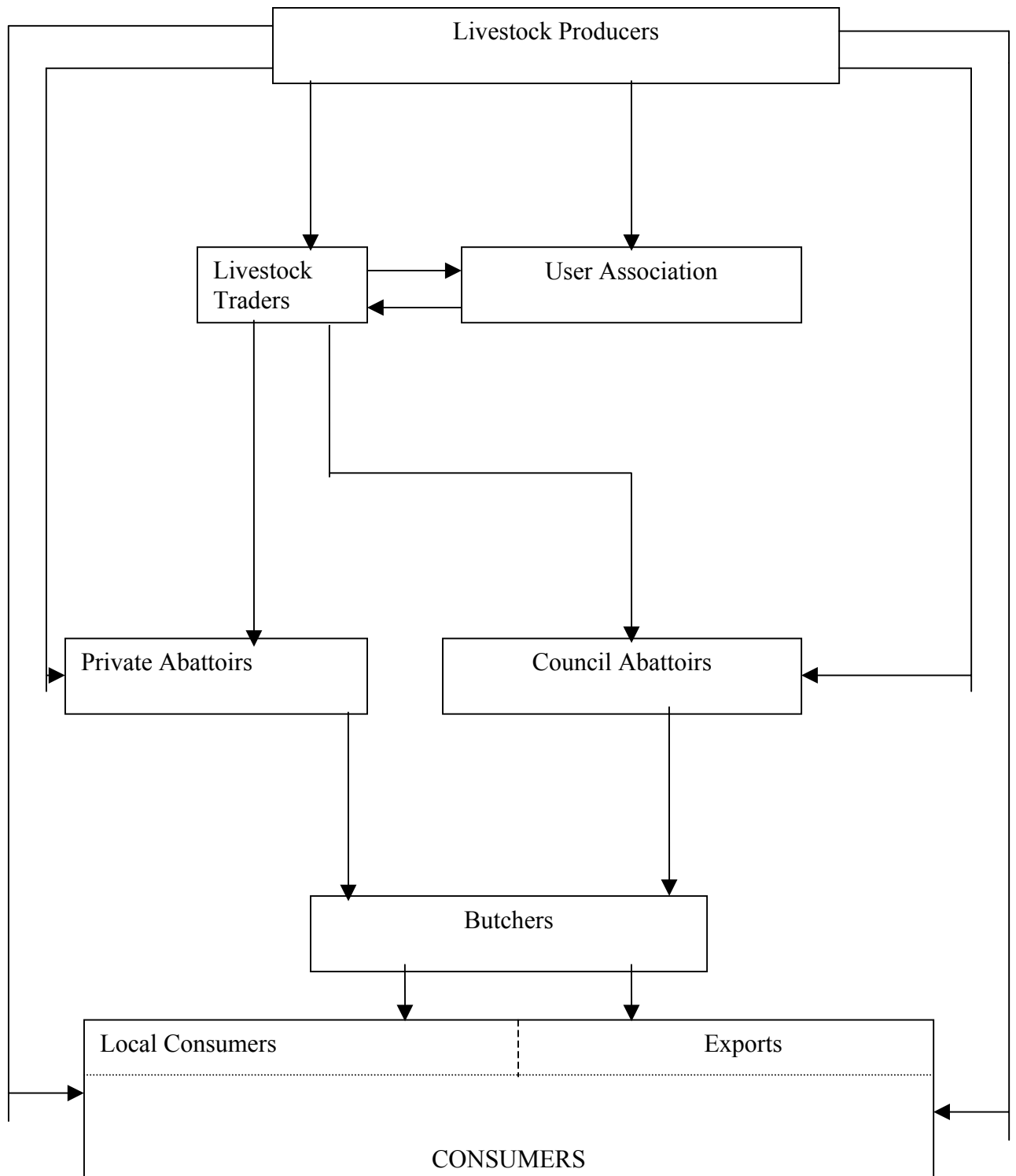
Has complied with Kenya Standards for fish handling and processing and is hereby authorized to handle/process fish and fishery products as per schedules in these regulations for the purpose of placing on the marketing/export subject, to the following conditions:.....

Fees paid Date of Issue

Certificate of compliance No

*Authorized Fish Inspector,
for Competent Authority.*

Figure 4 Current Marketing System for Cattle and Beef in Kenya



Source: Adapted from Kilungo and Mghenyi (2001)