Ministry of Agriculture and Irrigation
Ministry of Transport and Infrastructure Development

DATA COLLECTION SURVEY ON BLUE ECONOMY IN THE REPUBLIC OF KENYA

Final Report

June 2018

Japan International Cooperation Agency (JICA)

Nippon Koei Co., Ltd.
The Overseas Coastal Area Development Institute of Japan
IC Net Limited

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KES 1	= JPY 1.05874,	JPY 1	= KES 0.945
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Source: JICA HP

List of Abbreviations

Abbreviation	Official Name
ACP	African, Caribbean and Pacific
AfDB	Africa Development Bank
AMGECO	African Marine and General Engineering Co. Ltd.
AU	African Union
BMU	Beach Management Unit
CBD	Convention on Biological Diversity
CBO	Community Based Organization
COMESA	Common Market for Eastern and Southern Africa
CSP	Country Strategy Paper
DFID	Department for International Development
DPME	Department of Planning, Monitoring and Evaluation
EA	Environmental Audits
EAC	East Africa Community
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EIU	Economic Intelligence Unit
ERS	Recovery Strategy for Wealth and Employment creation
ESP	Economic Stimulus Program
ESS/MSS	Employee/Manager Self Service
FAO	Food and Agriculture Organization of the United Nations
FSCM	Financial Supply Chain Management
GDP	Gross Domestic Product
GoK	Government of Kenya
HVHD	High Volume High Density
ICD	Inland Container Depots
ICMS	Integrated Customs Management System
ICT	Information Communication Technology
ICZMNP	Integrated Coastal Zone Management National Plan
IFC	International Financial Corporation
IGAD	Intergovernmental Authority for Development
IMO	International Maritime Organization
INMP	Integrated National Maritime Policy
IORA	Indian Ocean Rim Association
IUU	Illegal, Unregulated and Unreported
JICA	Japan International Cooperation Agency
JKIA	Jomo Kenyata International Airport
JKUAT	Jomo Kenyatta University of Agriculture and Technology
KAA	Kenya Airports Authority
KAIST	Kenya Advanced Institute of Science and Technology
KEFRI	Kenya Forest Research Institute
KeNHA	Kenya National Highway Authority
KFS	Kenya Ferry Services Ltd.
KFS	Kenya Forest Service
KICD	Kenya Institute of Curriculum Development
KMA	Kenya Maritime Authority
KMFRI	Kenya Marine and Fisheries Research Institute
KNBS	Kenya National Bureau of Statistics
KNEC	Kenya National Examination Council
KNSL	Kenya National Shipping Line
KNTB	Kenya National Tourism Blueprint
KOT	Kipevu Oil Terminal
KPA	Kenya Port Authority
KRC	Kenya Railways Corporation

Abbreviation	Official Name
KTB	Kenya Tourism Board
KTF	Kenya Tourism Federation
KWS	Kenya Wildlife Service
KWTA	Kenya Water Towers Agency
LAPSSET	Lamu Port Southern Sudan-Ethiopia Transport
LVBC	Lake Victoria Basin Commission
LVHD	Low Volume High Density
MEA	Multilateral Environmental Agreement
MET	Maritime Education and Training
MICE	Meetings, Incentive travel, Conventions and Exhibition
MOAI	Ministry of Agriculture and Irrigation
MOEF	Ministry of Environment and Forestry
MOTW	Ministry of Tourism and Wildlife
MOTID	Ministry of Transport and Infrastructure Development
MPA	Marine Protected Area
MPDP	Mombasa Port Development Project
MSC	Mediterranean Shipping Company
MTP	Medium Term Plan
NDP	The National Development Plan
NEMA	National Environment Management Authority
NEMO	National Environmental Management of the Ocean
NGO	Non-Governmental Organization
NITA	National Industrial Training Authority
NVOCC	Non-Vessel Operating Common Carrier
OE	Ocean Economy
OECD	Organizations for Economic Co-operation and Development
OP	Operation Phakisa
OSBP	One Stop Border Post
PES	Payment for Environmental Service
PIL	Pacific International Lines
PSP	Private Sector Participation
RAP	Resettlement Action Plan
RTI	Railway Training Institute
RTO	Regional Tourism Organization
SAR	Search and Rescue
SATREPS	Science and Technology Research Partnership for Bio-resources
SDMSA	State Department for Maritime and Shipping Affairs
SDT	State Department for Transport
SEA	Strategic Environmental Assessment
SECO	Southern Engineering Co. Ltd.
SEZ	Special Economic Zone
SGDs	Sustainable Development Goals
SGR	Standard Gauge Railway
SMSP	Seychelles Marine Spatial Planning
SRM	Supplier Relationship Management
STCW	Standards of Training, Certification and Watchkeeping for Seafarers
STD	State Department for Transport
SWIOFish3	Third South West Indian Ocean Fisheries Governance and Shared Growth Project
TEUs	Twenty-foot Equivalent Units
TMEA	Trademark East Africa
TNPA	Transnet National Ports Authority
TUM	Technical University of Mombasa
UNCSD	Rio+20 Nations Conference on Sustainable Development
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
UNEP	United Nations Environment Program

Abbreviation	Official Name
WB	World Bank
WTO	World Trade Organization

Summary

1 Objective

1.1 Objective of the Survey

The objectives of the Survey are as follows:

- Confirming the definition and scope of Blue Economy in Kenya, (fisheries, shipping/maritime affairs, port infrastructure, environment, tourism development).
- Collecting and analyzing development policy, current situation, previous assistance, and challenges in Kenya regarding Blue Economy.
- Discussing possibility of policy development related to Blue Economy, which was implemented in the past and to be implemented in the future.

The Survey will be carried out in the following areas: Nairobi, Mombasa (Coastal Area), and Kisumu (Lake Victoria Area).

1.2 Survey Methodology

The Survey is conducted through document collection and analysis and interview with concerned agencies and persons in the Blue Economy-related fields. Documents and information are gathered from the website and also from agencies related to Blue Economy sector. Interview is conducted with government organizations, universities, international partners, community groups, and the private sector.

The result of the Survey was presented at a workshop by inviting organizations and persons who provided information and who accepted the Japan International Cooperation Agency (JICA) Study Team for interview. Comments from the workshop were integrated in the Final Report.

2 Blue Economy in General

2.1 Definition of Blue Economy

The Blue Economy incorporates ocean values and services into economic modeling and decision-making process. At the core of the Blue Economy concept is the de-coupling of socio-economic development from environmental degradation. To achieve this, the Blue Economy approach is founded upon the assessment and incorporation of the real value of the natural (blue) capital into all aspects of economic activity.

2.2 Coverage of Blue Economy in Kenya

Kenya's Blue Economy includes: maritime transport, fishing, aquaculture, tourism, shipbuilding and repair, maritime education and training, marine cargo logistics, maritime law, safety and security, marine salvage, international shipping, transport, energy, bio-prospecting, offshore mining, marine bio-technology, blue data, aqua-business, cargo consolidation, marine insurance, bunkering, ship handling, port agency, port related services, water sports, as well as marine and maritime governance.

Fisheries, shipping and maritime affairs, port infrastructure, tourism and environment are the core sectors in Blue Economy.

2.3 Kenyan Efforts for Blue Economy Implementation

(1) Kenya Vision 2030

The aim of Kenya Vision 2030 is to transform Kenya into a new industrializing "middle-income country providing high quality of life to its citizens by 2030". The vision is based on three main pillars: the economic, the social, and the political. Blue Economy belongs to the Economic Pillar.

The Third Medium Term Plan (MTP III) (2018-2022) (draft) to achieve Kenya Vision 2030 is prepared for each sector.

(2) MTP III (Draft): Blue Economy

The Blue Economy is an independent sector in MTP III (draft), which is considered as preparatory stage of implementation (plan, database, organization, standard), and covers fisheries, aquaculture, tourism, logistics, shipping and maritime affairs, transport, port, environment.

(3) MTP III (Draft): Infrastructure

MTP III (draft) infrastructure covers aviation, shipping and maritime affairs, railway, road, road safety, public transport, and energy. Most of the flagship projects are also included in the Blue Economy sector (shipping and maritime affairs, transport).

(4) MTP III (Draft): Tourism

Beach resort, safari, tourism product development, tourism development/marketing, and capacity development are covered in the MTP III (draft). Beach tourism is one of the priorities in tourism development.

3 Fisheries

3.1 Current Situation

The fisheries sector in Kenya can be summed up as follows:

- It is observed that inland fisheries of both aquaculture and fishing industry are more developed than marine fisheries;
- It is observed that inland fishing industry is more developed than inland aquaculture;
- Decrease in fish catch of inland capture fishery has an enormous negative impact on total national fish production;
- Production of inland aquaculture remains at the same level in spite of some efforts for development.

(1) Marine Capture Fisheries

Imperatively, it is salient to note that despite the increase in marine fishing efforts, the fish catch for marine fisheries has remained constant with a flat stagnant growth.

(2) Inland Capture Fisheries

Despite the fact that fish catch in the Lake Victoria has remained at the same level, fishing efforts have been increasing as noted by Kenya Marine and Fisheries Research Institute (KMFRI) Kisumu Center.

(3) Inland Aquaculture

The production of inland aquaculture was only around 1,000 MT in the early 2000s and it has sharply increased by 2,400% to 24,096 MT due to the Economic Stimulus Program (ESP)'s activities in 2014. However, it has decreased by 36% from the peak in 2014. The production is unstable.

It is imperative to note that for the last two to three years, fish cage culture in Lake Victoria has been growing rapidly.

(4) Marine Aquaculture

The production remains only at 100 MT/year with species such as milkfish and marine tilapia. Aquaculture operation fully depends on wild-caught fry and juveniles.

(5) Others

The existence of extruders, which has made it possible to produce floater feeds, is an added advantage to accelerate aquaculture development in Kenya. However, the number of fish farmers who use domestic feeds is still limited because, quality-wise, domestic feed is inferior to imported feed.

Postharvest losses are mainly caused by poor preservation systems or cold chain systems. Technical development and promotion for value addition are not effectively carried out. A campaign for "Eat more fish" has been suspended since the end of ESP's activities.

3.2 Challenges

(1) Challenges in Marine Capture Fisheries

- **Limited Data/Information on Potentials of Offshore Fishing**: Efforts toward encouraging private enterprise to venture in offshore fishing have been hampered by limited or very few access by private enterprise to a more accurate and persuasive data/information on feasibility and potentials of offshore fishing in the exclusive economic zone (EEZ) and thus making it difficult to convince these private enterprises to invest on offshore capture fisheries.

- **Inadequate Fisheries Port Infrastructure and Related Facilities**: Kenya Law has a mandatory requirement of at least 30% of catch by foreign fishing vessel in EEZ to land in Kenya; however, there is no fish landing in Kenya by these foreign fishing vessels because of the lack of adequate fisheries port and related facilities.

- **Challenges of Beach Management Units:**
  - Fish catch remains at the same level;
  - Fishing gear and craft/boat are not affordable for local people;
  - Facilities in landing site are poor;
  - Technique and vessel are not available for offshore fishing; and
  - Capacity of Beach Management Units (BMUs) is not sufficient to manage and implement activities, according to officers of county fisheries and regional Kenya Fisheries Service (KFS).

- **Insufficient Capacity for Management of Marine Resources in Shore Area**: The livelihood of majority of residents in the coastal regions is derived from fishing and fish trading which

implies importance of the management of coastal and marine resources for improving coastal communities' livelihood.

(2) Challenges in Inland Capture Fisheries

- **Insufficient Management of Natural Resources in Lake Victoria**: Fish catch in the lake drastically declined in 2000s and has remained at the same level for some years despite the increased fishing efforts. This is a clear indication and evidence of decreasing natural resources in the Lake Victoria.
- **Difficulty of Livelihood**: Income per capita has also been decreasing because fish catch has declined while fishing efforts have increased. However, majority of fishermen still depend on capture fisheries as source of their livelihood and this is due to lack or less diversification in the streams of income sources.
- **Challenges of BMUs**:
  - Fish catch remains at the same level;
  - Facilities in landing site are poor;
  - Capacity of BMUs is not sufficient to manage and implement activities, according to officers of county fisheries and regional KFS.
- **Propagation of Water Hyacinth:** Abnormal propagation of water hyacinth in Lake Victoria hinders fishing in the lake. It blocks access of fishing boats to beaches and fishing grounds. It also gives a negative impact on breeding grounds of aquatic life.

(3) Challenges in Inland Aquaculture

- **Technical Challenges after ESP**: Decrease in earthen-pond production after ESP is attributed to limited supply of quality and affordable feed and fingerlings. This is coupled with the issue of water-holding capacity of earthen pond. It is imperative to note that most of earthen ponds are operated by smallholding farmers who cannot afford constructing liner pond.
- **Insufficient Capacity of Inland KMFRI**: KMFRI has capable staff and researchers for technical research and development. However, it is worthwhile to note that practical technique and experience, which are more production-oriented and business-oriented, are still not sufficient to enhance further research and development. It is also salient to note that KMFRI has basic infrastructure for research such as laboratory, equipment, facilities, pond, and tank. However, it was observed that some of these facilities have deteriorated due to wear and tear from long-time usage.
- **Insufficient Capacity for Extension Service Works**: It was also noted that KMFRI plays a role as technical resource while KFS are responsible for management of extension services. Yet some of the fish farmers that the JICA Survey Team interviewed do not seem to understand the governance structure of the extension services system that serves them.
- **Hatchery-Produced Fingerling Unsuitable for Grow-out Pond**: It is observed that fingerlings fed with imported feed in hatchery show less appetite to domestic feeds, which is not rich in attractant, after the fingerlings are stocked in grow-out ponds. Grow-out pond farmers, therefore, tend to use imported feeds to maintain a good appetite of reared fish. It results to high production cost.
- **Risk of Intensive Floating Net Cage Culture in Lake Victoria**: Floating net cage culture has been rapidly developed in Lake Victoria for the last two to three years. The system of cage culture is technically termed as Low Volume High Density (LVHD) method, in which cage is comparatively so compact (30 m^3 at largest) that huge volume of new water can flow into an LVHD cage to maintain suitable water quality such as dissolved oxygen. The stocking density

is very high, ranging from 350 inds/m^3 to 400 inds/m^3. It is imperative to note that LVHD method is a high-risk, high-return practice with a high risk of i) fish disease, ii) deterioration of lake environment, and iii) unsustainable operation.

(4) Challenges in Marine Aquaculture

- **Delay in Marine Aquaculture Development**: There has been some progress in the freshwater aquaculture while marine aquaculture development has generally lagged (State of aquaculture in Kenya 2017). It is due to delay in technical development of i) hatchery production and ii) grow-out production that are essential for a sustainable aquaculture business.
- **Insufficient Capacity of KMFRI Mombasa**: KMFRI has capable staff and researchers for technical research and development. However, it is worthwhile to note that practical technique and experience, which are more production-oriented and business-oriented, are still not sufficient to enhance further research and development.

(5) Other Challenges

- **Feed Development**: A decline in pond-based fish production since 2015 is attributed to less access to quality and affordable domestic feed. It was observed that there were indeed many fish farmers who use imported feed for their pond operation. However, it was also noted that the number of farmers who use domestically-produced feed has been increasing due to improved quality of domestic feeds which are produced by extruder machines that are able to produce floater fish feed.
- **Distribution and Value Addition**: It is imperative to point out that much of the postharvest loss cannot be avoided in most cases due to the poor fish preservation system, or even lack of fish preservation system. Value-added product may contribute to reduce the postharvest loss but technical development and promotion for value addition are not effectively carried out.

3.3 Countermeasure

(1) Countermeasure for Marine Capture Fisheries Development

- **Capacity Building for Data/Information Collection on Potentials of Offshore Fishing**: More scientific and persuasive data/information regarding the feasibility/potentials of offshore fishing should be shared with enterprises/private sector to encourage them to invest in offshore fishing as a promising profitable venture. It is important for KMFRI Mombasa to enhance technical capacity for data collection and analysis.
- **Fisheries Ports and Related Facility**: Fisheries ports and related facilities once in place will play an important role in marine fisheries development for medium- and long-term objective.
- **Capacity Building of BMUs**: It is postulated that when capacity of county offices of fisheries is developed cumulatively, the capacity building of BMUs will also be carried out effectively.
- **Resource Management and Diversification of Fishers' Livelihood**: Balanced management of inshore resources with fishing practice should be enhanced by promoting: i) healthy fishing practice, ii) restocking, iii) artificial reefs, and iv) marine aquaculture. It is prudent to note that effective management of marine resources is a key to enhancing the livelihood of fishermen who are currently suffering from dwindling fish catch.

(2) Countermeasure for Inland Capture Fisheries Development

- **Resource Management and Enhancement of Livelihood of Fishers in Lake Victoria**: Effective management of natural resources including environmental measure should be exercised through i) appropriate and healthy fishing practice, ii) protection of breeding ground and iii) restocking and aquaculture. It is noteworthy to point out that effective resource management in the lake is a key to enhancing the livelihood of fishermen who are currently suffering from decline in fish catch.
- **Capacity Building of BMUs**: It is imperative to enhance management capacity of county offices of fisheries, which will ultimately enhance the capacity building of BMUs to be carried out more effectively.
- **Reduction of Water Hyacinth**: Effective law and policy on sewerage system and usage of non-phosphorylated detergent were promulgated and this was highly effective in mitigating against eutrophication in many water bodies.

(3) Countermeasure for Inland Aquaculture Development

- **Capacity Building of Inland KMFRI**: The technical capacity of KMFRI staff should be enhanced and this will lead to a spiral effect that will also raise the technical capacity of the entire extension officers and fish farmers. Moreover, the facilities and equipment of KMFRI need to be renovated for further research and technical practice.
- **Enhancement of Extension Services**: The linkage between research, extension services, and management can be enhanced by i) technical capacity building of researchers and extension officers, ii) clarification of roles for each players and the entire system of extension services, and iii) securing resources and budget for extension officers and their activities.
- **Usage of Domestic Feed for Hatcheries and Grow-out ponds**: It is necessary to promote usage of domestic feeds for hatcheries production so that fingerlings from hatcheries may feed on domestic feeds after stocking in grow-out ponds. Quality of domestic feeds should be improved to make hatcheries producers use the feeds. Among sub-sectors of aquaculture business, such as hatchery producers, fish farmers, feed producers, and distributors, each sub-sector should complement each other's function/business to establish a sustainable business of aquaculture.
- **Monitoring of Intensive Floating Net Cage Culture in Lake Victoria**: LVHD method of floating net cage culture should be practiced under the close monitoring and surveillance by KMFRI Kisumu.

(4) Countermeasure for Marine Aquaculture Development

- **Technical Capacity Building of KMFRI Mombasa**: Technical capacity of KMFRI Mombasa staff will be enhanced and it will lead to spiral effect in raising technical capacity for the entire extension officers and marine aquaculture farmers.
- **Infrastructural Capacity Building of KMFRI Mombasa**: Mariculture Research Center (tentative name) planned by KMFRI Mombasa once in place will play a significant role in marine aquaculture development. The center aims at i) technical development of seed production including selective breeding of marine tilapia, ii) seaweed culture including processing and marketing, iii) technical development and demonstration of grow-out pond management, iv) resource management, and v) education/training for extension services.

(5) Countermeasure for Others

- **Feed Development**: Although KMFRI develops technology of feed manufacture, to foster the private sector, the institute may evaluate/check domestic feeds produced by private companies that are currently trying to develop affordable and quality feeds. The feed evaluation can be conducted practically by using experimental tanks and ponds located within the perimeters of KMFRI.
- **Distribution and Value Addition**: It is necessary for BMUs as representatives of fishers i) to enhance their capacity to coordinate with buyers and distributors to improve preservation system of processed products and ii) to produce processed products such as sun-dried, smoked, salted and fried fish which may reduce the loss. Fish farming can also mitigate loss because in the case of fish farming, there is least postharvest loss due to short process/time from harvest to buyers/middle men/transporter**s.**

4 Shipping and Maritime Affairs

4.1 Development Plan and Strategy

Integrated National Transport Policy 2009 covers comprehensive area for improvement in maritime transport, inland water transport, and human resource development in maritime. MTP III was recently drafted as the Blue Economy Sector Plan 2018-2022.

The following maritime policies are included as “flagship programs”:

- Upgrading Bandari College
- Revival of Kenya National Shipping Line
- Localization of Marine Cargo Insurance

The following maritime policies are included as “other programs”:

- Enhancement of inland water maritime transport
- Development of shipbuilding/repairing and container repairing
- Development of coastal shipping

4.2 Responsible Organizations

The State Department for Maritime and Shipping Affairs is responsible for promotion of maritime and shipping industry in Kenya. The department is also responsible for ship and seafarer registration together with maritime human resource development.

Kenya Maritime Authority (KMA) is a regulator of maritime affairs to control maritime safety and security, registration, and certification of ships and seafarers. Coordination and regulation for orderly development of maritime affairs are other areas of core function of KMA.

4.3 Current Situation

(1) Maritime Education and Training

Major maritime education and training institutions in Kenya are Jomo Kenyatta University of Agriculture and Technology (JKUAT), Technical University of Mombasa (TUM), and Bandari College. They are equally facing difficulty to find opportunity for onboard training.

(2) Shipping

Kenya National Shipping Line (KNSL) is the shipping line of Kenya funded by the government. The line is currently in space charter arrangement with a European shipping line.

(3) Shipbuilding/Repairing and Other Maritime Related Industries

Two private companies provide shipbuilding/repairing service in Mombasa. The government recently enacted localization of marine cargo insurance. Through this arrangement, it is expected that local insurance underwriters will expand their business and contribute to the national income.

4.4 Challenges

(1) Maritime Education and Training

The opportunity of onboard training is definitely in short supply for the students who complete the shore-side training. Teaching quality of instructors at training institutions is insufficient. Training equipment at training institution is insufficient. There is no training ship in Kenya.

(2) Shipping

KNSL is not in sound financial situation. It needs government's support to revitalize the line's activities. In addition, shipping and maritime policy is outdated.

(3) Shipbuilding and Repairing

Shipbuilding and repairing industries in Kenya should work to make their position stronger in the market. Sales promotion activities towards possible customers would be the next step.

(4) Other Maritime Industries

Localization of maritime cargo insurance would certainly bring back insurance premium income to Kenya. The government should be cautious not to harm the sound business relations between Kenyan traders and their foreign counterparts.

4.5 Priority Areas for Implementation

(1) Establishment of New Marine Policy

About ten years elapsed since the prevailing maritime policy was established. It would be the proper time to review the current situation and establish the new maritime policy to guide the future development of maritime sector in Kenya.

(2) Maritime Education and Training

1) Opportunity for Onboard Training

Coordinated efforts among the concerned parties should be continued to find more onboard training opportunity. KMA plays core part of the efforts.

2) Improvement of Teaching Quality of Teachers

Two measures to improve teaching quality of teachers:

- Send teachers to training courses abroad
- Invite teaching supervisors/advisors from abroad

(3) Shipping

1) Regional Container Service

- Practical first step to re-establish Kenyan merchant marine.
- The ship can be used as training ship (cargo cum training ship concept).

2) Participation to Bulk Shipment

- Look for the possibility in bulk shipping field.

5 Port Infrastructure

5.1 Overview of Kenyan Ports

Kenya has seaports facing the Indian Ocean and inland ports facing Lake Victoria. The existing Mombasa Port and Lamu Port, which is under construction, will be the main seaports for Kenya and others are small ports. Although Kisumu Port was active to connect railway cargos and shipments, the amount of cargo is currently getting low.

Mombasa Port is a point of origin of the Northern Corridor which covers Uganda, Rwanda, Burundi, South Sudan, and Congo. Lamu Port is located as a gateway of Lamu Port Southern Sudan-Ethiopia Transport (LAPSSET) which passes through Ethiopia and South Sudan.

5.2 Governmental Organizations In-charge

(1) State Department for Maritime and Shipping Affairs (SDMSA), Ministry of Transport and Infrastructure Development (MOTID)

The Ministry of Transport and Infrastructure Development (MOTID) is responsible for the performance of port system, legal framework of ports, guidelines, international cooperation in transportation, international rules (such as IMO's ISPS code), and coordination of economic policies such as Kenya Vision 2030.

The following are the main port infrastructure-related development policies in the MOTID:

- **Kenya Vision 2030**
  Port-related sectors are: i) integrated port system, ii) ferry services, iii) supporting KMA through ICT technology, and iv) equipment to enhance maritime training capacity.

- **Integrated National Transport Policy, 2009**
  In response to Kenya Vision 2030, this is a policy paper on transport sector covering all transportation fields in general including maritime affairs.

- **MTP III (Draft) Infrastructure Sector Plan**
  Port-related descriptions in the MTP III (draft) are shown below.
  i) Overview of maritime:
  Main projects are Mombasa second container terminal development, Dongo Kundu SEZ (Mombasa SEZ), modernization of ferry facilities, and improvement of single window system.
  ii) Dredging and widening of Mombasa Port:
  Berthing of post Panamax vessels and create a two-way traffic
  iii) Second container terminal:
  Development of a new container terminal and installation of new handling facilities to improve current cargo handling capacity
  iv) Development of Berth No. 19:
  Improvement of amount of handling cargo

(2) Kenya Port Authority

Kenya Port Authority (KPA) is an organization for managing and operating Kenya's coastal ports and lake ports including Mombasa Port. In addition, it manages Inland Container Depots (ICD) (Embakasi, Eldoret, Kisumu).

5.3 Current Status of the Existing Ports

(1) Mombasa Port

Mombasa Port has experienced an increase in cargo throughput in recent years and the size of ships has become larger (more than 200 m). However, since the existing berths were designed to accommodate small size ships, Berth No.1-5 will be remodeled. Berth No.8-9, Berth No.12-14, and Berth No.16-19 are also in the same state, and thus, will also be remodeled.

(2) Kisumu Port

Port facilities are grouped in a wide area of land around 6 ha in size. This area includes the following:

- 262 m quay
- Rail-wagon ferry pier, including 90 m of berthing space alongside the pier, on reclaimed land, almost perpendicular to the main quay
- Warehouse measuring 50 m by 16 m on the main quay
- 3,000 m^2 paved storage area directly behind the warehouse
- Offices for the harbor master, customs, and police division

5.4 Port Infrastructure Development Plans

(1) Mombasa Port

Ongoing/planned projects at Mombasa Port are summarized in Table 5.1.

Table 5.1: Outline of Development Projects for the Mombasa Port

No.	Project	Status
1	Improvement of Gate and yards	
	Expansion of Gate 18/20	Implemented
	Conversion of Berth No. 11-14 to container terminal	Funding is secured with FIB, AFD, and EU.
2	Improvement of Berth No. 19	Implemented
3	New container terminal development	
	Phase I (Berth No. 20 and 21)	Constructed February 2016
	Phase II (Berth No. 22)	LA was signed between JICA March 2015
	Phase III (Berth No. 23)	Financial procurement is not yet ensured
4	Modernization and Acquisition of New Cargo Handling Equipment	Three gantry cranes and three mobile cranes in 2011, 12 RTGs in 2014, and 20 terminal tractors in 2014/2015 are purchased
5	Fixed Berthing Window System	Implemented on Berth No. 16-19
6	Information Communication Technology (lCT) Upgrades	Implemented
7	Upgrading of Power from 11 kV to 132 kV	Implemented
8	Implementation of Green Port Initiatives	Ongoing

Source: JICA Survey Team created based on KPA Data

(2) Others

- **Lamu Port**
  Three berths which are under construction are planned to be completed in 2020.

- **Kisumu Port**
  Project cost for the rehabilitation of Kisumu Port is estimated at KES 500 million and currently waiting for budgetary provision. The construction period is estimated for roughly 18 months.
  In addition to the plan above, there is another plan to build a new port in Kisumu. The study is being carried out by Royal Haskoning and the report is expected to come out in June or July 2018. Approximate construction cost is about KES 15 billion.

- **Shimoni Port**
  Currently, Shimoni has one pier on the coast but the cargo volume is small. However, according to the Kwale regional development plan, Shimoni Port will be used for fishing and tourism. Thus, developing Shimoni Port is considered to be a boost for the Blue Economy. A feasibility study for the Shiomi Port has been done by the Maritime and Transport Business Solutions (MTBS) and the project cost is estimated at USD 12.5 million.

5.5 Prioritized Projects in Port Infrastructure Sector

Since port infrastructure provides logistics services and functional space relating to other Blue Economy sectors, this sector supports implementation of Blue Economy development. In this perspective, the following six port infrastructure projects are listed as Blue Economy related projects:

- Improvement on operation of Mombasa Port
- Rehabilitation of shipbuilding of Mombasa Port
- Development of cruise terminal of Mombasa Port
- Development of Shimoni Port
- Rehabilitation and development of Kisumu Port
- Improvement of facilities of Bandari College

5.6 Conclusions and Recommendation

- The team observed that the KPA is assisting the Blue Economy in a timely manner.
- Since the main player of the Blue Economy is the private sector, the public sector should provide infrastructure in a timely manner.
- Among the infrastructure, piers for the small ships, open spaces for the activities of the Blue Economy, connecting road, car parking, electricity, and water supply are indispensable.
- The requests of the private sector are the most important thing to promote the Blue Economy.
- The pioneering companies should be encouraged by the support of public infrastructure.

6 Tourism

6.1 Policy of Government of Kenya

The Ministry of Tourism and Wildlife has developed the Kenya National Tourism Blueprint 2030 (KNTB 2030) to propel the tourism sector's growth. The following key points are mentioned about the product strategy:

- Kenya's core tourism experiences, which are the main drivers of tourism of Kenya, while the other experiences are secondary experiences that support the core experiences, are 1) Beach & Marine, 2) African Safari, 3) Wildlife, 4) Nature, 5) Scenic, 6) Culture & Heritage, 7) City, and 8) Business Tourism. Within the core experiences, there are some that are absolute unique selling points which set Kenya apart from any other competitive tourism destination. These are 1) Beach & Marine and 2) African Safari.
- Strategic approach toward 2030 was set with three kinds of priorities, namely: 1) Improve Existing, 2) Diversify, and 3) Maintain & Sustain. The priority 1) above is to fix and refresh existing core experiences and regions to attract more visitors in the period of 2017-2021. The prioritized experiences are Beach & Marine and African Safari, and the prioritized regions are coast and Masai Mara and Amboseli. The priority 2) above is to develop new products and markets and priority 3) is to maintain and sustain the products and regions which were covered by priority 1) and 2).

Tourism Sector Plan 2018-2022 for MTP III (draft) is a medium-term plan which is formulated for the tourism sector for 2018-2022 of Kenya Vision 2030. During the MTP III (draft), the priorities of the tourism sector are the short-term aspects of the KNTB 2030 of "Improve Existing" and partially the medium-term of "Diversify".

6.2 Challenges

The challenges to tourism development at beach, Lake Victoria, and related points covered by the national policy are clarified based on data and information collected through reports and discussion provided by relevant organizations and field survey.

(1) Beach

- **High Competition:** High competition is emerging from similar destinations in Africa. Authentic experiences including culture and heritage and diversified tourism products should

be provided. In addition, factors which deteriorate beach environment including safety issues and litters have to be improved.

- **Limited Diversification of Tourism Products**: Tourism demands have been getting diversified in recent years. Kenya's beach products have not been innovative and diversified in tandem with changing consumer needs and trends. Lack of product diversification is also disadvantageous for attracting long-term tourists and repeaters.
- **Beach Only Open to Hotel Guests**: People who do not stay at hotels along the beach have less access road to beach and no facilities like toilet and shower rooms. Most of the hotels along the beach are mainly for foreign guests and the situation generates only limited demands. Improving convenience and opening beach to local tourists will create new demands, diversification, and employment opportunities.
- **Factors Harming Beach Environment**: The beach environment of Kenya is quite nice with white sand, emerald color oceans, and a huge variety of marine life. On the other hand, there are several factors deteriorating the environment including security concerns, littered beach, and persistent local vendors. To fully utilize the nice environment, the harmful factors must be improved.
- **No Functional Beach Management Body**: No organization works for managing the entire beach at major beaches. A beach management body managing security, cleanup, lifesaving and planning entire beach activities of the area is necessary to improve convenience and environment for each major beach.
- **Insufficient Marketing and Management Skills Related to Regional Tourism**: One of the major reasons why the coastal area has not yet been able to respond to the diversification of tourism demand in recent years is that information collection and analysis for grasping the needs of tourists are not well completed. In addition to understanding the needs, it is necessary to establish a tourism strategy that responds to the needs including tourism resources other than the beach, and to work with organizations coordinating with a wide range of stakeholders to implement the plan.

(2) Lake Victoria

- **Insufficient Plan for Competitive Products and Diversification**: The Lake Victoria area has several kinds of tourism products including water activities, nature, adventure, Luo culture, and sports. The promotion of these products, however, has just begun and it will take time to foster them to attract many tourists. Strategic regional tourism policy/plan is necessary to promote the products efficiently for getting competitiveness.

(3) Nationwide

- **Threat of Security and Terrorism**: Kenya has experienced major terrorism attacks and acts of violence over the last five years. These incidences resulted in massive erosion of Kenya's brand equity because of safety concerns. The trend of these terrorist threats, however, is subject to variation and it has been largely neutralized currently.
- **Insufficient Data and Information for Tourism Planning**: Whereas tourism data and information are important for policy and management decisions, the tourism sector lacks well-coordinated tourism and information management system. According to the devolution of regional tourism management to county government, tourism data and analysis are necessary at the regional level as well as national level.

6.3 Proposed Development Policy and Priority

(1) Proposed Development Policy

To deal with the challenges above, it is necessary to focus on the following countermeasures:

1) Beach

- **Diversification of Beach Products**: Diversifying the beach product to include marine and ocean activities like cruise, boat rides, marine and beach sports (e.g., snorkeling, scuba diving, windsurfing, beach volleyball), fishing, dolphin and whale watching, is important to cater to recent diversified customer demands. In addition to the activities, developing beach facilities including restaurants and souvenir shops is important to provide various ways of spending time for tourists.

- **Development of Tourism Center**: Although several activity menus are already provided at major beaches, tourists can access the product information from limited sources like at the site, tour companies, and hotels. In promoting the diversification of tourism products in the future, a mechanism for efficiently providing information to tourists is necessary. To cater to the situation, development of tourist centers for major tourism areas is proposed, which contains information center, market, food and beverages, and event space. The creation of market will contribute to providing a work place for local vendors working at the beach currently. The centers are planned to be located near hub places where many tourists arrive at or pass through like the airport, railway stations, and hotel zones.

- **Development of Beach Visitor Infrastructure**: Opening beach to locals and those not staying at the resorts will bring several positive effects including economy expansion, job opportunity, and diversified demands. To attract domestic and regional tourists to the beach, removing obstacles and making friendly beach are crucial points. Creating beach access roads for visitors and developing beach visitor infrastructures including toilet, rest house with shower and locker rooms, and rest cottages are important.

- **Establishment of Beach Management Body**: There are currently several issues deteriorating the beach environment including security concerns, abandoned litters, and persistent local vendors. In addition, if more local visitors stay at the beach in the future, which may include some unruly customers, the environment will get worse. Beach management system must be strengthened drastically. A beach management body under the local government should be established, which manages security, cleanup, lifesaving, and planning entire beach activities of the area to improve convenience and environment for each major beach.

- **Capacity Development for Marketing and Management Ability of RTO**: In order to respond to the diversified tourism demand in recent years, it is necessary to grasp the needs of tourists, to develop tourism strategies, and implement countermeasures. According to KNTB 2030, Coast Regional Tourism Organization (RTO), including four counties of Lamu, Kilifi, Mombasa, and Kwale, has a role to establish an integrated tourism information system in the area, implement regional tourism marketing, formulate tourism strategies, and coordinate with the department. The establishment of the organization of RTO, however, has just been proposed in 2017, and support for capacity building is necessary to make it function at an early stage. It is proposed that experienced tourism experts in other countries cooperate on technology transfers to Coast RTO. It is estimated that the RTO will preferentially develop Mombasa County in the short term where existing infrastructure and markets can be used in addition to abundant tourism resources, and will preferentially develop neighboring counties that cooperated with Mombasa County over the medium to long term.

2) Lake Victoria

- **Regional Tourism Development Planning**: The Lake Victoria area has several kinds of tourism products, but most of them are located with no connection to each other. To attract many tourists, diversification and connection are the key points. A regional tourism plan is necessary to manage the regional development strategically. The responsible organization for the planning is county government or RTO.

3) Nationwide

- **Development of Tourism Satellite Account**: Tourism data and information are important for policy and management decisions. A program is proposed which will fast track and expand the on-going Tourism Satellite Account to incorporate a holistic approach that encompasses all aspects of data collection, analysis, and reporting systems for the whole tourism sector. The program will facilitate collecting information on the profile and pattern of foreign and domestic tourism expenditure and thereby create a reliable source of tourism information and statistical database. This database will contribute to regional tourism development planning for each local planning body.

(2) Priority for Countermeasures

In terms of coastal area, development of diversified products is mainly done by the private sector. In addition, it is more efficient to diversify and develop tourism products after improving the tourism industry environment. The urgent works by government are, therefore, proposed to include capacity development of RTO, establishment of beach management body, and development of beach visitor infrastructure. Especially, capacity development of RTO is a top priority. Effect and feasibility of each countermeasure will be enhanced by the function of the RTO. It is expected that these measures will promote demand and many private companies will participate in the diversification of tourism products.

7 Environment

7.1 Related Policy

The following four policies are Blue Economy-related environmental policies in Kenya. Points relating to Blue Economy are summarized below.

- **National Environmental Policy, 2013:**
  All infrastructure development projects relating to Blue Economy have to accord to this policy.
- **National Ocean and Fisheries Policy, 2008:**
  Development policy on fisheries and management policy on fisheries resources.
- **Forestry Policy, 2014:**
  Conservation of mangrove forests and ecosystem on infrastructure developments in coastal areas and lake areas.
- **Wildlife Policy, 2007:**
  The Wildlife Policy provides a framework for conserving Kenya's rich diversity of species, habitats, and ecosystems for the benefit of its people and the global community.

7.2 Related Organization

(1) Ministry of Environment and Forestry

The Ministry of Environment and Forestry (MOEF) has two specialized departments and an Administration Department. Environmental issues are treated by the Directorate of Environment, which is made up of six divisions.

(2) National Environment Management Authority

The National Environment Management Authority (NEMA) was established in 2002 to manage and regulate all environmental-related plans in Kenya. It exercises general supervision and co-ordination over all matters relating to the environment and is the principal instrument of government in the implementation of all policies relating to the environment.

(3) Kenya Wildlife Service

Kenya Wildlife Service (KWS) was established in 1990 which conserves and manages wildlife in Kenya and enforces related laws and regulations.

(4) Kenya Forest Service

Kenya Forest Service was established in 2005 which owns, manages, and protects all state forests, promotes forestry education and training, and operates the Kenya Forestry College.

7.3 Related Plan

(1) Integrated Coastal Zone Management National Plan (ICZM Plan)

The Integrated Coastal Zone Management National Plan (ICZM Plan) was formulated for the purpose of management of Kenya's coastal zone. This was at the backdrop of the need for sustainable use of Kenya's important coastal and marine resources, which are very important to the country's economy. The plan's spatial extent spans both the terrestrial areas marked by administrative districts bordering the Indian Ocean as well as Kenya's EEZ which marks the seaward extent. The ICZM Plan has been modeled around six thematic areas each with its own strategic objectives. The thematic areas include: Integrated Planning and Coordination; Promotion of Sustainable Economic Development; Conservation of Coastal and Marine Environment; Environmental Management and Risks; Capacity Building, Education, Awareness, and Research; Institutional Arrangements and Legal Frameworks.

The target area for the ICZM Plan is marked by both terrestrial and marine extent together with the interphase in between. The land area is marked by the administrative districts bordering the Indian Ocean.

(2) Marine Management Plan

The Kenya Marine Management Plan is disaggregated into three plans based on the marine protected areas found along the Kenyan coast. The three disaggregated plans include Kisite-Mpunguti Marine Area Protected Plan which runs from 2015-2025; Malindi Marine Protected Area Management Plan and Watamu Marine Protected Area both running from 2016-2026. All three Marine Protected Area Management Plans cover Kenya's territorial waters.

The target area for the three Marine Protected Area Management Plans is the Kenyan marine national parks and marine national reserves including islands, biodiversity reserves together with their connected areas, and cultural and historical sites.

(3) Forest Management Plan

The forest management plan is mainly geared towards sustainable management of mangrove forests and to ensure benefits to the surrounding communities. There are two forest management plans for two forest ecosystems along the Kenyan coast. These are the Kilifi Zone Mangrove Area Participatory Management Plan and the Vanga, Jimbo, and Kiwengu Mangrove Forest Reserve Participatory Forest Management, which address mangrove forest ecosystem in Kilifi and Kwale counties, respectively. Issues are being addressed by forest conservation.

The target area for the forest management plans is community forests, which are utilized for traditional or cultural use, reserved forests, and the ecosystem.

7.4 Challenge

The environmental sector is needed to harmonize with other sectors to implement Blue Economy projects. Since environmental-related regulations are regulated and required plans are mandated by NEMA, the development projects have to accord with the regulation and the plan. The following items are challenges in the environment sector to implement Blue Economy development:

- Human resources to implement ICZM Plan (both of the national government and local government)
- Data sharing of marine resources among stakeholders

7.5 Priority Areas to be covered in Blue Economy

The outline of the areas related to Blue Economy is mentioned below.

(1) Capacity Development to Implement ICZM Plan

- In Kenya, NEMA was established as a management authority for all environmental issues and the role and institutional framework are clear. However, to implement related plans such as ICZM Plan, collaboration with local institutions or other related organizations and capacity development are required.

(2) Development of National Maritime Spatial Plan

- Although some of the information about coastal and maritime resources is gathered in the Marine Management Plans by KWS, it is also required to develop the National Level Maritime Spatial Plan and database linking energy, industry, government, conservation, and recreation.

8 Countermeasures for Challenges of Blue Economy

The focus of countermeasures for each sector is proposed as shown in Table 8.1.

Table 8.1: Focus of Each Sector

Sector	Sub-sector	Countermeasures
Fisheries Sector Fisheries	Marine Capture Fisheries	・ Offshore fishing: Strengthening of data collection of fisheries potentials for promotion of private sector investment and fisheries-related facilities including ports. Management and control of foreign vessels fishing ・ Inshore fishing: Resource management for enhancing livelihood of fishers in coastal regions through capacity building of BMUs and county fisheries.
	Inland Capture Fisheries	・ Resource Management in Lake Victoria including environmental management ・ Reduction of water hyacinth ・ Enhancing livelihood of fishers ・ Capacity Building of BMUs and County Fisheries
	Inland Aquaculture	・ Capacity building of Inland KMFRI ・ Enhancement of extension services ・ Promotion of usage of domestic feeds ・ Monitoring, control, and technology transfer of cage culture
	Marine Aquaculture	・ Capacity Building of KMFRI Mombasa ・ Follow-up program/activities after Kenya Coastal Development Project ・ Development of Maricultural Research Center ・ Technical offers
	Others	・ Logistics improvement ・ Value added technology development
Maritime and Shipping Affairs	Establishment of New Maritime Policy	・ New Maritime Policy to foster the future maritime development
	Maritime Education and Training	・ Opportunity for onboard training ・ Improvement of teaching quality of teachers ・ Improvement of training facility including training vessels
	Shipping	・ Improve job opportunity in Kenya ・ Training on domestic shipping
	Shipbuilding and Repairing	・ Sales promotion activities toward prospective customers
	Other Maritime Industries	・ Review of implementation of local maritime cargo insurance
Port Infrastructure	Facility Development	・ Improvement on operation of Mombasa Port ・ Rehabilitation of ship building of Mombasa Port ・ Development of cruise terminal of Mombasa Port ・ Development of Shimoni Port ・ Rehabilitation and development of Kisumu Port
	Human Resources	・ Improvement of facilities of Bandari Collage
Tourism		・ Capacity Development for Marketing and Management Ability of RTO ・ Beach management body establishment ・ Development of tourism center along the coastal area ・ Development of tourism database
Environment		・ Capacity Development to implement the Integrated Coastal Zone Management Plan (ICZM Plan) ・ Development of Marine Spatial Plan (includes development of cross-cutting database on marine resources)

Source: JICA Survey Team

9 Proposal for Blue Economy Implementation

9.1 Challenges and Potential for Implementation of Blue Economy

Blue Economy is composed of mainly fisheries, shipping and maritime affairs, port infrastructure, tourism, and environment. Individual efforts have been made by responsible organizations. The idea of Blue Economy is to combine related sectors for economic development and job creation through securing synergy of those sectors.

Since Blue Economy was identified as a priority sector and a new concept in Kenya, Blue Economy has to be implemented in a sound manner through which synergy effect among the Blue Economy sectors has to be maximized to contribute to promote economic activity and create employment. In addition, previous sector efforts related to Blue Economy have to be fully utilized. Challenges for implementation of Blue Economy are identified as follows:

- Implementation framework of programs/projects in MTP III (draft) is not clear
- Comprehensive plan and database on Blue Economy are not available
- Organizations for implementation are not established
- Regulation and guidance on sector development are not prepared
- Human resources on implementation of Blue Economy are weak

Potential for implementation of Blue Economy is summarized below.

- Kenya already has sector-wise experiences and assets
- Current government is committed

9.2 Blue Economy Implementation Strategy

(1) Implementation Scenario

A variety of programs/projects have been identified by the Government of Kenya. In order to secure effective and efficient implementation, implementation stage is proposed, namely, short-term, medium-term, and long-term. Short-term is considered as “Preparatory Stage” in which foundation for implementation is developed. Medium-term is considered as “Launching of Implementation”. Long-term is considered as “Sustainable Implementation”. Three stages of implementation are shown in Table 9.1.

Table 9.1: Implementation Scenario

	Short Term (2018-2020) (within MTP III (draft) period)	Medium Term (2021-2022) (within MTP III (draft) period)	Long Term (2023-) (next MTP III (draft) period)
Concept	Preparatory Stage	Launching of Implementation	Sustainable Implementation
Objective	• Objective of the short term is to establish and strengthening implementation foundation. • Programs/project that are expected to contribute to promotion of economic activity and creation of employment, and goal of Kenya Vision 2030 and MTP III (draft) should be implemented in the short-term. Sector that requires long-term commitment also should start in the short-term. • Maximize previous Blue Economy related activities for economic development and job creation.	• Medium term is considered as implementation of programs/projects based on the plan and database prepared in the short-term. Some data may need to be collected further for the project impact to be more practical. • In addition, human resources development has to be accelerated through technical cooperation.	• After 2023, sustainable implementation of Blue Economy has to be secured. • Large scale infrastructure will be developed.
Strategy	• Preparation of policy and plans • Preparation of standard and guideline • Compilation of database • Implementation of projects that can utilize previous efforts related to Blue Economy.	• Intensive implementation of capacity development • Start implementing programs/projects • Preparation for a large scale of infrastructure	• Continue capacity development • Infrastructure development

Source: JICA Survey Team

(2) Sector Focus

In addition to the timeframe of implementation, sector focus in Blue Economy has to be examined. Through analysis of policy and strategy of Kenya and discussion with stakeholders, sector focus is compiled as shown in Table 9.2.

Table 9.2: Sector Focus for Implementation

Sector	Description
Blue Economy	• Foundation of Blue Economy, including plan, database, organization, standard and guidance, and capacity development has to be developed and strengthened for Blue Economy implementation.
Fisheries	• Fish landing facility for maritime fisheries is necessary. The Government of Kenya has proposed Shimoni Port and Kisumu Port. Demand and supply based on the market has to be considered for examining proper scale of the ports. • Data on resources (marine resources, inland water resources) has to be conducted to understand current situation in fisheries. • BMU and concerned departments in county government has to be strengthened for sustainable offshore fishing including resource management and increase in resources. • Inland capture fisheries development has to be implemented together with resource increase and management including environment management of Lake Victoria. • Inland aquaculture has to be strengthened through strengthening of research and development capacity of KMFRI, promotion of efficient usage of domestic feed, enhancement of extension service. • Maritime aquaculture development requires strengthening of practical skills/know-how of KMFRI and development of Mariculture Research Center (tentative name).
Shipping and Maritime Affairs	• Policy has to be updated to meet the current situation. • Training is one of the main aspects in Shipping & Maritime Affairs. • International competition with international shipping line has to be considered.
Port Infrastructure	• Development, expansion and operation of Mombasa Port have to be improved.
Tourism	• Tourism product diversification, together with fisheries and port infrastructure, has to be considered. Strengthening beach tourism is directly related to Blue Economy. • Tourism has to be coordinated with other sectors in Blue Economy.
Environment	• Environmental aspect has to be integrated in all Blue Economy activities.

Source: JICA Survey Team

10 Conclusion and Recommendation

10.1 Conclusion

In order to implement Blue Economy development, solving the challenges on Blue Economy in general is required. As for the challenges, the following items are identified in the Survey:

a) Insufficient Comprehensive Plan on Blue Economy
Kenya does not have a comprehensive development plan on Blue Economy such as i) Blue Economy Development Master Plan and ii) National Marine Spatial Plan to manage Blue Economy-related development and coordinate and implement cross-cutting projects.

b) Weak Organization to Implement Blue Economy Development
Although Blue Economy Implementation Committee was published in 2017 by the Government of Kenya, the committee is not an actual project implementation organization. Since project implementation scheme has not been announced by the committee, organization and scheme to implement Blue Economy development projects have to be formed.

c) Insufficient Regulation and Guidance on Sector Development
For instance, Shipping & Maritime Affairs sector does not have an "Integrated National Maritime Policy" as of now and the development is identified as National Flagship Projects in Kenya Vision 2030. Due to sustainable and efficient development for each sector, formation of legal framework is essential and prompt actions on this matter are needed.

d) Weakness of Human Resources on Implementation of Blue Economy Development
Human resources in both private and public sectors are weak. Capacity development such as upgrading of Bandari College to train sailors, effective utilization of Vijana Baharia Program, capacity development and revival of not well-functioning organizations, and aquaculture training for private fish farmers through KMFRI are recommended.

At the same time, Kenya has a potential to implement Blue Economy. Kenya has already sector-wise experiences and assets. Previous efforts by the Kenyan government have to be continued and utilized for Blue Economy implementation. In addition, Blue Economy has become a sub-sector of the Economic Pillars of Kenya Vision 2030 and the Blue Economy Implementation Committee was established for implementation. These assets have to be fully utilized for Blue Economy implementation.

10.2 Recommendation

(1) Blue Economy

MTP III (2018-2022) (draft) is the action plan of the Kenyan Blue Economy development. However, since this MTP is the first action plan, preparing the ground or framework for implementation of the action plan is required as a short-term action. Of outmost importance is the clarification of roles allocation, for example, who is responsible for database development as required through the Blue Economy master plan development. In addition, laws and regulations for monitoring the sector are also required.

(2) Fisheries

To improve the fisheries sector, support is needed on both hard components as well as on soft components. Since private sector participation is very critical for the implementation, the government should provide services and framework to encourage private sector involvement. The following highlights the areas noted in the study:

a) Marine Capture Fisheries Development: More scientific and persuasive data/information regarding the feasibility/potentials of offshore fishing should be shared with the private sector to encourage them to invest in offshore fishing. It is expected when fisheries ports and related facilities are established, this will play a key role in marine fisheries development in the medium and short-term objective. It is envisioned that when capacity of county offices of fisheries is developed cumulatively, this will also positively impact the capacity building of BMUs to act more effectively.

b) Inland Capture Fisheries Development: It is noteworthy to point out that effective resource management in Lake Victoria is key to enhance livelihood of fishermen who are currently suffering from decline in fish catch. It is important to enhance management capacity of fisheries county offices so as to boost the capacity building of BMUs to carry out their roles more effectively.

c) Inland Aquaculture Development: The Government of Kenya and some international donors implemented projects to increase the production in this sector. However, the aquaculture production decreased after the end of the projects. To improve this situation, technical capacity of KMFRI staff should be enhanced. This will generate a spiral effect that will also raise the technical capacity of the entire extension officers and fish farmers. Also noted in Lake Victoria, LVHD method of floating net cage culture should be practiced under close monitoring and surveillance by KMFRI Kisumu.

d) Marine Aquaculture Development: The World Bank and Food and Agriculture Organization of the United Nations (FAO) supported a program to enhance marine aquaculture; the program mainly focused at the community level. The program required high technical skills transfer. For this reason, technical capacity of KMFRI Mombasa staff will be enhanced which will have a spiral effect in raising technical capacity for the entire extension officers and marine aquaculture farmers.

e) Others: It is necessary for BMUs as representatives of fishers to: i) enhance their capacity to coordinate with buyers and distributors, improve preservation system for processed products, and ii) produce processed products such as sun-dried, smoked, salted and fried fish which may reduce the postharvest loses.

(3) Shipping & Maritime Affairs

The Shipping & Maritime Affairs sector needs the following: i) Improvement of related policies, ii) Improvement of training system, and iii) Enhancement of shipping. Regarding i) above, this will entail improvement of related policies and up-to-date policies according to the current situation must be done in the short-term. In ii), improvement of training system is also necessary to create job opportunities in foreign ships because domestic job opportunity is limited. In iii), enhancement of shipping should focus on improvement of feeder services to utilize existing resources.

(4) Port Infrastructure

Port infrastructure sector complements other Blue Economy sectors. Because Mombasa and Lamu ports are located along the international economic corridors, namely, Northern Corridor and LAPSSET Corridor, their roles on Kenya's economic growth are strategically important. Regarding Mombasa Port, although several port infrastructure improvement projects are currently ongoing and planned, improvement of port operation system is also required to fully utilize the capacity of the port. Development of Kisumu Port is also required to enhance inland shipping with neighboring countries sharing waters with Lake Victoria.

(5) Tourism

For smooth implementation of the tourism development sector, clear role demarcation between the public and private sectors is essential. Generally, because new tourism packages are developed by the private sector, then the public sector should focus on improvement of business environment for tourism to develop. Based on this observation then: i) Capacity development on marketing and management of RTO in coastal areas, ii) Establishment and capacity development of beach management unit, and iii) Development of tourism center in coastal areas, are identified as prioritized measures. Since it is considered that management ability of RTO affects other measures, capacity development of RTO is the priority of this sector.

(6) Environment

Environment management is a cross-sectoral sector. In Kenya, NEMA was established to regulate and manage all environmental-related plans and assessments. Environmental and social considerations, which are required to implement Blue Economy development, are managed under NEMA's mandate.

Kenya Forest Services and KWS are responsible for developing and managing conservation plans on protected areas in coastal and lake areas. It is recommended that coordinating with these organizations to implement, monitor, and develop database (i.e., mapping of resources, data collection, etc.) is necessary for implementing Blue Economy.

Chapter 1: Background and Objective of the Survey

1.1 Background

Out of 54 countries in Africa, 38 countries possess coastal line which accounts for 13 million km^2 of ocean areas and 240,000 km^2 of lakes and ponds area (total continent area is 30 million km^2). Utilization of water resources contributes to the economic activities in Africa and plays a significant role. The fishery sector contributes to food and nutrition, security, and employment. In addition, 90% of logistics rely on maritime transport. On the other hand, urbanization and population increase have a large impact on ocean and ocean resources. Illegal fishing and illegal transaction have negative impact on economic activity. Therefore, it is important to develop and manage the sustainability of ocean resources.

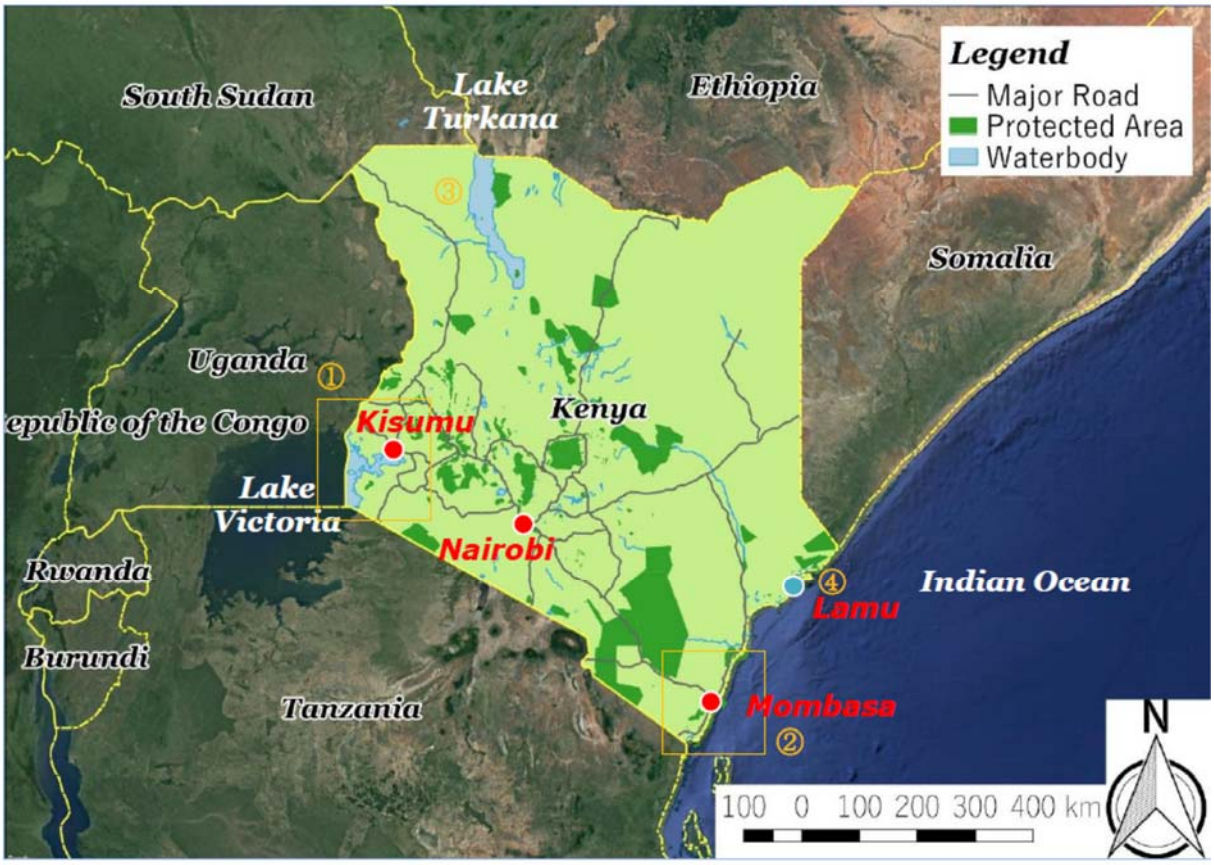
"Agenda 2063" of the Africa Union is the strategic framework for inclusive growth and sustainable development which was adopted by the African nations. Under this framework, some African nations have started preparing policy and strategies on Blue Economy adaption and implementation. These efforts also contribute to Sustainable Development Goals (SDGs), and in particular, SDG 14 which is to "Conserve and sustainably use the oceans, seas, and marine resources for sustainable development, poverty reduction, and job creation".

1.2 Objective of the Survey

The objectives of the survey are as follows:

- Confirming the definition and scope of Blue Economy in Kenya (fisheries, shipping/maritime affairs, port infrastructure, environment, tourism development).
- Collecting and analyzing development policy, current situation, previous assistance, and challenges in Kenya regarding Blue Economy.
- Discuss possibility of policy development related to Blue Economy which was implemented in the past and to be implemented in the future.

The survey will be carried out in the following areas: Nairobi, Mombasa (Coastal Area), and Kisumu (Lake Victoria Area).



Source: JICA Survey Team

Figure 1.2.1: Survey Coverage Area

1.3 Survey Methodology

The survey was conducted through document collection and analysis and interview with concerned agencies and persons in the Blue Economy-related fields. Documents and information were gathered from the internet and agencies related to the Blue Economy sector. Interview was conducted with government organizations, universities, international partners, community groups, and private sector.

The results of the survey were presented at a workshop where organizations and persons who provided information and who accepted the Japan International Cooperation Agency (JICA) Survey Team for interview were invited. Comments from the workshop were integrated in the Final Report. The outline of the workshop is summarized in Table 1.3.1 below.

Table 1.3.1: Outline of Workshop

No	Items	Explanation
1)	Time/Date	9:30-12:45, March 22, 2018
2)	Venue	Board room at Sarova Panafric Hotel
3)	Agenda	・ Opening: JICA Kenya Office ・ Report of the survey result: JICA Survey Team ・ Question and answer ・ Way forward: JICA Survey Team ・ Closing: JICA Kenya Office
4)	Participants	Total of 32 participants [Kenyan Government] ・ Ministry of Agriculture and Irrigation (State Department of Fisheries and Blue Economy)

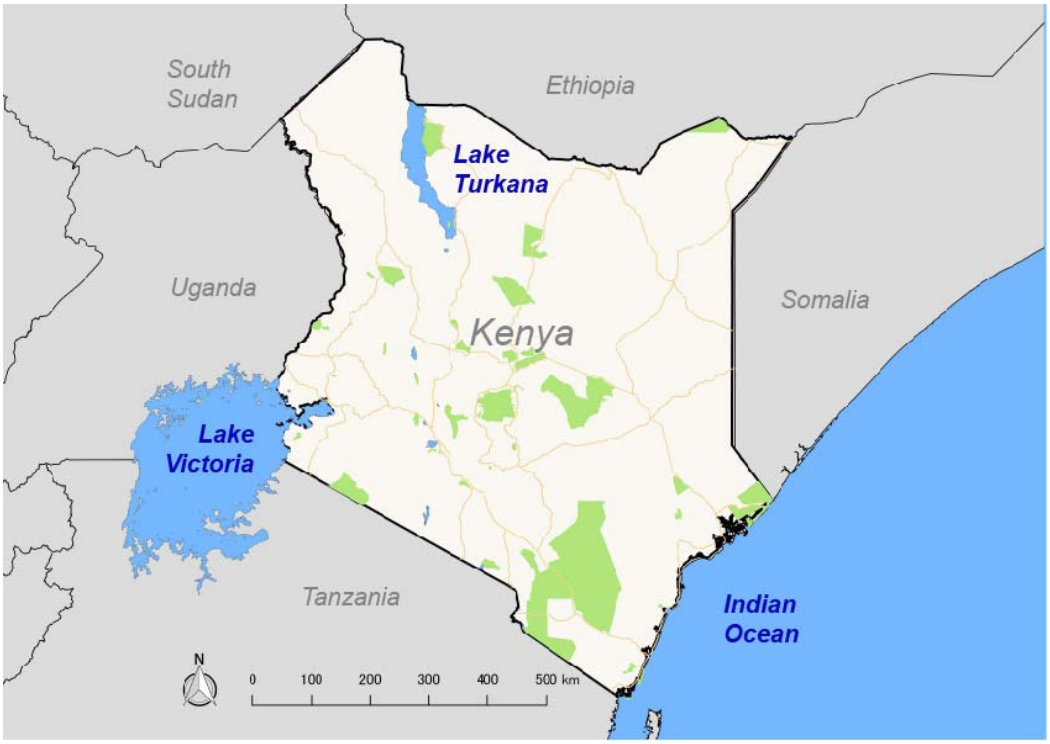
		・ Ministry of Transport and Infrastructure Development (State Department of Maritime/Shipping Affair) ・ Ministry of Tourism and Wildlife ・ Ministry of Water and Sanitation ・ Kenya Port Authority ・ Kenya Maritime Authority ・ Kenya Fishery Service ・ KMFRI ・ NEMA ・ Kenya Wildlife Service ・ Kenya Forest Service [International Partners] ・ UNEP ・ FAO ・ JICA [Others] ・ A person in-charge of Maritime, University (JKUAT)
5)	Main comments	・ How sustainability issues will be embedded in the Blue Economy agenda. In this regard, it was pointed out that the report was more prominent on the extraction side of the Blue Economy with minimal mention of how the sustainability of resources was going to be ensured. ・ How will the capacity development needs be implemented? Have they been identified and how will the needs be implemented? For instance, there is a need for capacity building in marine spatial planning. ・ Energy issues have not come out in the presentation. He pointed out that the ocean has become a frontier for green energy generation (especially solar). ・ The rehabilitation of the lake piers should be implemented within a framework of comprehensive lake development framework. ・ There is a need to support Beach Management Units along the coast. The same should apply to Community Fisheries Units. ・ Noted that Blue Economy is a multi-sectoral and therefore needs for a coordinated approach either through a ministry (perhaps Ministry of Blue Economy). Maritime security is not captured in the report. On the security issue, however, Mr. Njiru of KMFRI informed that there is a proposed bill in parliament that proposes that Kenya Navy be involved in arresting of illegal fishermen on Kenyan territorial waters. ・ The need to mainstream blue data especially in the implementation framework. Data should be reviewed and updated.

Source: JICA Survey Team

Chapter 2: General Information of Kenya

2.1 Kenya in General

Kenya, officially the Republic of Kenya, is a country in Africa and a founding member of the East African Community (EAC). Its capital and largest city is Nairobi, which is famous for having the world's only game reserve in a large city. Nairobi is the second largest city in the African Great Lakes area with 3.5 million residents. Other major cities include Mombasa (pop. 1.2 million) in the coastal region, Kisumu (pop. 400,000) along Lake Victoria, and Nakuru (pop. 300,000). Kenya's territory lies on the equator and overlies the East African Rift, covering a diverse and expansive terrain that extends roughly from Lake Victoria to Lake Turkana and further southeast to the Indian Ocean. It is bordered by Tanzania to the south and southwest, Uganda to the west, South Sudan to the northwest, Ethiopia to the north, and Somalia to the northeast. Kenya covers 581,309 km^2 (224,445 m^2) and had a population of approximately 48 million people by January 2017.[1] The country is administratively divided into 47 counties.



Source: JICA Survey Team

Figure 2.1.1: Location of Kenya

The economy of Kenya is the largest by gross domestic product (GDP) in East and Central Africa. The capital, Nairobi, is a regional commercial hub. Agriculture is a major employer, and the country traditionally exports tea, coffee, and fresh flowers to Europe.

[1] https://en.wikipedia.org/wiki/Kenya accessed 22/1/2018

2.2 Socio-economic Condition

2.2.1 Social Condition

According to the 2017 revision of the World Population Prospects, the total population was 48,461,567 in 2016 compared to 6,077,000 in 1950, and around 1,700,000 in 1900. The proportion of children below the age of 15 in 2010 was 42.5%, 54% between 15 and 65, and 2.7% were 65 years and above. World meters estimates the total population at 48,466,928 inhabitants.[2] Kenya has sustained population growth, but it has both high birth and infant mortality rates. This is consistent with other African countries. There has been marked improvement in life expectancy, particularly in recent years; for example, in 2006, the average level stood at 48.9 years; this figure rose to around 59 years in 2016.

Kenya has a very young population that has led to very rapid population growth. Almost three-quarters of the population is under the age of 30 and has grown from 2.9 million to almost 40 million people within a century. Forty-three percent of the total population is under the age of 15. With improved life expectancy and a drop in infant mortality, Kenya seems set to build on an ever increasing growth in population. By 2020, the United Nations (UN) predicts that the Kenyan population will have risen to 51.7 million.[3]

Table 2.2.1: Kenya - General Geographic and Economic Data

Items	Figure	Source
Inland water area	18,029 km^2	KNBS: www.knbs.or.ke
Marine water area (including the EEZ)	142,400 km^2	
Shelf area	19,120 km^2	UNEP (1998) **
Length of continental coastline	640 km	UNEP (1998) **
GDP at market price (2016)	KES 7,158 billion USD 70 billion*	KNBS: www.knbs.or.ke
GDP per capita (2016)	KES 157,681 USD 1,541*	KNBS: www.knbs.or.ke
Agricultural GDP (2016)	KES 2,334 billion USD 22.8 billion* 32.6% of national GDP	KNBS: www.knbs.or.ke
Fisheries GDP (2016)	KES 35.0 billion USD 342 million* 0.5% of national GDP	KNBS: www.knbs.or.ke

Note: *calculated with UN exchange rate
** UNEP, 1998
Source: JICA Survey Team

Kenya has made significant improvement on social indicators, but more efforts are required in achieving the Sustainable Development Goals (SDGs). Life expectancy at birth for Kenya was 59 years in 2015 compared to 57 years in 1999. However, this is slightly lower than the life expectancy in the EAC region at 60 years. The under-5 mortality rate per 1,000 stands at 39 according to the 2014 Kenya Demographic and Health Survey (KDHS). In 2011, the population living below USD 1.25 a day was 43.4%. Women and children constitute the majority of the most affected compared to youth and men. Kenya has a high literacy rate compared with other EAC countries and the rest of Africa. On social development, Kenya has met some of the Millennium Development Goals (MDGs) targets including reduced child mortality, near universal primary school enrollment, and narrower gender gaps in education. Devolved health care and free maternal health care at all public health facilities will improve health care and will also improve the health care outcomes.

[2] https://en.wikipedia.org/wiki/The_World_Factbook
[3] http://worldpopulationreview.com/countries/kenya-population/

2.2.2 Economic Condition

Following two decades of per capita income stagnation, Kenya's economy showed signs of revival at the turn of the century. The market reforms that began in the early 2000s released the economy's potential and GDP growth accelerated steadily from below 1% in 2002 to 7% in 2007.

Both services, modern and traditional, are behind the acceleration of growth. Between 2006 and 2013, 72% of the increase in GDP came from services. Expansion in modern services such as financial intermediation and mobile communications partly owing to innovative solutions such as M-Pesa (mobile money) stimulated demand for traditional services such as trade. Also, investment and promotion of tourism have boosted hospitality, real estate, and transport services. Re-orientation of public resources toward public and social infrastructure has promoted educational services as well as construction and transport.[4]

Kenya aspires to transform from a lower middle-income country to an upper middle-income country by the year 2030. This aspiration is valid and attainable because most of the economic fundamentals are largely in place to enable the country to take off. The country's economy has remained resilient over time, with economic growth rate increasing from 5.7% in 2015 to 5.8% in 2016 largely due to a stable macroeconomic environment. The major sources of GDP growth in 2016 were agriculture, forestry and fishing (15.2%), manufacturing (6.3%), transport and storage (9.7%), information and communication (6.1%), construction (8.2%), real estate (12.3%), and financial services (7.3%)[5]

According to the Economic Intelligence Unit (EIU), growth will remain robust between 2017 and 2021, averaging 5.8% because of sustained expansion in consumer services, urbanization, EAC integration, structural reforms, and investment in infrastructure.[6] Annual average inflation eased to 6.3% in 2016 compared to an average of 6.6% in 2015. This was mainly due to decline in prices of transportation, housing, utilities, and communication.[7]

At the regional level, Kenya has remained an active player in regional and international trade matters. The country is a founder member of the East African Community (EAC), Common Market for Eastern and Southern Africa (COMESA), Intergovernmental Authority for Development (IGAD), African Union (AU), the African, Caribbean, and Pacific (ACP) group of states and the World Trade Organization (WTO). Kenya's total trade is about 40% of its GDP but the global share is very small. The bulk of exports are raw materials and primary products while imports are high value capital and finished products and this sustains the persistent trade deficit. The EAC is a major export destination for Kenya and accounted for 21.0% of total exports in 2016, while those to COMESA accounted for 14.4% and the rest of Africa at 5.3%. This small share of exports exemplifies the potential for increasing Kenya's export market to the African markets. Kenya's trade surplus in the EAC has been gradually declining since 2011 due to strengthening of the manufacturing sector in partner states and increased competition from imports from India and China into the region.[5]

The enactment of the Special Economic Zone Act 2015 has facilitated the establishment of special economic zones with the purpose of reducing the operational cost for potential investors in production of goods and services. In addition, Huduma Centers have been established in various counties as well as the National Electronic Single Window System to enhance efficiency in registration and simplify e-commerce transactions. Kenya ranked 92 out of 189 economies in the 2017 Ease of Doing Business report released by the World Bank.

[4] Kenya Country Economic Memorandum; From Economic Growth to Jobs and Shared Prosperity, World Bank 2016
[5] Kenya Economic Report; Sustaining Kenya's Economic Development by Deepening and Expanding Economic Integration in the Region, KIPPRA 2017
[6] Kenya Economic Outlook, joining the dots, 2017: Deloitte
[7] Economic Survey, 2017 KNBS

(1) Fisheries

The fisheries resources of Kenya contribute to the national economy through foreign exchange earnings, employment generation, food security support, and rural development. Of Kenya's 2014 estimated population of 44.9 million, the fisheries sector provides employment to 2 million people and livelihood for at least 2.3 million people. The sector also brings in valuable foreign exchange to the government, earning some 0.5% of the GDP per annum. Further, the thriving tourism industry based on the coral reefs in the important fishing ports of Malindi and Lamu in the Lamu Archipelago attracts revenue for the economy. There are currently over 1.6 million tourists visiting Kenya every year, an appreciable percentage of whom are attracted by recreational fishing.[8]

Despite its limited contribution to the country's GDP, the fisheries sector generates employment for over 2 million Kenyans through fishing, boat building, equipment repair, fish processing, and other ancillary activities. Kenya currently derives little economic benefit from its valuable marine fisheries that are primarily exploited by foreign fishing vessels. Foreign vessels rarely land or declare their catches in the country, thus depriving the country of much needed revenue and processing jobs. Therefore, with improved management, there is enormous potential for increasing the contributions of marine fisheries to Kenya's economic development.

(2) Maritime Service

Maritime sector is relatively less developed area among the industrial sectors of Kenya. In the past decades, the government tried to cultivate and promote the maritime sector but its efforts were mostly in vain.

Shipping activities in Kenya by Kenyan entities are presently limited to small operations within the port area and short distance coastal services such as port tug, bunker barges, and passenger ferries. The government intends to revitalize the Kenya National Shipping Line which is a government-owned shipping company and currently in almost dormant status. It merely handles cargo as a non-vessel operating common carrier (NVOCC).

Maritime education and training is another area that the government is strongly supporting. Several colleges and universities provide courses for seafarers in response to local needs and to promote job creation for young people. Since students have only limited opportunities to receive onboard training, which is a prerequisite for obtaining a seafarer's license, the number of qualified seafarers remains low.

The government also intends to enhance maritime and shipping-related businesses such as shipbuilding and repairing, container manufacturing and repairing, bunkering, shipping agency, ship brokerage, terminal operator, and CFS operators. Marine cargo insurance, among others, is an area where the government took specific action for the enhancement of the local marine insurance business. With the enactment of the Insurance Act, Kenyan traders are now obliged to place the cargo insurance for their import and export through Kenyan insurance underwriters only.

All these efforts by the government are primarily intended to retain maritime-related income in the form of freight revenues or insurance premiums within Kenya as much as possible. Most of such income is currently earned by non-Kenyan entities and does not benefit any Kenyan entity.

(3) Water Transport

Total cargo throughput handled at the port of Mombasa posted a growth of 2.6% from 26.7 million tons in 2015 to 27.4 million tons in 2016. The number of vessels docking at the port decreased by 5.1% while total container traffic handled rose by 1.4% to 1.1 million Twenty-foot Equivalent Units (TEUs) in 2016.

[8] http://www.fao.org/fishery/facp/KEN/en

This was mainly due to larger capacity of the vessels docking at the port in the review period of 2012-2016.

Total import traffic handled registered a 1.8% increase from 22.7 million tons in 2015 to 23.1 million tons in 2016. Imports of bulk liquids and dry bulk cargo rose by 6.2% and 1.5%, respectively, in 2016. Imports of dry general cargo handled declined by 1.1% from 9.1 million tons in 2015 to 9.0 million tons in 2016.On the other hand, total exports handled grew by 5.7 % from 3.5 million tons in 2015 to 3.7 million tons in 2016. Dry general and dry bulk exports cargo handled recorded growths of 2.9% and 4.6%, respectively, during the review period. Similarly, bulk liquid exports rose by 27.5% from 40 thousand tons in 2015 to 51 thousand tons in 2016.

(4) Tourism

The Kenyan coast is endowed with a rich history of social and cultural interactions and traditions that span the entire shoreline. Notable among these traditions are the social, cultural, and economic opportunities that have been provided to the Kenyan coastal population by the marine and coastal ecosystems for food, trade, recreation, and transport (Government of Kenya, 2011).

However, immense pressure has been exerted on Kenya's marine resources by the increasing human population and demand for natural resources. Consequently, Kenya's marine environment, ecosystems, and associated resources have shown signs of degradation due to over-exploitation because of unregulated use. Recognizing the value of its coastal and marine resources and the imminent threats, Kenya adopted the use of marine protected areas (MPAs) as one of the management strategies to ensure that marine ecosystems remain ecologically and economically viable. MPAs are defined as "any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical, and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment".

Kenya is signatory to several international conventions and protocols that advocate the implementation of MPAs as a tool for biodiversity conservation and regulation of fisheries. Some of these conventions include the Convention on Biological Diversity (CBD), United Nations Law of the Sea, and Chapter 17 of Agenda 21. The Jakarta Mandate (1995) outlines the program of action for marine and coastal biodiversity within the CBD.

The tourism sector contributes about 10% to GDP and 9% of total formal wage employment. The tourism sector is the second largest contributor in foreign exchange earnings in Kenya. Although Kenya receives a high volume of tourists compared to other EAC countries, the revenues received are comparatively low.

The EAC seeks to market the region as a single tourism destination. So far, Kenya, Rwanda and Uganda have adopted the EAC common visa to avoid multiple applications and issuance of visas to visitors, thus reducing the cost and increasing the competitiveness of the sector. The three countries have also launched a portal to jointly market their tourism products online. Enhancing investment in the sector is critical to increase accommodation facilities and Meetings, Incentives travel, Conventions, and Exhibitions (M.I.C.E.) infrastructure. Further, diversification of tourism products and joint efforts in tourism promotion are needed to sustain the development of the sector in Kenya.

The government has undertaken implementation and management of various activities in the sector through the Ministry of Transport and Infrastructure Development. This includes formulation of appropriate policies for all modes of transport, namely: road, air, rail, pipeline, and water transport.

2.3 Natural Condition

2.3.1 Geography

Kenya is the world's 47th largest country (after Madagascar). It lies between latitudes 5°N and 5°S and longitudes 34° and 42°E. From the coast on the Indian Ocean, the low plains rise to central highlands. The highlands are bisected by the Great Rift Valley with a fertile plateau lying to the east.

The total area covered is 582,650 km^2 (224,960 m^2) with land: 569,140 km^2 (219,750 m^2) and water: 11,227 km^2 (4,335 mi^2). The total boundary length is: Ethiopia, 867 km (539 mi); Somalia, 684 km (425 mi); South Sudan, 317 km (197 mi); Tanzania, 775 km (482 mi); Uganda, 814 km (506 mi); and 536 km (333 mi) along the Indian Ocean.

The geography of Kenya is diverse. Kenya has a coastline on the Indian Ocean, which contains swamps of East African mangroves. Inland are broad plains and numerous hills. Central and western Kenya regions are characterized by the Great Rift Valley, home to Kenya's highest mountain, Mount Kenya, and Mount Elgon on the border between Kenya and Uganda. The Kakamega Forest in western Kenya is a relic of East African rainforest. Much bigger is Mau Forest, the largest forest complex in East Africa.

The three main rivers are the Galana, Tana, and the Nzoia rivers, which are 257 km (160 mi) long, rising from Mount Elgon. It flows south and then west, eventually flowing into Lake Victoria near the town of Port Victoria. The Ewaso Ng'iro is another important river supplying water from Mount Kenya to the eastern and northeastern part of Kenya.

Kenya's most valuable natural assets are rich agricultural land, a unique physiography, and wildlife. The highly diverse wildlife is a key draw for the tourism industry. The country is not well endowed with mineral resources. Mineral resources currently exploited are gold, limestone, soda ash, diatomite, gemstones, salt, rubies, fluorspar, and garnets. At present, only 3% of the land is forested, a reduction by half over the past three decades. Kenya's water resources are similarly under pressure. Kenya relies to a significant extent on hydropower for electricity generation.

2.3.2 Climate

The climate of Kenya varies by location, from mostly cool to warm/hot. The climate along the coast is tropical. The further you move inside Kenya, the more arid the climate becomes. The northern part is nearly devoid of rainfall and temperature swings widely according to the general time of the day/night. For many areas of Kenya, the daytime temperature rises about 12 °C, almost daily. Elevation is the major factor in temperature levels, with the higher areas 11 °C cooler on average.

There are slight seasonal variations in temperature, with winter months about 4 °C cooler. Although Kenya is centered at the equator, it shares the seasons of the southern hemisphere, with the warmest summer months from December to March and the coolest winter months from June to August, again with differences in temperature varying by location within the country. On the high mountains, such as Mount Kenya, Mount Elgon, and Kilimanjaro, the weather can become bitterly cold for most of the year. Some snowfall does occur on the highest mountains.[9]

Climate change also poses a significant threat to Kenya's coral reef fisheries. A recent analysis compared the vulnerability of several western Indian Ocean countries and found Kenya's coral reefs to be the most vulnerable to climate change-related coral bleaching.[10] Headway is being made in implementing management strategies aimed at preventing the collapse of the small-scale fishing sector by the

9 https://en.wikipedia.org/wiki/Geography_of_Kenya
10 Cinner, J.E., et al., Vulnerability of coastal communities to key impacts of climate change on coral reef fisheries. Global Environmental Change,

establishment of the Agriculture, Fisheries, and Food Authority in 2014, which highlights the country's goal of promoting best practices in fisheries management. However, much more needs to be done to prevent further decline in fisheries and livelihoods.

2.4 Government Structure

2.4.1 National Government

Kenya is a presidential representative democratic republic. The president is both the head of state and government. Kenya adopted a new constitution in 2010, which defines the Government of the Republic of Kenya as the national government of the Republic of Kenya. The country is composed of 47 counties, with each county having its own semi-autonomous government. The national government is composed of three arms: the legislature, the executive, and the judiciary. Each arm is independent of the other and their individual roles are set by the Constitution of Kenya. The full name of the country is the Republic of Kenya, and its official Swahili name is 'Jamuhuri ya Kenya'.[11]

2.4.2 The County Governments

The counties of Kenya have devolved functions of the former central government. Each county has its own governor, who is directly elected by the people, and thereafter becomes the highest elected official in the county. Each county has its own County Assembly with Members of the County Assembly (MCAs) as representatives. The powers of the county governments are provided in Articles 191 and 192, and in the Fourth Schedule of the Constitution of Kenya and the County Governments Act of 2012. Functions and duties not assigned by the Constitution automatically become the national government's responsibility.

As opposed to other devolved governments around the world, only the national government may impose income tax, value-added tax, customs duties and other duties on import and export goods and excise tax. The counties are individually allowed to impose property rates, entertainment taxes, and any other tax that they are authorized to impose by an Act of Parliament.

[11] https://en.wikipedia.org/wiki/Government_of_Kenya

Chapter 3: Definition and Scope of Blue Economy

3.1 Definition of Blue Economy by International Community

The concept of Blue Economy was addressed in the preparatory process for "Rio+20 Nations Conference on Sustainable Development (UNCSD)" in 2012. Since then, international organizations, mainly World Bank and United Nations, prepared a handbook and guidance on Blue Economy that can be utilized by the countries which try to promote and implement Blue Economy.

The Blue Economy incorporates ocean values and services into economic modeling and decision-making process. At the core of the Blue Economy concept is the de-coupling of socio-economic development from environmental degradation. To achieve this, the Blue Economy approach is founded upon the assessment and incorporation of the real value of the natural (blue) capital into all aspects of economic activity (conceptualization, planning, infrastructure development, trade, travel, renewable resource exploitation, and energy production/consumption).

This section introduces the definition and scope addressed in a variety of organizations that are involved in promoting Blue Economy.

3.1.1 United Nations Economic Commission for Africa (UNECA)

(1) Africa's Blue Economy: A Policy Handbook

UNECA has published "The Blue Economy Policy Handbook" in 2016, which intends to raise the level of understanding of the Blue Economy concept by all relevant stakeholders, including African island, coastal, and landlocked states, in pursuit of structural transformation, sustainable economic growth, and enduring societal progress.

(2) The Blue Economy Concept

The Blue Economy in the African context covers both aquatic and marine spaces, including oceans, seas, coasts, lakes, rivers, and underground water. It encompasses a range of productive sectors, including fisheries, aquaculture, tourism, transport, shipbuilding, energy, bioprospecting, and underwater mining and related activities. Key Blue Economy ecosystem services and Blue Economy sectors are summarized in Table 3.1.1 below.

Table 3.1.1: Key Blue Economy Ecosystem Services and Sectors

Type of Ecosystem Services	Blue Economy Sectors
Harvesting of living aquatic resources (seafood, plant marine organisms, and marine-biotechnological products)	・ Fishing (inland, coastal, and deep seas) ・ Aquaculture ・ Mari-culture ・ Pharmaceuticals, chemicals, cosmetics, ・ Genetic research
Extraction of nonliving resources and generation of new energy resources	・ Deep-sea and seabed mining ・ Offshore oil and gas ・ Renewable energy ・ Marine salt harvesting ・ Coastal mining of sand, gravel, and other ・ Construction materials
Commerce and trade in and around the ocean and rivers	・ Maritime transport and services ・ Port infrastructure ・ Shipbuilding and repairs ・ River transport ・ Tourism and recreation
Protection	・ Coastal protection

Type of Ecosystem Services	Blue Economy Sectors
	・ Marine ecosystem protection ・ Water resource protection
Cultural and religious values	・ Cultural and religious practices
Knowledge and information	・ Biophysical, socio-economic, and political research

Source: Africa's Blue Economy: A policy handbook, UNECA

(3) Blue Economy and SDGs

The United Nations has adopted ocean development as part of its Sustainable Development Goals (SDGs). Particularly, SDG 14, which states, "Conserve and sustainably use the oceans, seas, and marine resources for sustainable development", is directly related to Blue Economy. In addition, Blue Economy is interlinked with most of the SDGs in a variety of ways. Aquatic and marine resources play a crucial role in supporting an array of economic sectors that provide livelihoods and employment opportunities to end poverty (SDG 1).

Table 3.1.2: Relationship between Blue Economy and SDG Goals

SDG Goals	Potential Positive of Proper Development of the Blue Economy	Potential Negative of Improper Development of the Blue Economy
1 No Poverty	・ Improved livelihoods and employment ・ Invest in enterprises	・ Space conflict ・ Marginalization
2 Zero Hunger	・ Enhance sustainable food production ・ Improved food distribution	・ Increased food waste ・ Harmful commoditization of food
3 Good Health and Well-Being	・ Improved water quality ・ Increased funding to health services ・ Improved occupational safety of seafarers	・ Pollution ・ Weak revenue capture at national level
4 Quality Education	・ Enhanced knowledge infrastructure ・ Increased funding for the education sector Skill development	・ Outsourcing of skilled labor ・ Unwillingness to invest in local training and education brain drain
5 Gender Equality	・ Increased equal rights to economic resources ・ Increased participation in decision making	・ Increased gender disparity in wages ・ Proliferation of income gap
6 Clean Water and Sanitation	・ Increased funding for access to clean water and sanitation ・ Investments in nature-based water provision services	・ Water pollution ・ Destruction of nature-based water provision services
7 Affordable and Clean Energy	・ Enhanced access to renewable energy ・ Improved knowledge base to build and ・ maintain infrastructure	・ Continued incentivization of carbon-based energy ・ Population displacement ・ Environmental impacts
8 Decent Work and Economic Growth	・ Job creation ・ Economic diversification	・ Wealth concentration ・ Over-reliance on quantitative growth
9 Industry, Innovation and Infrastructure	・ Increased and improved infrastructure ・ Technological progress	・ Environmental impacts ・ High dependency on technology
10 Reduced Inequalities	・ Enhanced benefit distribution ・ Enhanced participatory engagement of all stakeholders	・ Business as usual ・ Concentration of influence
11 Sustainable Cities and Communities	・ Improved cycling, harvesting, and use of water ・ Cities have access to clean renewable energy	・ Increased pressure on freshwater resources ・ Pollution
12 Responsible Consumption and Production	・ Removal of inefficient fossil-fuel subsidies ・ Promotion of more equitable trade of goods and services	・ Unsustainable production practices ・ Increased waste flows
13 Climate Action	・ Transition to low-carbon economies ・ Resilience to uncertain climate future	・ Increased carbon intensity ・ Coastal degradation leading to climate vulnerability
14 Life Below Water	・ Enhanced health of aquatic and marine ecosystems ・ Increased stock abundance supporting sustainable fisheries	・ Over exploitation of aquatic and marine resources ・ Environmental degradation

SDG Goals	Potential Positive of Proper Development of the Blue Economy	Potential Negative of Improper Development of the Blue Economy
15 Life on Land	· Increased water security · Enhanced sustainable transboundary water sharing	· Nutrient pollution · Biodiversity loss
16 Peace, Justice, and Strong Institutions	· Improved governance · Promotion of continental peace and security	· Resource conflicts · Failure to implement and enforce laws and regulations result to Dutch disease and resource curse
17 Partnerships for the Goals	· Improved partnerships between public, private, and civil society actors · Strengthened continental cooperation	· Insufficient partnerships · Bureaucratic complexity

Source: Africa's Blue Economy: A policy handbook, UNECA

3.1.2 World Bank (WB)

"The Potential of the Blue Economy" was published in 2017 by the World Bank for stakeholders to suggest a collective understanding of the Blue Economy and to highlight the importance of such an approach. This was particularly targeted for small island developing states and coastal least developed countries to identify some of the key challenges, the adoption process, and to suggest some broad next steps that are called for to ensure implementation.

(1) Definition

Although the term "Blue Economy" has been used in different ways, it is understood here as comprising the range of economic sectors and related policies that together determine whether the use of oceanic resources is sustainable.[12] The concept seeks to promote economic growth, social inclusion, and the preservation or improvement of livelihoods while at the same time ensuring environmental sustainability of the oceans and coastal areas. It refers to the decoupling of socio-economic development through oceans-related sectors and activities from environmental and ecosystems degradation. It draws from scientific findings that ocean resources are limited and that the health of the oceans has drastically declined due to anthropogenic activities. These changes are already being profoundly felt, affecting human wellbeing and societies, and the impacts are likely to be amplified in the future, especially in view of projected population growth.

(2) Covered Sector

The Blue Economy has diverse components, including established traditional ocean industries such as fisheries, tourism, and maritime transport. It also includes new and emerging activities such as offshore renewable energy, aquaculture, seabed extractive activities, and marine biotechnology and bioprospecting. Several services provided by ocean ecosystems, for which markets do not exist, also contribute significantly to economic and other human activities such as carbon sequestration, coastal protection, waste disposal, and the existence of biodiversity.[12]

Blue Economy aims to move beyond business as usual and to consider economic development and ocean health as compatible propositions. The approach must fully anticipate and incorporate the already observed and anticipated impacts of climate change on marine and coastal ecosystem.

Blue Economy consists of sectors whose returns are linked to the living "renewable" resources of the oceans (such as fisheries) as well as those related to non-living and therefore "non-renewable" resources (including extractive industries, such as dredging, seabed mining, and offshore oil and gas, when undertaken in a manner that does not cause irreversible damage to the ecosystem). It also includes

[12] World Bank and United Nations Department of Economic and Social Affairs. 2017. The Potential of the Blue Economy: Increasing Long-term Benefits of the Sustainable Use of Marine Resources for Small Island Developing States and Coastal Least Developed Countries. World Bank, Washington DC.

activities relating to commerce and trade in and around the oceans, ocean monitoring and surveillance, and coastal and marine area management, protection, and restoration.

(3) Scope and Development Policy

Oceans-related economic activities are developing against a backdrop of soaring global population, growing consumption, and the ever-growing need for new sources of food, energy, and minerals. For example, by 2030, two thirds of the fish for food consumption is expected to be farmed, much of it at sea (World Bank 2013)[13]. Seaborne trade is expected to quadruple by 2050 (ITF 2015)[14]. On land, the oceans-related economy will experience a surge in investment in coastal infrastructure, industry, and tourism as the global migration to cities and coasts deepens. At the same time, the risks to coastal populations from rising sea levels and storm surges as a result of climate change will drive the need for a wave of defensive infrastructure development.

The different pathways toward Blue Economy depends on national and local priorities and goals. Nevertheless, there are common steps that will be required by all countries aiming to adopt this approach to manage their oceans. The effective implementation of the United Nations Convention on the Law of the Sea is a necessary aspect of promoting the Blue Economy concept worldwide.

Oceans and seas cover over two-thirds of the Earth's surface, contribute to poverty eradication by creating sustainable livelihoods and decent work, provide food and minerals, generate oxygen, absorb greenhouse gases and mitigate the impacts of climate change, determine weather patterns and temperatures, and serve as highways for seaborne international trade.

With an estimated 80% of the volume of world trade carried by sea, international shipping and ports provide crucial linkages in global supply chains and are essential for the ability of all countries to gain access to global markets (UNCTAD 2016).[15]

Challenges in the sustainable use of marine resources such as impacts of climate change in the form of rising sea levels, increased frequency and severity of extreme weather events, and rising temperatures are going to have direct and indirect impacts on oceans-related sectors, such as fisheries, aquaculture, and tourism, and on maritime transport infrastructure, such as ports, with broader implications for international trade and for the development prospects of the most vulnerable nations, in particular coastal least developed countries (LDCs) and small island developing states (SIDS).

3.1.3 African Union's (AU) Agenda 2063

The African Union (AU) was established in 1999 with the vision of "an integrated, prosperous, and peaceful Africa, driven by its own citizens and representing a dynamic force in the international arena." Agenda 2063 was launched in 2015. It is "a strategic framework for the socio-economic transformation of the continent over the next 50 years". It builds on and seeks to accelerate the implementation of past and existing continental initiatives for growth and sustainable development.

(1) Definition

It is constituted by all economic activities that emanate from Africa's oceans, seas/seabeds, lakes, and rivers. Examples of Blue Economy activities include: fishing, marine/lake transport/shipping, seabed

[13] World Bank, 2013. Fish to 2030—Prospects for Fisheries and Aquaculture. World Bank Report Number 83177-GLB.Washington, DC.

[14] ITF (International Transport Forum at the OECD). 2015.ITF Transport Outlook 2015. Paris.

[15] UNCTAD, 2016b. The Oceans Economy: Opportunities and Challenges for Small Island Developing States (SIDS). United Nations, Geneva.

mining, marine tourism, generation of tidal energy, etc.[16]. As part of the goals and priority areas of Agenda 2063, Africa recognizes oceans economy as one aspect of sustainable development.

(2) Covered Sector

According to Agenda 2063, "The Africa we want", 2014, one of the agendas is a prosperous Africa based on inclusive growth and sustainable development. Africa's Blue Economy, which is three times the size of its landmass, shall be a major contributor to continental transformation and growth, advancing knowledge on marine and aquatic biotechnology, the growth of an Africa-wide shipping industry, the development of sea, river, and lake transport and fishing, and exploitation and beneficiation of deep sea mineral and other resources[17].

(3) Scope and Development Policy

Agenda 2063 was set for 2014-2023, which is a ten-year plan. The framework document from which the first ten-year implementation plan is derived was prepared through a consultative process covering all social formations and sectors in Africa.

The priority areas for governments and regions have been picked and implementation agendas set. Evaluation and monitoring have been set together with the funding options.

Table 3.1.3: Target Set by African Union

Priority Area	2023 Target	Indicative Strategies
Marine Resources and Energy	・ At least 50% increase in value addition in the fisheries sector in real term is attained by 2023; build at least one Giant Aquaculture showpiece; marine bio-technology contribution to GDP is increased in real terms by at least 50% from the 2013 levels; at least 10% of renewable energy sources is from wave energy and commission and complete prospection of seabed for minerals and hydrocarbon potentials by 2023.	・ Implement the African Integrated Maritime Strategy. ・ Develop/implement policies and programs for sustainable utilization of marine resources to increase their contribution to GDP. ・ Put in place policies and programs in place to avoid the over exploitation and plundering of fishing beds including advocacy and compensation measures against illegal fishing revenue loses. ・ Develop skills and technological platforms for Blue Economy businesses. ・ Develop/implement policies to support the application of marine spatial planning and integrated adaptive oceans policy/governance for exclusive economic zones (EEZs). ➢ Develop/implement policies for marine spatial planning for sustainable development. ・ Conduct research in support of the growth of marine businesses. ・ Develop/implement policies for marine spatial planning for sustainable development.
Port Operations and Marine Transport	・ Contribution of shipping/port operations services to GDP in real terms is increased by 50%. ➢ Locally, owned shipping lines carry at least 5% of annual tonnage of cargo. ・ Average duration of ship call time is reduced by at least 30% by 2020 ・ Average time for clearing of goods from the ports is reduced by at least 50% by 2020	・ Ratify and bring into force the revised maritime charter. ・ Implement the African Integrated Maritime Strategy. ➢ Develop/implement policies for the growth of port operations and marine transport. ・ Build capacities for the growth of the port operations and marine transport. ・ Conduct research and development in support of the growth of marine transport businesses to determine the sectors status, contributions, and potential. ・ Invest in ICT to enhance maritime management. ・ Improve data and statistics for shipping services.

Source: Document from Agenda 2063

[16] AGENDA 2063: The Africa We Want; A Shared Strategic Framework for Inclusive Growth and Sustainable Development, September 2015, Addis Ababa

[17] Agenda 2063: The Africa we want, 2014 Addis Ababa

3.1.4 Organizations for Economic Co-operation and Development (OECD)

(1) Definition

Ocean Economy can be defined as the sum of all economic activities that directly or indirectly take place in the ocean, use the ocean outputs, and put the goods and services into ocean's activities.[18]. This includes both quantifiable and non-quantifiable natural stocks and non-market goods and services. This means all the economic activities of ocean-based industries, assets, goods, and services of marine ecosystem. The ocean and its resources are continuously recognized as indispensable in addressing the multiple challenges that the planet faces now and in the future. The potential of the ocean helping to meet the needs of a growing population is big; however, harnessing the potential will require substantial investment to counter the challenge of increased pollution, over-exploitation, declining bio-diversity, and climate change.

(2) Covered Sector

The scope of the sector varies from country to country depending on the level of development; however, the above definition proposes both established and emerging sectors.

Established sectors include:

- Fisheries, seafood processing, shipping, ports, shipbuilding and repair, offshore gas/oil exploration, marine construction, maritime and coastal tourism, marine business service, marine research and development (R&D) education, and dredging.

The emerging sectors include:

- Marine aquaculture, deep and ultra-deep oil and gas, offshore wind energy, ocean renewable energy, marine and seabed mining, maritime safety and surveillance, marine biotechnology, and high-tech marine products and services.

Ocean-based economies contribute roughly USD 1.5 trillion (2.5%) to global gross value added.

(3) Scope and Development Policy

The scope and development policy of the ocean economy are driven primarily by global population growth, economy, climate, environment, technology, and ocean regulation and management.

a) Population – Population growth, urbanization and coastal development are at the heart of the growth of the Ocean Economy. By 2050, an extra two billion people will need to be fed, thereby raising demand for fish, mollusks, and other marine food from fisheries and aquaculture. As consumers, they will stimulate sea-borne freight and passenger traffic, shipbuilding and marine equipment manufacturing as well as exploring for offshore oil and gas reserves. Aging population will continue to target coastal locations for holidays, cruise tourism, and retirement homes, and motivate the medical communities to accelerate marine biotechnology and new drugs development. Maritime economy will grow alongside population growth. Consequently, global flight, as well as commerce, will continuously grow across the world.
b) Food – As the population grows, the ocean will need to supplement food from agriculture production. Marine food will continue to be a source of proteins and vitamins for the population as the growing population of middle class tends to move to high value proteins. The ocean's capacity to provide is threatened by over fishing and land-based pollution, thus, the global catch is likely to remain almost at the same level. However, the growth of aquaculture, especially marine aquaculture, will help bridge the gap.

[18] OECD (2016), The Ocean economy in 2030, OECD publishing Paris

c) Energy – The global market for ocean energy systems is not expected to scale up significantly in the medium term, but in the long term, potential is enormous. Both offshore wind and ocean energy should eventually benefit from Paris COP21 agreement and its support for renewable energy.
d) Ocean environment – An important constraining factor in the development of the ocean economy could be the expected deterioration in the health of the ocean. Concern of the future impact of climate change on the ocean is growing. The effect of an unhealthy ocean will be felt by the marine and aquaculture industry, offshore oil and gas industry, shipping companies, marine tourism and communities, and company's bioprospecting for pharmaceutical products.
e) Science, technology, and innovation – Advanced science and technology are going to play critical roles in addressing ocean-related environmental challenges and further development of ocean-based economy, e.g., subsea engineering, sensors and imaging, satellites technology and data analytics, among others, will be affected by technology.

3.1.5 Food and Agriculture Organization of the United Nations (FAO)

According to FAO, the concept of Blue Economy came out of the 2012 Rio+20 Conference and emphasizes conservation and sustainable management, based on the premise that healthy ocean ecosystems are more productive and a must for sustainable ocean-based economies.

To support a shift to this innovative approach, FAO launched the Blue Growth Initiative, through which it will assist countries in developing and implementing Blue Economy and growth agendas. It was launched in 2013 and led by the FAO and its partners – UNDP, NORAD, WWF, UNEP, ICFA, MSC, GEF, the World Bank, the Netherlands, and has been working with ten developing countries: Cape Verde, Madagascar, Seychelles, Senegal, Kenya, Mauritania, Morocco, Algeria, Bangladesh, and Indonesia.

The objectives of the initiative are:

- Eliminate harmful fishing practices and overfishing and instead incentivize approaches which promote growth, improve conservation, build sustainable fisheries and end illegal, unreported, and unregulated fishing;
- Ensure tailor-made measures that foster cooperation between countries; and
- Act as a catalyst for policy development, investment, and innovation in support of food security, poverty reduction, and the sustainable management of aquatic resources.

This will be implemented through promoting aquaculture, implement Code of Conduct for Responsible Fisheries (CCRF) for captured fisheries, efficient sea food chains, and promote regulatory regimes and approaches to restore vital coastal habitats, biodiversity, and eco-system services [19]

3.2 Efforts by International Community on Blue Economy

3.2.1 United Nations Environment Program (UNEP) Nairobi Convention

The Nairobi Convention is a partnership between governments, civil society, and the private sector, working towards a prosperous Western Indian Ocean Region with healthy rivers, coasts, and oceans. It pursues this vision by providing a mechanism for regional cooperation, coordination, and collaborative actions. It enables the contracting parties to harness resources and expertise from a wide range of stakeholders and interest groups, and in this way, it helps solve inter-linked problems of the region's

[19] http://www.fao.org/zhc/detail-events/en/c/233765/

coastal and marine environment. It was first signed in 1985 and entered into force in 1996. It is part of UNEP's Regional Seas Programme.

(1) Objectives of the Organization

The objectives include:

- To address the accelerating degradation of the world's oceans and coastal areas through sustainable management and use of the marine and coastal environment. It does this by engaging countries that share the western Indian Ocean in actions to protect their shared marine environment.
- Work program focuses on the promotion, facilitation, and implementation of the objectives of the Nairobi Convention in an integrated, mainstreamed, and cross-sectoral manner at the regional and national levels.

(2) Blue Economy Related Conference

UNEP conferences related to Blue Economy are listed in Table 3.2.1 below.

Table 3.2.1: Blue Economy Related Conferences by UNEP

Month/Year	Conference Name	Theme	Participant from Kenya Name of Organization (i.e., Ministry of the GoK)
11-12 December 2017	Ocean Governance Strategy in Africa - experts meeting, Zanzibar	Marine Protected Areas: Bringing the people and ocean together	Not available
11-12 November 2017	Regional Seas/Large Marine Ecosystems meeting, Cape Town	To enhance cross-sectoral, science-based ecosystem approaches in support of regional ocean governance by strengthening coordination and collaboration between/among Large Marine Ecosystem (LME) programs, Regional Seas Programs, and Regional Fisheries Management Organizations.	Not available
13-14 November 2017	Training on Marine Spatial Planning, Seychelles	Global and regional perspective of MSP	Not available
17-20 October 2017	Oil and Gas Training	Oil and gas exploration in the Southern Indian Ocean Region	Not available
21-22 March 2016, Ebene, Mauritius	The second negotiating meeting on the text of the protocol on integrated coastal zone management in Western Indian Ocean Region	Coastal zone management in Western Indian Ocean Region	Deputy Director - Coastal, Marine and Fresh Waters Organization: National Environment Management Authority (NEMA) Legal Officer: National Environment Management Authority
22-24 June 2015	Conserving the Marine and Coastal Environment for the Western Indian Ocean for the next 30 Years held in Seychelles	Ocean Governance and Blue Economy	Not available
10-14 December 2012	Partnering for a Healthy Western Indian Ocean held in Mozambique	Science for Policy	Director General National Environment Management Authority (NEMA) Deputy Director Programs Ministry of Environment and Mineral Resources
29 March 2010 to 1 April 2010	Management and Development of the Marine and Coastal	Sustaining Progress held in Nairobi	Not available

Month/Year	Conference Name	Theme	Participant from Kenya Name of Organization (i.e., Ministry of the GoK)
	Environment of the Eastern African Region		

Source: JICA Survey Team

(3) Major Outputs (Proposals Related to Kenya)

During the second negotiation meeting on the text of the protocol on integrated coastal zone management in Western Indian Ocean Region, 21-22 March 2016, Ebene, Mauritius, Kenya proposed the addition of text pertaining to emerging issues and provided text to the Secretariat as follows:
"Mindful of the environmental impacts of socio-economic developments such as oil and gas as well as other extractive industries on the coastal zone."

3.2.2 UNECA (Economic Commission for Africa)

The United Nations Economic Commission for Africa (UNECA or ECA) was established in 1958 by the United Nations Economic and Social Council to encourage economic cooperation among its member states (the nations of the African continent) following a recommendation of the United Nations General Assembly. The ECA has 54 member states corresponding to the 54 member states of the United Nations that lie within the continent of Africa or in oceans nearby the continent.[20]

(1) Objectives of the Organization

The objectives are to:

- Promote the economic and social development of its members states;
- Foster regional integration; and
- Promote international cooperation for Africa's development.

(2) Blue Economy Related Conference

UNECA conferences related to Blue Economy are listed in Table 3.2.2 below.

Table 3.2.2 Blue Economy Related Conferences by UNECA

Month/Year	Conference Name	Theme	Participant from Kenya
21-23 June 2017	Policy dialogue - Abidjan	Governance of Maritime Resources and Activities for Sustainable Development in Africa	Not available
2-4 May 2017	Workshop-Kampala	Workshop on Marine Mineral Resources of Africa	Not available

Source: JICA Survey Team

(3) Major Outputs (Proposals related to Kenya)

In the policy dialogue on governance of maritime resources and activities for sustainable development in Africa-Abidjan, 21-23 June 2017, member countries dialogued on policy matters touching on all sectors of the Blue Economy.

[20] https://en.wikipedia.org/wiki/United_Nations_Economic_Commission_for_Africa

3.2.3 IORA (Indian Ocean Rim Association)

The Indian Ocean Rim Association (IORA), initially formed in 1995 and relaunched in 1997, is a dynamic inter-governmental organization aimed at strengthening regional cooperation and sustainable development within the Indian Ocean Region through its 21 member states and 7 dialogue partners.

(1) Objectives of the Organization

The objectives of IORA are as follows:

- To promote sustainable growth and balanced development of the region and member states;
- To focus on those areas of economic cooperation which provide maximum opportunities for development, shared interest, and mutual benefits; and
- To promote liberalization, remove impediments, and lower barriers towards a freer and enhanced flow of goods, services, investment, and technology within the Indian Ocean rim.

To achieve these objectives, the organization has identified six priority areas, namely:

- Maritime security,
- Trade and investment facilitation,
- Fisheries management,
- Disaster risk reduction,
- Academic and scientific cooperation, and
- Tourism promotion and cultural exchanges.

(2) Blue Economy Related Conferences

Table 3.2.3 Blue Economy Related Conferences by IORA

Month/Year	Conference Name	Theme	Participant from Kenya
21-22 November 2017	Marine Spatial planning towards sustainable use of the Indian Ocean.	Blue Economy	Not available
21-28 November 2017	Workshop on Marine Aquaculture and Fish Health Management 2017	Blue Economy	Not available
5-7 March 2017	Strengthening Maritime Cooperation for a Peaceful, Stable and Prosperous Indian Ocean	Blue Economy	Not available

Source: JICA Survey Team

(3) Major Outputs (Proposals related to Kenya)

The IORA Marine Spatial Planning (MSP) themed “Towards Sustainable Use of the Indian Ocean” was held on 22-23 November 2017 and the major output was the discussion on existing MSP developments within the Indian Ocean Region and exploring the potential of MSP for IORA member states.

3.3 Blue Economy in Other Countries

(1) South Africa

South Africa has developed the Ocean Economy initiative under Operation Phakisa (OP). This has seen all stakeholders in the country's ocean environment participate in a six-week lab to develop a roadmap, which is, in this case, Operation Phakisa, that is termed 3feet plans for short, medium, and long-term

goals. This is a presidential initiative to fast track the implementation of solutions on critical service delivery issues highlighted in the country's policy, The National Development Plan (NDP) 2030, which is closely monitored by the Department of Planning, Monitoring and Evaluation (DPME), is responsible for the overall management of the Phakisa methodology.

The white paper on the National Environmental Management of the Ocean (NEMO) published in May 2014 is an additional initiative that recognizes the significance of Blue Economy and the ocean potential.

Key areas of OP are:

- Planning and implementing agency – Operation Phakisa is a multi-sectoral approach, which focuses on bringing key stakeholders from the public and private sectors, academia as well as civil society organizations together to collaborate (labs) and build 3 feet plans. The overall support and facilitation are by the Department of Environmental Affairs and oversight is by the Department of Planning, Monitoring and Evaluation
- Sector target - Operation Phakisa has identified six work streams, namely: marine transport and manufacturing work stream, offshore oil and gas exploration stream, aquaculture work stream, marine protection services and ocean governance work stream, small harbors work stream, and coastal and marine tourism work stream
- Progress - Through Operation Phakisa, Transnet National Ports Authority (TNPA) and Transnet SOC Limited Private Sector Participation (PSP) funding model for investment opportunities of R 7.3 billion for new port infrastructure (September 2017), the coastal marine and tourism plan was approved by the cabinet in 2017. Granting of port leases has unlocked investment contracts in various ports and the International Oil Pollution Compensation (IOPC) has been operationalized.

(2) Seychelles

Seychelles has pioneered the Blue Economy concept as a model for sustainable development and future prosperity since 2014. The model adopted focuses on economic diversification, local employment and investment opportunities, food security, and the effective protection and sustainable use of marine and coastal environments. Seychelles Blue Economy strategy internalizes global commitments to the SDG agenda and the Paris Agreement on Climate Change and is consistent with regional Blue Economy strategies. The following are the key areas of Seychelles Blue Economy:

- Country Policy - National Development Strategy and Roadmap, 2016-2018.
- Blue Economy Policy - National Development Strategy and the Seychelles Sustainable Development Strategy (SSDS), 2012– 2020.
- Planning and implementing agency – Implementation is jointly by the Ministry of Finance, Trade and Economic Planning (MFTEP), the Ministry of Fisheries and Agriculture, and the Ministry of Environment, Energy, and Climate Change. The MFTEP will lead the implementation. It has the mandate, convening power, and vision necessary to oversee the preparation and implementation of the project as well as sufficient management and capacity to ensure efficient coordination of project activities. The two other ministries have the technical expertise to implement the project activities but lack the necessary workforce.
- Sector target - Sustainable use of its coastal and ocean environments including fisheries, tourism, economic diversification, food security, and the protection of its unique natural assets. Fisheries and marine resources have been identified as key cross-cutting themes.
- Progress – Seychelles is implementing its projects by innovative ocean economy financing through Third South West Indian Ocean Fisheries Governance and Shared Growth Project (SWIOFish3) in 2017. In addition, the Seychelles Marine Spatial Planning (SMSP) Initiative,

initiated in 2014, is a process focused on planning for and management of the sustainable and long-term use and health of the Seychelles Exclusive Economic Zone (EEZ).

(3) Mauritius

To drive the Blue Economy concept, the government endorsed the goal of rapidly increasing the overall oceanic growth by adopting "The Roadmap". The Ocean Economy: A Roadmap for Mauritius (PMO 2013), The "Roadmap" sets a target of doubling the Ocean Economy (OE's) share of GDP over a 12-year time horizon (2013–2025), creating some 35,000 jobs in the process. The key issues in the "The Roadmap" are:

- Country Policy for Blue Economy - Ministry of Ocean Economy, Fisheries, Marine Resources, and Outer Islands, 2015.
- Blue Economy Policy - The National Ocean Council (NOC), 2015 and the Ocean Economy: A Roadmap for Mauritius (PMO 2013).
- Planning and implementing agency –The responsibility of Ocean Economy Unit (under the Ministry of Ocean, Fisheries, Marine Resources and Outer Islands) is to formulate and implement policies and strategies for the development of the Ocean Economy.
- Sector target - fisheries, aquaculture, minerals, energy, transport and trade, tourism and marine biotechnology.
- Progress – Marine Spatial Planning (MSP) supported by the Department for Continental Shelf and Maritime Zones Administration and Exploration in the Prime Minister's Office and the Mauritian government initiated the project "Developing an Enhanced Ocean Observatory in support of Ocean Exploration and Development" by the Department of Continental Shelf, Maritime Zones Administration and Exploration.

Chapter 4: Development Policy and Strategy of Kenya

4.1 Kenya Vision 2030

The Kenya Vision 2030 is the country's development blue print covering the period from 2008 to 2030.

The aim of the Kenya Vision 2030 blueprint is to transform Kenya to a new industrializing "middle-income country providing high quality of life to its citizens by 2030". The vision is based on three main pillars: the economic, the social, and the political pillars[21]. The delivery of that target is driven by a series of five-year medium-term plans (MTPs). The adoption of the vision by Kenya came after the successful implementation of the Economic Recovery Strategy for wealth and employment creation (ERS), which saw the country's economy grew between 2002 and 2006, when the gross domestic product (GDP) grew from 0.6 to 6.1 %.

The Kenya Vision 2030 is anchored on the following parameters:

- Macroeconomic stability for long-term development
  This is expected to generate low levels of inflation, limited public sector deficits, a stable exchange rate, and low interest rates over the period that will ensure confidence among investors and Kenyans. The parameters must be reviewed continuously during implementation by the Central Bank of Kenya (CBK) and the National Treasury and Ministry of Planning.

- Continuity in governance reforms
  The government will continually strengthen the anti-corruption institutions towards better investigation, prosecution, eliminating discretionary decision-making in public service, public education, judicial and legal reforms.

- Enhanced equity and wealth creation opportunities
  Enhanced equity and wealth creation opportunities for the poor to bridge the gap between the rich and poor.

- Infrastructure development
  The vision aspires a country fully interconnected with a network of roads, railways, ports, airports, water and sanitation services, and telecommunication. Projects in this category will be given priority.

- Energy
  The demand for energy has increased, however, it still costs high compared to the neighboring countries; thus, the vision aims to develop more affordable energy, review the sector, work with more players from the private sector, and find new sources of energy.

- Science technology and innovation
  More resources will be devoted to scientific research, innovations, technical capabilities of the work force, and raising the quality of teaching mathematics and sciences in colleges and polytechnics.

- Land reforms
  The National Land Policy should be completed and implemented to give property rights to communities, individuals, and businesses. Additionally, it will guide land administration and establishment of land spatial data in order to track land use patterns.

[21] Kenya Vision 2030: Government of Kenya, Nairobi 2007

- Human resource development
  To create a competitive workforce to meet the demands of an industrializing country and raise labor standards to international standards.

- Security
  The vision is to improve security in order to lower the cost of doing business and provide Kenyans with a more secure working and living environment.

- Transforming public service
  An efficient, trained, and motivated workforce is expected to be one of the major foundations of Kenya Vision 2030. Results-based management will be pegged on the implementation of the vision.

The Kenya Vision 2030 will be driven by the following pillars/strategies:

Table 4.1.1 Pillars and Strategies in Kenya Vision 2030

Economic Strategy	Social Strategy	Political Pillar
・ Tourism – Through diversification and flagship projects. ・ Increasing value in agriculture by raising income in agriculture, livestock, and fisheries even as the industrial production and service sector expand. ・ A better and more inclusive wholesale and retail trade sector. ・ Manufacturing for the regional market. ・ Business Process Outsourcing. ・ Financial services to create a vibrant and globally competitive financial sector.	・ Education and training by providing an efficient and high-quality health care system with the best standards. ・ Water and sanitation through access and availability of clean water. ・ Secure clean and sustainable environment. ・ Provide decent and adequate housing in a suitable environment. ・ Equity in power and resource distribution between sexes, vulnerable groups, and globally competitive youth. ・ Equity and poverty elimination through accessing of public services and providing income generating activities.	・ Adherence to the rule of law. ・ Enact and operationalize the necessary policy and institution framework to support issue-based political process. ・ To build a people centered and politically engaged open society through democracy and public service delivery. ・ Create a transparent, accountable, ethical, and results-oriented government institutions.

Source: Kenya Vision 2030

Blue Economy belongs to the Economic Pillar which includes infrastructure, tourism, agriculture, trade, manufacturing, business process off-shoring, and information technology-enabled services and financial services.

4.2 Third Medium Term Plan (MTP III)

4.2.1 Objective of Third Medium Term Plan

MTP III (draft) projects have been selected based on their development impact (flagship projects), poverty reduction, and contribution to regional trade and investments. The planned programs and projects are geared towards the realization of the United Nations (UN) Sustainable Development Goals number 5 on gender equality, number 7 on affordable and clean energy, number 9 on building resilient infrastructure, number 13 on climate action, number 14 on life below water, and the AU Agenda 2063 (Program on Infrastructure Development in Africa).

4.2.2 MTP III Blue Economy (Draft)

MTP III for Blue Economy 2018-2022 (draft) was developed through consultative process with relevant key stakeholders including the Ministry of Agriculture and Irrigation (formerly the Ministry of Agriculture, Livestock, and Fisheries), Ministry of Transport and Infrastructure Development (formerly

the Ministry of Transport, Infrastructure, Housing, and Urban Development), development partners, and private sector, among others.

The Blue Economy sector is considered as one of the emerging economic frontiers that are expected to significantly contribute to Kenya's economic growth and development as envisaged in the long-term development in Kenya Vision 2030. In recognition of the sector's potential during the MTP III period (2018-2022), the Blue Economy has been added as the eighth priority sector under the Economic Pillars (Infrastructure, Tourism, Agriculture, Trade, Manufacturing, Business Process Offshoring and Information Technology Enabled Service, Financial Service, Blue Economy)

Kenya's Blue Economy includes: maritime transport, fishing, aquaculture, tourism, shipbuilding and repair, maritime education and training, marine cargo logistics, maritime law, safety and security, marine salvage, international shipping, transport, energy, bio-prospecting, offshore mining, marine bio-technology, blue data, aqua-business, cargo consolidation, marine insurance, bunkering, ship handling, port agency, port related services, water sports, as well as marine and maritime governance.

Challenges for Blue Economy identified in the Blue Economy sector of MTP III (draft) are summarized below.

- Blue Economy in general:
  - Lack of policy integration and uncoordinated development in the Blue Economy has led to slow growth of the sector, weak enforcement of laws, legislative gaps, duplications, overlaps, and high cost of doing business.
  - Insufficient training facilities and equipment deprive students with the required practical training and hence, students may not attain the competencies required for qualification and certification under the Standards of Training Certification and Watch-keeping (STCW '78).
  - Lack of coordination among the various institutions, which lead to losing its resources to those nations that have developed capacity for research and information sharing that enable exploitation of resources.
- Fisheries and aquaculture:
  - Excessive fishing effort: overfishing, use of destructive fishing gears and methods; ineffective management and extension systems; inadequate information for decision making; prohibitive cost of inputs especially fuel and fishing gears; inadequate fisheries infrastructure such as cold storage facilities, landing sites, market-access roads and energy.
  - High post-harvest losses, inadequate technical capacity, weak Monitoring, Control, and Surveillance (MCS) and lack of protocol on information sharing among agencies and states in the region, increased Illegal, Unregulated, and Unreported (IUU) fishing activities, ineffective enforcement of fisheries laws and regulations partly due to inadequate capacity and limited commitment and involvement of stakeholders in management of fisheries resources, and protection of critical fish habitats.
  - The offshore marine fisheries are exploited by foreign fishing companies which do not land fish in Kenya, thus, denying the country raw material for fish industries and food security from non-target fish by-catch.
  - Investment in fisheries and aquaculture is low due to risk.
  - The fisheries sub-sector also faces serious threats from agricultural, industrial, and municipal pollution arising from the developments around the basins as well as insecurity at sea, piracy, gear thefts, and non-viable alternative livelihoods.

- Aquaculture specific constraints and challenges:
  - Low extension capacity;
  - High cost and inadequate supply of inputs such as quality seeds and fish feeds;
  - Low uptake of technology;
  - Lack of agro-ecological specific fish strains; and
  - Hatcheries especially for marine aquaculture; thus, compelling farmers to rely on wild seeds which are seasonal.
- Maritime affairs:
  - Lack of domestic commercial vessels,
  - Supportive legislative framework and policies, such as cabotage regime and cargo reservation policy, have led to repatriation of foreign currency through shipping with foreign lines, unstable freight rates, missed job opportunities, and slow development of a hub status. A strong national shipping line is key to savings in foreign exchange, carriage of sensitive cargo, training, participation in extractives and oil as well as opening up other sub-sectors such as shipbuilding and repair, container manufacturing and repair, other auxiliary services like packaging, re-packaging, and cold storage, among others.

Since the Blue Economy is a relatively new concept in Kenya, MTP III for Blue Economy (draft) focuses on the development of foundation for implementation of the Blue Economy including planning, human resources development, institutional development, and infrastructure and facility development/improvement mainly for fisheries and maritime affairs.

The proposed flagship projects and other programs for the plan period will contribute to the "Big Four" government interventions on: manufacturing, housing, universal health care, and food and nutrition security. This is envisaged to spur the development of the sector with a view of creating employment, generating income, reducing poverty, creating foreign exchange earnings, and wealth creation consistent with the aspirations of the Government Manifesto and its strategic interventions.

Programs and Projects for 2018-2022 are proposed as "Flagship Programs and Projects and "Other Programs and Projects".

Eighteen flagship projects are proposed as shown in Table 4.2.1 below.

Table 4.2.1 Flagship Programs/Projects for Blue Economy in MTP III (Draft)

	Flagship Program/Projects	Contents
1	Development of Blue Economy Master Plan	An integrated and holistic Master Plan for the Blue Economy sector will be developed to enhance full exploitation of maritime resources.
2	Development of Human Resources to Manage the Blue Economy	Develop capacities on governance, justice, law, order and security; human resource and labor; research and sciences; maritime and shipping; offshore energy and extractives; and living marine resources. Capacity needs assessment at both the national and county governments will be undertaken and build the capacities identified. Traders and investors will be empowered to participate in the Blue Economy and Bandari College will be transformed to a National Maritime Centre of Excellence.
3	Supply the Blue Economy: skilled labor for the international market	Supply a competent, highly skilled Blue Economy labor to the international market through: provision of reliable, accurate and timely information of labor demand and supply plus development of skilled Blue Economy labor inventory.
4	Implementation of Fisheries Management and Development Act, 2016	The Government will operationalize the Fisheries Management and Development Act, 2016. Kenya Fisheries Service, (KFS); Kenya Fish Marketing Authority (KeFMA); Kenya Fisheries Advisory Council, (KFAC); Fish Levy Trust Fund (FLTF); Kenya Fisheries Research, and

	Flagship Program/Projects	Contents
		Development Fund; Monitoring, Control and Surveillance (MCS) Unit; and Inter-Agency MCS Unit
5	Development/review of policy, legal, regulatory, and institutional framework for Kenya's Blue Economy	The appropriate over-arching policy, legal, regulatory, and institutional framework will be developed to guide the management, development, and coordination of the Blue Economy sector.
6	Integrated National Maritime Policy	This will entail the development of an Integrated National Maritime Policy (INMP) to contribute to long-term social economic development and environmental well-being of the country.
7	Development of National Maritime Spatial Plan	The aim of the plan is to document sound planning and efficient use of resources and spaces in the maritime sub - sector
8	Development of National Fleet	The national fleet will include merchant and fishing fleet. The national fishing fleet will be developed initially through reflagging of foreign fishing vessels with a Kenyan flag where local investors enter into partnership or lease agreements with foreign fishing establishments. The reflagging and lease agreements would increase fish production and agro - processing.
9	Development of Fisheries and Maritime Infrastructure	This will entail establishment of maritime infrastructures including: small commercial port in Takaungu; fish markets in Kisumu, Lamu, Mombasa, and Nairobi; upgrading of Bandari College into National Maritime Centre of Excellence; fishing ports in Mombasa, Lamu, Kilifi, and Shimoni that is expected to create 12,000 jobs and add KES 20 billion to the GDP; jetties; fish processing, cold storage facilities and ice plants; accreditation of International Fish Quality Control laboratories in Nairobi, Mombasa, and Kisumu; and provision of inspection facilities at border inspection posts; recovery of encroached public land reserved for jetties, landing sites, fishing ports, and access roads to beaches and lakes.
10	Aquaculture technology development	The priority interventions to be implemented include: Aquaculture Technology Development and Innovations Transfers; Youth Aquaculture Program; National Fish Breeding Program in Sagana, Kiganjo, Ngomeni and Kabonyo; Development of International Nile Perch Research Center at Kabonyo in Kisumu; Development of aqua-parks; promotion and development of ornamental fisheries; and development and promotion of recreational fisheries.
11	Revival of Kenya National Shipping Line (KNSL)	The Kenya National Shipping Line (KNSL) will be revived to firmly establish the Kenyan coastline as the pre-eminent logistics and transportation hub on the eastern seaboard of the African continent. The KNSL will also leverage on Container Terminal 2 and engage a global strategic partner to drive cargo volumes to 2 million Twenty-foot Equivalent Units (TEUs) trans-shipped at the Port of Mombasa from other regional ports for redistribution.
12	Vijana Baharia Program	The project aims to harness the potential of the huge number of youth who do not qualify or unable to join universities and other tertiary institutions by providing them with proficiency-based training so as to access jobs in the maritime sector.
13	Enforcement of the Insurance Act	The enforcement will make it unlawful for any person to place insurance offshore without prior written approval of the Commissioner of Insurance.
14	Raise Fish Production	Fish production will be raised from 128,649 metric tons in 2016 to 304,000 metric tons per year through the regulated landing of fish.
15	Raise Per Capita Consumption of Fish	The per capita consumption of fish will be raised, through incentivization, from the current 4.6 kg/person/year to the average in Africa of 10 kg/person/year, in order to reap the benefits of a fish diet as well as establish a string of domestic market
16	Organize and Support Beach Management Unit (BMUs)	The role of the artisan fishermen will be enhanced by organizing the BMUs into strong associations for resource use management and who can participate in viable commercial entities such as cooperatives and support the same with both capacity building and fleet modernization.
17	Diversification of Tourist Packages	Tourist packages will be diversified to include cruise, sport fishing, game safaris, marina, dolphin and whale watching.
18	Cooperation and implementation of regional / international frameworks and standards	During the MTP period, the Government will cooperate within regional and international frameworks in developing the Blue Economy.

Source: Medium Term Plan III (Blue Economy), State Department of Fishery and Blue Economy

Table 4.2.2 Programs/Projects for Blue Economy in MTP III regarding Blue Economy (Draft)

No	Flagship Program/Projects	Blue Economy	Fishery		Maritime Affairs/Port		Tourism	Environment
			Marine	Inland	Marine	Inland		
1	Development of Blue Economy Master Plan	○	○	○	○	○	○	○
2	Development of Human Resources to Manage the Blue Economy	○	○	○	○	○	○	○
3	Supply the Blue Economy: Skilled Labor for the International Market	○	○	○	○	○	○	○
4	Implementation of Fisheries Management and Development Act, 2016		○	○				
5	Development/review of policy, legal, regulatory and institutional framework for Kenya's Blue Economy	○	○	○	○	○	○	○
6	Integrated National Maritime Policy				○			○
7	Development of National Maritime Spatial Plan		○		○		○	○
8	Development of National Fleet		○		○			
9	Development of Fisheries and Maritime Infrastructure		○	○	○ (port)	○ (port)		
10	Aquaculture Technology Development			○				
11	Revival of Kenya National Shipping Line (KNSL)				○			
12	Vijana Baharia Program				○			
13	Enforcement of the Insurance Act				○			
14	Raise Fish Production		○	○				
15	Raise Per Capita Consumption of Fish		○	○				
16	Organize and Support Beach Management Unit (BMUs)		○	○				
17	Diversification of Tourist Packages						○	
18	Cooperation and implementation of regional/international frameworks and standards	○	○	○	○	○	○	○
	Total Number of Programs/Projects	**5**	**12**	**10**	**12**	**6**	**7**	**7**

Source: JICA Survey Team prepared based on Medium Term Plan III (Blue Economy), State Department of Fishery and Blue Economy.

Table 4.2.3 Programs/Projects for Blue Economy in MTP III (Draft) regarding Approach

No	Flagship Program/Projects	Planning	Institution (Policy, Legal)	Facility/Infrastructure	Human Resources	Technology /R&D	Supply/Demand
1	Development of Blue Economy Master Plan	○					
2	Development of Human Resources to Manage the Blue Economy				○		
3	Supply the Blue Economy: Skilled				○		

No	Flagship Program/Projects	Planning	Institution (Policy, Legal)	Facility/Infrastructure	Human Resources	Technology /R&D	Supply/Demand
	Labor for the International Market						
4	Implementation of Fisheries Management and Development Act, 2016		○				
5	Development/review of policy, legal, regulatory and institutional framework for Kenya's Blue Economy		○				
6	Integrated National Maritime Policy		○				
7	Development of National Maritime Spatial Plan	○					
8	Development of National Fleet			○			
9	Development of Fisheries and Maritime Infrastructure			○			
10	Aquaculture Technology Development					○	
11	Revival of Kenya National Shipping Line (KNSL)		○				
12	Vijana Baharia Program				○		
13	Enforcement of the Insurance Act		○				
14	Raise Fish Production						○
15	Raise Per Capita Consumption of Fish						○
16	Organize and Support Beach Management Unit (BMUs)		○				
17	Diversification of Tourist Packages						○
18	Cooperation and implementation of regional/international frameworks and standards		○				
	Total Number of Programs/Projects	2	7	2	3	1	3

Source: JICA Survey Team prepared based on Medium Term Plan III (Blue Economy), State Department of Fishery and Blue Economy

Other programs and projects are proposed as follows:

Table 4.2.4: Other Programs/Projects for Blue Economy in MTP III (Draft)

	Other Program/Projects	Contents
1	Development and management of Blue Economy database	A data center will be established as a repository of data and information for the entire shipping and maritime affairs, fisheries, and aquaculture sub-sectors.
2	Kenya Maritime Fisheries and Socio-Economic Development Project (KMFSEDP) World Bank	The development goal is to enhance economic benefits and coastal livelihoods from marine fisheries and coastal aquaculture while safeguarding associated ecosystems' integrity.
3	Fish stocks enhancement in inland water resources	Stocking and restocking of lakes, rivers, and dams as well as identification, mapping, delineation, and protection of critical habitats

	Other Program/Projects	Contents
		will be prioritized during the MTP period to enhance stocks in water bodies
4	Fish stocks monitoring	Frame and catch assessment surveys will be conducted in Lakes Victoria, Turkana, and marine waters.
5	Certification of fish processing establishments and landing beaches	Monthly inspections of fish processing establishments and bimonthly for fishing vessels and landing beaches will be carried out. Audit inspections will be done at least on a quarterly basis on licensed fish processing establishments and fish landing sites.
6	Implementation of Residue Monitoring Plan for farmed fish	The plan requires collection and analysis of samples from fish farms in every calendar year on a quarterly basis
7	Diversification of fish export markets	This entails the development of a fish export strategy and the diversification of export markets through promotions and fisheries product development
8	Marine aquaculture development	The focus will be on seaweed farming and development of finfish, crustaceans, prawn, and mollusks farming at the coast. In addition, a Marine Aquaculture Research Center and a Marine Aquaculture Hatchery will be established to facilitate diversification of aquaculture species and boost aquaculture development across the country.
9	Aquaculture business development	The project aims at promoting cluster agro – processing enterprises in aquaculture.
10	Inland water maritime development	The program in L. Turkana will focus on: implementation of the Fisheries Management Plan and sensitizations of communities and other stakeholders on the benefits of water transport for both commercial and leisure purposes. In L. Victoria, efforts will be made to revamp the current dilapidated port terminals, oil jetties, passenger, and wheeled cargo ramps, link span, and shallow piers.
11	Maritime transport services	The program will have two components, namely: shipbuilding and repairs; and container manufacture and repair industry.
12	Marine risk and disaster management	The program will involve carrying out thorough investigations into marine disaster that take place in Kenyan waters or involve Kenyan registered vessels and implement key interventions measures including promotion of safety and use of aids to navigation and marine pollution control.
13	Coastal shipping development	Specialized ports will be developed in Takaungu, Shimoni, Kilifi Bay, and Malindi to promote domestic shipping activities at the coastal strip. To promote the participation of Kenyans in coastal shipping activities, a strategy will be developed to improve governance, safety of navigation, security, protection of marine environment, and shipping operations in the small ports.
14	Maritime cluster enterprises development	This will entail establishment of Seafarers Training Fund, Women in Maritime Fund, Cluster Development Fund, and Shipping and Maritime Training Fund to benefit organized clusters in the maritime and shipping affairs subsector including the youth and women.
15	Research and development of the Blue Economy	This will entail research on promotion of investments in the Blue Economy; diversification and commercialization of aquaculture species; economic valuation of marine and coastal resources; development of innovative technologies for value-addition and reduction of post-harvest losses; and maritime and shipping affairs research.
16	Sensitization and awareness creation of the young population on the Blue Economy	Reach out to the young population through print and electronic media program, school visits and competitions, development of Blue Economy science clubs and introduction of Blue Economy components into the learning institutions curriculums among others.
17	Implementation of human resource planning and succession management strategy	Develop and implement a Human Resource Master Plan and Annual Human Plans; introduce management trainee program; design, review, and implement leadership and management capacity program; design and implement a young professional and emeritus program; a High Achievers Scheme; and review/develop carrier progression guideline/schemes of service for all cadres among others.

Source: Medium Term Plan III (Blue Economy) State Department of Fishery and Blue Economy

Table 4.2.5 Other Programs/Projects for Blue Economy with regard to MTP III (Draft)

No	Flagship Program/Projects	Blue Economy	Fishery		Maritime Affairs/Port		Tourism	Environment
			Marine	Inland	Marine	Inland		
1	Development and management of blue economy database	○	○	○	○	○	○	○
2	Kenya Maritime Fisheries and Socio-Economic Development Project (KMFSEDP) (World Bank)		○					
3	Fish stocks enhancement in inland water resources			○				
4	Fish stocks monitoring		○	○				
5	Certification of fish processing establishments and landing beaches		○	○				○
6	Implementation of residue monitoring plan for farmed fish		○	○				○
7	Diversification of fish export markets		○	○				
8	Marine aquaculture development		○					
9	Aquaculture business development		○	○				
10	Inland water maritime development			○		○		
11	Maritime transport services				○			
12	Marine risk and disaster management				○			○
13	Coastal shipping development				○			
14	Maritime cluster enterprises development				○			
15	Research and development of the Blue Economy	○	○	○	○	○	○	○
16	Sensitization and awareness creation of the young population on the Blue Economy	○	○	○	○	○	○	○
17	Implementation of human resource planning and succession management strategy	○	○	○	○	○	○	○
	Total Number of Programs/Projects	**4**	**11**	**11**	**8**	**5**	**4**	**7**

Source: JICA Survey Team prepared based on Medium Term Plan III (Blue Economy), State Department of Fishery and Blue Economy

Table 4.2.6 Other Programs/Projects for Blue Economy in MTP III (Draft) regarding Approach

No	Flagship Program/Projects	Planning	Institution (Policy, Legal)	Facility/Infrastructure	Human Resources	Technology/R&D	Supply/Demand
1	Development and management of Blue Economy database	○					

No	Flagship Program/Projects	Planning	Institution (Policy, Legal)	Facility/Infrastructure	Human Resources	Technology/R&D	Supply/Demand
2	Kenya Maritime Fisheries and Socio-Economic Development Project (KMFSEDP) (World Bank)		○		○		○
3	Fish stocks enhancement in inland water resources	○					
4	Fish Stocks Monitoring		○				
5	Certification of fish processing establishments and landing beaches						○
6	Implementation of residue monitoring plan for farmed fish		○				
7	Diversification of fish export markets						○
8	Marine aquaculture development						○
9	Aquaculture business development						○
10	Inland water maritime development						○
11	Maritime Transport Services			○			
12	Marine risk and disaster management		○				
13	Coastal shipping development	○		○			
14	Maritime cluster enterprises development				○		
15	Research and development of the Blue Economy					○	
16	Sensitization and awareness creation of the young population on the Blue Economy				○		
17	Implementation of human resource planning and succession management strategy				○		
	Total Number of Programs/Projects	**3**	**4**	**2**	**4**	**1**	**6**

Source: JICA Survey Team prepared based on Medium Term Plan III (Blue Economy), State Department of Fishery and Blue Economy

4.2.3 MTP III Infrastructure (Draft)

The plan seeks to build on the successes made in the infrastructure sector, which includes aviation, shipping and maritime, roads, rail, and energy, Lamu Port South Sudan Ethiopia Transport Corridor (LAPSSET), buildings, and public works. Sectors related to Blue Economy are shipping and maritime, LAPSSET, buildings, and public works.

Challenges for shipping and maritime are identified as lack of training vessel to offer sea time to training.

Challenges for building and other public works:

- Shortage of skilled technical personnel to manage the projects and high rate of staff turnover.
- Duplication of roles by various implementing agencies in the construction industry.
- Deficient performance by contractors.
- Legal and contract challenges arising from arbitration and contractual issues impacting on project implementation.

(1) Projects Proposed for Shipping and Maritime

The objective of the flagship projects is to facilitate the transshipment of cargo at the port of Mombasa. Flagship projects proposed for shipping and maritime are summarized in Table 4.2.7 below.

Table 4.2.7: Flagship Programs/Projects for Infrastructure (Shipping and Maritime) in MTP III (Draft)

	Flagship Program/Projects	Contents
1	Expansion of the Second Container Terminal Phase II and III	This will increase the container handling capacity. It will entail expansion of the yard and berth capacity.
2	Development of the Dongo Kundu Free Trade Port	It will involve construction of two berths to serve the Dongo Kundu Special Economic Zone.
3	Kisumu Port	It will involve revamping of the Port with better handling facilities
4	Relocation of Kipevu Oil Terminal - KOT.	The Government plans to expand and modernize oil terminal facilities in Mombasa. The project entails development of four berths able to handle bigger vessels of up to 200,000 DWT at a cost of USD .391 M
5	Development of the Lamu Port Southern Sudan Ethiopia Transport Corridor (Lamu Port)	The project aims at providing an alternative and strategic port to serve the regional land locked countries of Ethiopia and South Sudan and beyond. During the period, there will be sourcing of the operator and equipment for the first three berths and development of the next three berths.

Source: Infrastructure Development Plan 2018-2022 Final Draft, MOTI & HUD

Other projects proposed for shipping and maritime are summarized in Table 4.2.8 below. The programs/projects with “BE” stands for the programs/projects that are also identified in MTP III Blue Economy (draft).

Table 4.2.8: Other Programs/Projects for Infrastructure (Shipping and Maritime) in MTP III (Draft)

	Other Program/Projects	Contents
1	Construction of Shimoni Port	By the end of MTP III period, feasibility study will be completed and commence development of the port
2	Revival of National Shipping Line (KNLS) (BE)	The Kenya National Shipping Line (KNSL) will be revived to firmly establish the Kenyan coastline as the pre-eminent logistics and transportation hub on the eastern seaboard of the African continent. This will entail restructuring of operations and management including settlement of outstanding debt and other liabilities.
3	Maritime Education and Training (BE)	This project aims at transforming Bandari College to a National Maritime Center of Excellence to serve the entire maritime industry including hosting a world class fisheries center.
4	Development of a National Maritime Spatial Plan (BE)	Sound planning and efficient use of resources and spaces will be documented in the National Maritime Spatial Plan. This will create greater certainty to private sectors when planning new areas of investments; identify compatible uses within the same area of development; reduce conflicts among incompatible users and the nature; streamline licensing processes; and promote overall efficient use of the resources and space thereto.

	Other Program/Projects	Contents
5	Research and Development	The focus will be on maritime and shipping affairs research; strengthening coordination, collaboration, and partnerships with research institutions, universities, and state agencies
6	Inland Water Maritime Development (BE)	This will involve development of transport system, jetties, and small ports to enhance inland water transport services and promote trade especially in Lake Turkana and Lake Victoria.
7	Maritime Transport Services (BE)	This project aims at development of shipbuilding and repairs facilities and container repair industry.
8	Marine Risk and Disaster Management (BE)	To promote maritime safety and security and safeguard the maritime environment through use of aids to navigation and marine pollution control. This will help attract investment in the maritime sector.
9	Coastal Shipping Development (BE)	Development of specialized ports in Takaungu, Shimoni, Kilifi Bay, and Malindi.
10	Maritime Cluster Enterprises Development (BE)	This will involve establishment of Seafarers Training Fund, Women in Maritime Fund and Shipping and Maritime Training Fund to benefit organized clusters in the maritime and shipping affairs subsector including the youth and women.
11	Development of National Commercial Fleet (BE)	This will be done through pooling resources into consortiums through vessel acquisition and charters will help build a strong commercial shipping line with a capacity to compete with foreign carriers.
12	Maritime Technical Cooperation Centre for Africa (MTCC Africa)	This project was envisaged when the International Maritime Organization (IMO) adopted Resolution MEPC 229(65), on 17 May 2013.
13	Vijana Baharia Project (BE)	The project aims at tapping on the potential of the huge number of youth who do not qualify/unable to join universities and other tertiary institutions by providing them with proficiency-based training so as to access jobs in the maritime sector.
14	Awareness Creation and Sensitization Campaign	A maritime and shipping affairs awareness campaign will be conducted in the coastal and inland water counties to sensitize the public on the water resources and its potential and the business, training, and employment opportunities available.
15	Development and Management of Kenya Maritime Database	History shows that much of the available maritime data is exclusively related to the port industry and therefore it is imperative to establish a data center.

Source: Infrastructure Development Plan 2018-2022 Final Draft, MOTI & HUD
Note: BE represents projects also proposed in MTP III Blue Economy Sector

(2) Projects Proposed for LAPSSET

One project is proposed for LAPSSET as shown in Table 4.2.9 below.

Table 4.2.9: Flagship Programs/Projects for Infrastructure (LAPSSET) in MTP III (Draft)

	Other Program/Projects	Contents
1	Development of the Lamu Port Southern Sudan Ethiopia Transport Corridor (Lamu Port)	The project aims at providing an alternative and strategic port to serve the regional land locked countries of Ethiopia and South Sudan and beyond. During the period, there will be sourcing of the operator and equipment for the first three berths and development of the next three berths.

Source: Infrastructure Development Plan 2018-2022 Final Draft, MOTI & HUD

(3) Buildings and Public Works

Some of the projects for buildings and public works are related to Blue Economy.

Table 4.2.10: Flagship Programs/Projects for Infrastructure (Buildings and Public Works) in MTP III (Draft)

	Other Program/Projects	Contents
1	Development and Maintenance of Coastline Infrastructure and Inland Water Transport	The main objective of this program is to improve movement into and out of waters and to protect land and property in low lying areas from sea-wave action, flooding, and erosion.
2	Malindi Beach Integrated Development Program	The program will enhance development of the Blue Economy and enhance Malindi's position as a key tourist destination for both local and international visitors. Interactive recreational facilities will be used to a large extent to engage the visitors through sharing the rich Malindi culture and natural beauty of the surrounding breathtaking landscape.

Source: Infrastructure Development Plan 2018-2022 Final Draft, MOTI & HUD

4.2.4 MTP III Tourism (Draft)

MTP III Tourism (draft) responds to the changing global trends that are currently shaping the tourism sector. For the sector to contribute to the envisaged annual GDP growth rate of 10%, the following targets have been set: Increase tourism arrivals from 1.3 million in 2016 to 2.5 million visitors in 2020, increase tourism earnings from KES 99 billion in 2016 to KES 175 billion in 2020; increase bed-nights by domestic tourists from 3.5 million in 2016 to 6.5 million in 2020.

The fundamental strategies during this medium-term period will be to fix and improve existing products as well as to diversify into new tourism products. Other priorities include tourism promotion and marketing, enhancing quality training capacity, tourism infrastructure development as well as financing to hoteliers and other innovative products.

Table 4.2.11: Flagship Programs/Projects for Tourism in MTP III (Draft)

	Program/Projects	Contents
1	Tourism Product Development	・ Coastal Beach Tourism: refresh and revamp beach products, enhance priority beach nodes (popular beach areas) ・ Wildlife (Safari) Product: Masai Mara development, Amboseli National Park, Conservancies/up market products, premium park initiative, underutilized parks ・ Niche Products Development and Diversification: heritage tourism, cultural tourism, business and conference tourism initiatives, sports tourism, wildlife, nature, and science tourism, city tour experience, adventure tourism, desert tourism, wellness and yoga tourism, medical and health tourism, agro-tourism, events tourism ・ Resort Cities: Isiolo Resort City, Turkana Resort City, Lamu Resort City
2	Tourism Promotion and Marketing	・ Destination Marketing: deliver an exceptional tourist experience, inspire the world through a powerful brand Kenya, improve the competitive position of Kenya in the sales system, tourism industry engagement, improve the performance of the tourism industry marketing, incentive program to drive tourists. ・ Enhance Local Tourism Circuits ・ Standard of Tourism Facilities and Services: develop minimum standards for hotels and restaurants, review hotel and restaurants classification criteria, development of other tourism related enterprises standards, provision of incentives and tax breaks to hoteliers and tour operators, enforcement of standards or hospitality and tourism training institutions
3	Enhance the Quality of Tourism Training	・ Completion of Ronald Ngala Utalii College ・ Improvement of infrastructure in Kenya Utalii College (KUC)
4	Financing of Tourism Investments	・ Financing of tourist facilities ・ Thematic tourism products ・ Hotel Refurbishment Loan Fund
5	Enabling Services	Operationalization of tourist protection service, tourism crisis

	Program/Projects	Contents
6	National Tourism Data and Information Project	・ Tourist information improvement and signage program ・ Development of tourism satellite account
7	Tourism Area Plans Development Projects	Development of tourism requires area plans that take cognizance of environmental sustainability, optional land use pattern, and community interests among a host of other factors.

Source: Tourism Sector Plan 2018-2020 for the Third Medium Term Plan of the Kenya Vision 2030

4.3 Organizational Improvement for Implementation of Blue Economy

4.3.1 Organizational Reform for the National Government

In order to strengthen the execution of Blue Economy in Kenya, the Government of Kenya has been reforming government structure since 2016. Some of the benchmark in government structuring is summarized below.

(1) Organization of the Government of Republic of Kenya, Executive Order No. 1/2016 (May 2016)

Executive Order No. 1/2016 was issued to show portfolio responsibilities and changes made in the structure of government (supersedes Executive Order No. 2/2013). One of the major changes related to Blue Economy is the change of the Ministry of Agriculture, Livestock, and Fisheries for which the State Department for Fisheries and Blue Economy was established and the term "Blue Economy" was added in the function of the State Department. The function of the State Department is summarized below.

Table 4.3.1: Function of State Department of Fisheries and Blue Economy

Organization	Function	Institutions
Ministry of Agriculture, Livestock, Fisheries		
State Department for Fisheries and Blue Economy	・ Fisheries Policy ・ Fishing Licensing ・ Development of Fisheries ・ Fisheries Marketing ・ Fish Quality Assurance ・ Development of Policy Framework for Kenya's Maritime Blue Economy ・ Development of Legal, Regulatory and Institutional Framework for the Blue Economy ・ Enhancement of Technical Cooperation ・ Maritime Spatial Planning and Integrated Coastal Zone Management ・ Protection and Regulation of Marine Ecosystems ・ Protection of Fisheries in EEZ ・ Overall Policy for Exploitation of Agro Based Marine Resources ・ Development for Fishing Ports and Associated Infrastructure ・ Capacity Building for Sustainable Exploitation of Agro-Based Maritime Resources ・ Promotion of Sustainable Use of Food based Aquatic Resources ・ Protection of Aquatic Ecosystems ・ Promotion of Kenya as a Center for Agro-Based Blue Economy	・ Kenya Maritime and Fisheries Research Institute

Source: Executive Order No. 1/2016, Organization of the Government of the Republic of Kenya

The function of other ministries related to Blue Economy is summarized below.

Table 4.3.2: Function of Organizations related to Blue Economy

Organization	Function	Institutions
Ministry of Transport, Infrastructure, Housing, and Urban Development		
State Department for Transport	・ Transport Policy Management ・ Maritime Transport Management ・ Civic Aviation Management and Training ・ Registration and Insurance of Motor Vehicle ・ Motor Vehicles Inspection ・ Rail Transport and Infrastructure Management ・ National Road Safety Management ・ National Transport Safety ・ Oversight and Coordination of Lamu South Sudan Ethiopia Transit Corridor (LAPSSET) Program Implementation Program ・ National Roads Development Policy Management ・ Mechanical and Transport Service	・ Kenya Institute of Technology ・ Kenya Roads Boards ・ Kenya National Highways Authority ・ Kenya Urban Roads Authority ・ Kenya Rural Roads Authority ・ Kenya Institute of Highways and Building Technology ・ Engineering Registration Board of Kenya
State Department for Maritime and Shipping Affairs	・ Promotion of Maritime and Shipping Industry ・ Ship Registration in Kenya ・ Marine Cargo Issuance ・ Establishment of Effective Admiralty Jurisdiction ・ Development of a Central Data and Information Center ・ Human Resources Development, Management and Research in Support of Kenya's Shipping Industry	・ Bandari College ・ The Kenya National Shipping Line
State Department of Public Works	・ Public Works Policy and Planning ・ Public Office Accommodation Lease and Management ・ Maintenance of Inventory of Government Property in Liaison with the National Treasury ・ Overseeing Provision of Mechanical and Electrical (Building) Services to Public Buildings	
Ministry of Tourism		
	・ Tourism Policy and Standards ・ Development and Promotion of Tourism ・ Tourism Research and Monitoring ・ Protection of Tourism and Regulation ・ Tourism Financing ・ Training on Tourism Services ・ Marketing Kenya for Local and International Tourists	・ Kenya Regulatory Authority ・ Kenya Tourism Board ・ Tourism Finance Corporation ・ Kenya Utalii College ・ Kenyatta International Convention Center ・ The Tourism Fund
Ministry of Environment and Natural Resources		
State Department for Environment	・ National Environment Policy and Management ・ Protection and Conservation of the Natural Environment ・ Climate Change Policy ・ Pollution Control ・ Lake Victoria Environmental Management Program ・ Restoration of Lake Naivasha Basin ・ Kenya Meteorological Department ・ Kenya Meteorological Training	・ National Environmental Management Authority ・ National Environment Trust Fund ・ Kenya Meteorological Training College

Source: Executive Order No. 1/2016, Organization of the Government of the Republic of Kenya

4.3.2 Fisheries Management and Development Act

The Fisheries Management and Development Act (No. 35 of 2016) was issued in September 2016. The act provides for the conservation, management, and development of fisheries and other aquatic resources to enhance the livelihood of communities dependent on fishing and to establish the Kenya Fisheries Services.

The objective of the act is to protect, manage, use, and develop the aquatic resources in a manner which is consistent with ecologically sustainable development, to uplift the living standards of the fishing communities, and to introduce fishing to traditionally non-fishing communities to enhance food security.

The contents of the act is summarized below.

- Kenya Fisheries and Advisory Council
- **Kenya Fisheries Service**s
- Financial and administrative provisions
- Fisheries conservation, management and development
- Import, export and trade and marketing of fish products
- Fish quality and safety
- Aquaculture
- Information, data and records
- Licensing and registration
- Compliance with Act, licenses, authorizations, and requirements for fishing vessels
- Requirements for foreign fishing vessels or vessels fishing under charger arrangements
- Monitoring, control and surveillance
- Requirements for arrested persons and seized items
- Evidence
- Summary administrative proceedings
- Jurisdiction, prosecution, forfeiture, liabilities, and other actions
- **Establishment of Fish Marketing Authority**

The significance of the act for Blue Economy is summarized below.

- The act covers most sectors in Blue Economy (fisheries, a part of maritime affairs).
- The act shows the regulatory framework for most of the sectors in Blue Economy.
- Organizations for implementation of Blue Economy are established.

Based on the act, two institutions were established, namely, “Kenya Fisheries Service” and “Fish Marketing Authorities. The Kenya Fisheries Service shall be responsible for the conservation, management, and development of Kenya's fisheries resources in accordance with the act. The objective and purpose of the Fish Marketing Authority is to market fish and fisheries products from Kenya. After the act is enacted, there will be three institutions in the State Department of Fisheries and Blue Economy including Kenya Marine and Fisheries Research Institute (KMFRI).

4.3.3 Blue Economy Committee (September 2016 by Gazette)

The Blue Economy Committee was gazetted in September 2016 for preparing the plan, programs, and priority programs for the implementation of the Blue Economy. The terms of the committee were:

- Develop a master operational plan that identifies:
  - the economic sectors that should be prioritized, and
  - factors constraining full exploitation of the priority economic sectors.
- Develop and prioritize programs and projects required to unlock growth of the economic priority sectors, e.g., enabling policy infrastructure development like construction of fish ports and capacity building for fisheries industry, etc.
- Identify land for the construction of fish ports in Shimoni, Kilifi, and Lamu.
- Develop appropriate capacity program for exploitation of the fish industry including training, deep sea fishing vessels, cold storage facilities, and landing jetties.
- Develop a fully securitized better and effective framework for managing of Kenya’s beaches.

- Develop on organizational structure to oversee the execution of the Blue Economy master operational plan.
- Prepare a budget to support the operational plan for the development of the Blue Economy.
- Prepare and submit to the president a comprehensive report that responds to the terms of reference with clear and complete resource delivery work plans for each program /project within eight weeks, but not later than 15 November 2016.

The priority projects proposed are integrated in the MTP III of Blue Economy (draft).

According to the definition of the Blue Economy concept, the following ministries have contributed members of the taskforce to the Blue Economy Implementation Committee:

- Principal Secretary, State Department for Fisheries and Blue Economy-Ministry of Agriculture, Livestock and Fisheries.
- Principal Secretary, State Department for Maritime and Shipping Affairs-Ministry of transport and infrastructure.
- Principal Secretary, National Treasury-Ministry of Finance/Treasury.
- Principal Secretary State Department for Transport- Ministry of Transport and Infrastructure.
- Principal Secretary, State Department for Environment-Ministry of Environment and Natural Resources. Senior Advisor, International Relations and Social Sector-Ministry of Foreign affairs and International trade.
- Senior Advisor, International Relations and Social Sector,
- Executive Office of the President.
- Economic Advisor, Executive Office of the President, and
- Secretary, Kenya International Boundaries Office.

4.3.4 Blue Economy Implementation Committee January 2017 by Gazette

The Blue Economy Implementation Committee was established in January 2017. This was established under Gazette Notice No. 3 of 6 January 2017 for implementation of the priority programs proposed by the Blue Economy Committee.

According to the gazette, the terms of reference of the committee were to:

- Coordinate and oversee the implementation of the priority programs, and
- Prepare and submit monthly report to the president on the progress of the implementation.

The Blue Economy Implementation Committee was established as an extension of the Blue Economy Committee, whose members are the same.

Chapter 5: Fisheries

5.1 Development Plans and Strategy

The State Department of Fisheries and Blue Economy is one of the state departments in the Ministry of Agriculture and Irrigation (formerly known as the Ministry of Agriculture, Livestock, and Fisheries). It is divided into three directorates, namely Aquaculture Technology Development; Fisheries Policy, Research and Regulations; and Fisheries Resources, Development and Marketing.

The preparation was guided by the Second Medium Term Plan (MTP II) of the Kenya Vision 2030 and sector priorities; recognized the international, regional, and national challenges that are facing the sector; and considered the two levels of government.

The fisheries subsector was guided mainly by the Fisheries Act (Cap. 378), 1991, the National Oceans and Fisheries Policy, 2008, and the Aquaculture Policy, 2011. The plan also proposed the establishment of new institutions in the sector, like the Agriculture Fisheries and Food Authority (AFFA), Kenya Fisheries Service (KFS), and Fish Marketing Authority. The strategic objective in the fishery subsector was to initiate institutional reforms and fisheries development and management which would lead to the enactment of the current Fisheries Management and Development Act, 2016.

It is also worth noting that Kenya's National Nutrition Action Plan 2014-2017 promotes fisheries as one of the sectors that can contribute to the goals of the national nutrition agenda thus pushing the mechanism to increase access and availability of fish.

Strategic issues and strategies of the Ministry of Agriculture, Livestock and Fisheries and the Blue Economy identified in the MTP II are listed as follows:

- Create an enabling environment for agricultural development;
- Increase productivity and output in the agriculture sector;
- Enhance national food and nutrition security;
- Improve market access and trade;
- Strengthen institutional capacity; and
- Enhance the role of youth in agriculture.

Among them, the strategy related to fisheries is "sustainable utilization of capture fisheries", which is composed of the following items:

- Establish and equip Fisheries Monitoring and Surveillance Units (FMSUs);
- Undertake monitoring, control, and surveillance patrols in natural water bodies;
- Establish fish port facilities at Lamu;
- Develop domestic capacity for deep sea fishing;
- Implement Port State Measures Agreement (PSMA);
- Promote joint ventures between foreign and local investors in the exclusive economic zone (EEZ);
- Conduct fish stock assessment in the EEZ and inland natural water bodies;
- Protect critical fish habitats in water bodies; and

- Stock and restock of natural water bodies with appropriate water fish fingerlings.

During the Third Medium Term Plan (MTP III) period, fisheries matters were included in the MTP III Blue Economy (draft).

5.2 Responsible Organizations

The Fisheries Management and Development Act, 2016 provides for the establishment of the following:

- The State Department of Fisheries and Blue Economy is responsible for the fisheries policy, licensing, development marketing, technical cooperation, management, and regulation, as well as the Blue Economy policy and regulatory matters.
- The Kenya Fisheries Service coordinates and manages all matters concerning the fisheries sector.
- The Fish Marketing Authority shall market fish and fisheries products from Kenya.
- The Kenya Fisheries Advisory Council reviews and advises the national government on policies related to the coordination of fishing management and allocation of fishery resources, as well as agreements related to fishery, research, education, capacity development in fisheries, management plans, and resources for the development of the fisheries sector.
- The Fish Levy Trust Fund provides supplementary funding of activities geared towards management, development and capacity building, awards, and urgent mitigation to ensure sustainability of the fisheries resource.
- The Fisheries Research and Development Fund provides supplementary funding for research intended to further the development of fisheries management, capacity building, scholarships, grants, and support for the observer program.

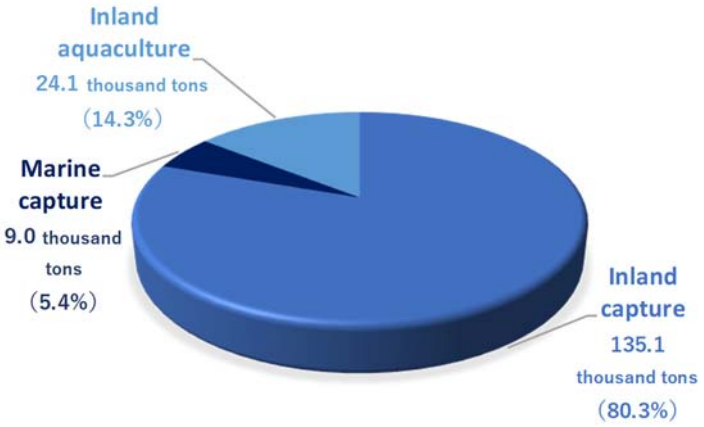
5.3 Current Situation

Kenya's fisheries sectors contributed approximately 0.80 % (USD 461 million) to the country's gross domestic product (GDP) in 2013 (KNBS: www.knbs.or.ke). Approximately 129,300 people derived their livelihood from the fisheries industry in 2013, wherein 48,300 people relied on inland fishing, 13,100 people depended on marine fishing, and 67,900 people engaged in fish farming for their livelihood (FAO 2015). Table 5.3.1 shows the production of fish in the respective categories from 1980 to 2014, while Figure 5.3.1 shows the quantity of fish production in their respective categories.

Table 5.3.1 Production of Fisheries (MT)

Year		1980	1900	2000	2010	2012	2013	2014
Total Production (thousand tonnes)		47.8	201.3	215.5	140.4	158.7	163.1	168.2
	Inland	42.1	190.7	210.3	131.9	150.1	154.2	159.2
	Marine	5.7	10.6	5.2	8.5	8.6	8.9	9.0
Capture		47.6	199.9	215.0	128.2	137.2	139.6	144.1
	Inland	41.9	189.5	209.8	119.7	128.6	130.7	135.1
	Marine	5.7	10.4	5.2	8.5	8.6	8.9	9.0
Aquaculture		0.2	1.2	0.5	12.2	21.5	23.5	24.1
	Inland	0.2	1.0	0.5	12.2	21.5	23.5	24.1
	Marine	0.0	0.2	0.0	0.0	0.0	0.0	0.0

Source: FAO (2015) and Fisheries Bulletin 2014



Source: Fisheries Bulletin 2014

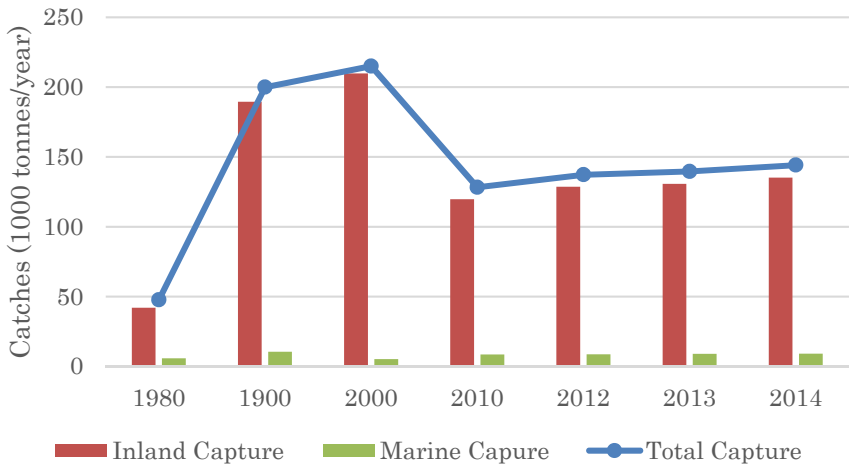
Figure 5.3.1 Production by Fisheries Category

It is imperative to note that inland fish capture contributed 80.3% of Kenya's total fish production, while aquaculture contributed 14%, and marine catch contributed a paltry 6%. In a nutshell, the fisheries sector in Kenya can be summed up as follows:

a) It is observed that inland fisheries is more developed than marine fisheries in both the aquaculture and fishing industries.
b) It is observed that inland fishing industry is more developed than inland aquaculture.
c) The decrease in fish catch of inland capture fisheries has an enormous negative impact on the total national fish production.
d) Production of inland aquaculture remains on the same level in spite of some efforts for the development.

5.3.1 Capture Fisheries

In 2000, fish production reached its peak with a total of 215,000 metric tons (MT). Since then, the production has been on a gradual decline between 2010 to 2015. Figure 5.3.2 is a graph that shows the catches of inland and marine captures.



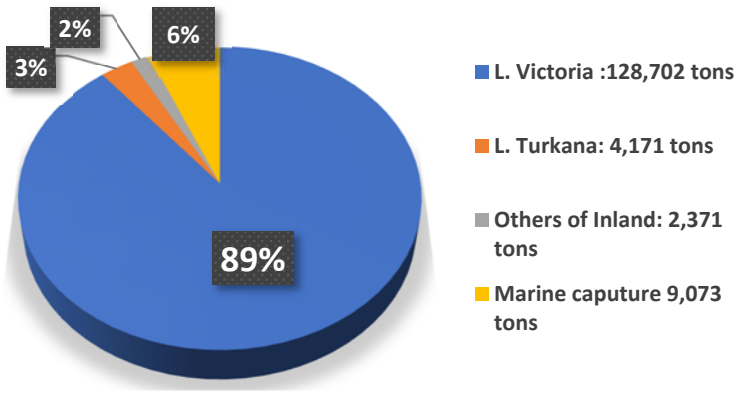
Source: FAO (2015) and Fisheries Bulletin 2014

Figure 5.3.2 Production of Capture Fisheries

(1) Inland Capture Fisheries

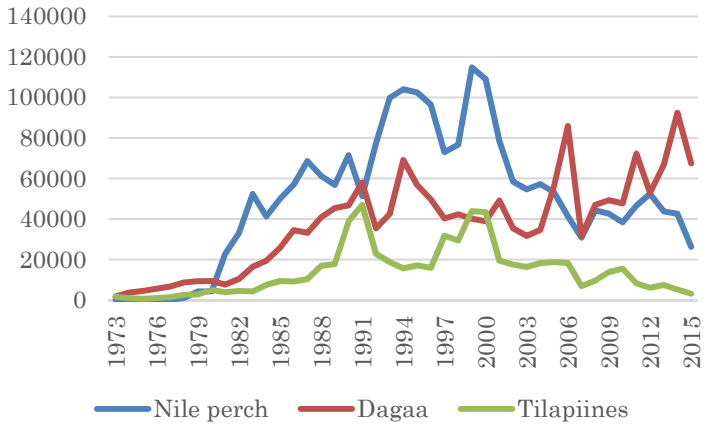
It is salient to note that freshwater fish landings have always been higher than those from the marine capture fisheries, and the Kenyan portion of Lake Victoria has always had the largest fish capture (FAO 2015). In 2014 alone, capture fisheries fish production was 144,317 MT. Lake Victoria accounted for 89.18% of all the inland fish capture fisheries and 76.4% of the total national annual fish production in Kenya in 2014. Figure 5.3.3 shows the contribution of each water body in the total production of capture fisheries in 2014. Based on Figure 5.3.3, it is sensible to point out that Lake Victoria is leading in fisheries capture with 89% of the total amount, followed by marine capture with 6%, Lake Turkana with 2.89%, and Tana River with 0.71 % (Fisheries Bulletin 2014).

In 2000, when the inland capture reached its peak production of 209,800 MT, the catches of three major species, namely Nile perch, dagaa, and tilapiines, were 109,068 MT, 43,358 MT, and 38,968 MT, respectively. The proportions are shown in Figure 5.3.4. It is imperative to note that from 2000 to 2015, the catches of Nile perch and tilapiines sharply decreased to 26,293 MT and 3,203 MT, respectively, while the catch of dagaa increased slightly to 67,457 MT. It is also observed that in 15 years, the total inland catch has been decreasing from 209,800 MT to 118,145 MT.



Source: Fisheries Bulletin 2014

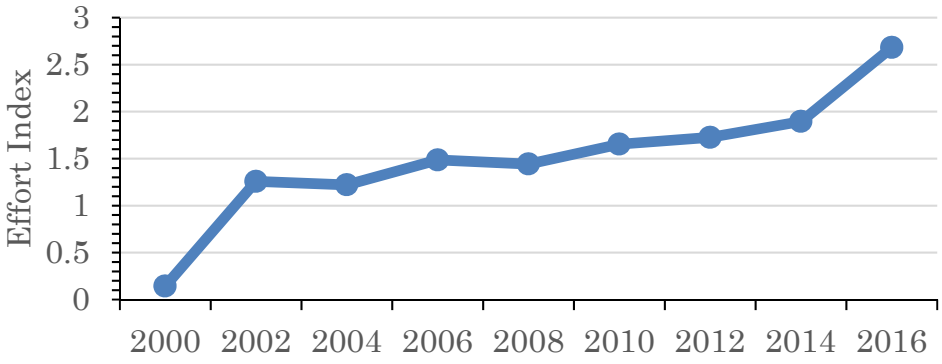
Figure 5.3.3 Contribution of Each Water Body to Total National Catch



Source: KMFRI Kisumu 2018

Figure 5.3.4 Catches of Three Major Species in Lake Victoria

With regard to the fishing effort index of inland capture in Lake Victoria, it was observed that despite the fact that fish catch has remained steady, fishing efforts have been increasing as noted by KMFRI Kisumu Centre. The fishing efforts in Lake Victoria is presented in Figure 5.3.5.



Source: KMFRI Kisumu 2018

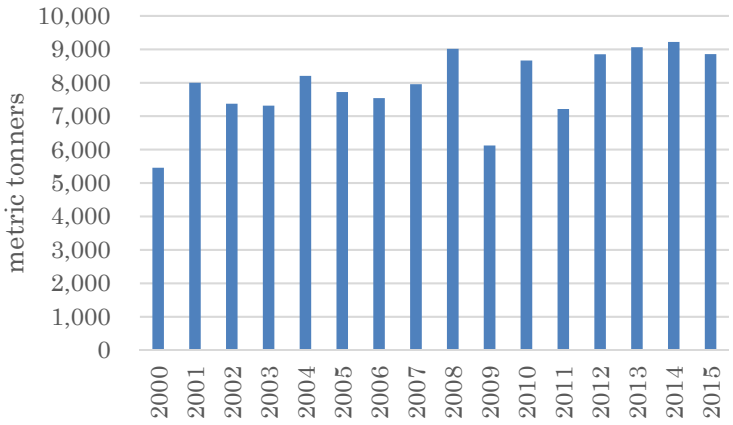
Figure 5.3.5 Fishing Efforts in Lake Victoria

While fishing efforts have increased, income per capita has been decreasing because fish catch has declined. However, majority of fishermen still depend on capture fisheries as their source of livelihood, and this is due to lack of or less diversification in the streams of income sources.

(2) Marine Capture Fisheries

1) Inshore Fishing

Marine fishing by local fishermen is characterized by the use of artisanal vessels and is also limited to the inshore area. It is observed that local fishermen lack access to offshore and deep sea fisheries; thus, they engage in inshore fishing, where they can only land small catches in quantity. Figure 5.3.6 shows the catch of marine inshore capture fisheries from 2000 to 2015. It is observed that the fishing catch has been consistent and constant, ranging between 7,000 MT and 9,000 MT.

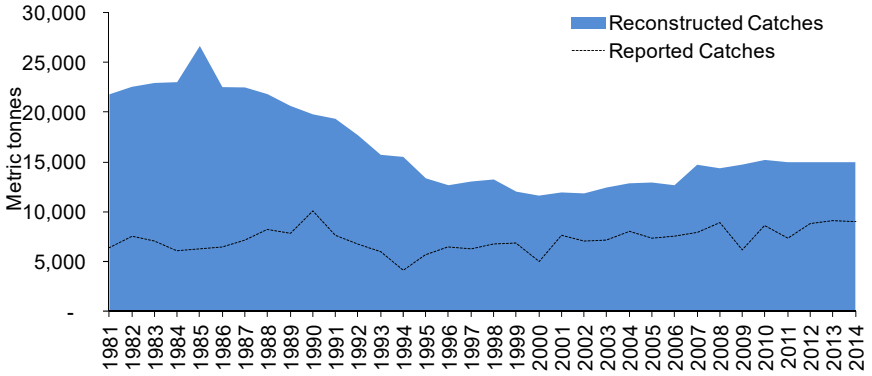


Source: KMFRI Mombasa 2018

Figure 5.3.6 Fishing Catch of Marine Fisheries

However, the reliability of officially reported data has been questioned in the past. Efforts to improve the estimates of the total production by KFS in collaboration with the Kenya Marine and Fisheries Research Institute (KMFRI) based on sample-based monitoring of representative

landing sites across all the coastal counties has resulted in new estimates, indicating that landings could be ranging between 20,000 MT to 23,000 MT. This estimate is also supported by a study (see Le Manach et al., 2015) which reconstructed the historical catches and confirmed that the catches are likely to be 2.8 times higher than what is officially reported, placing the estimated catches at about 16,000 MT – 18,000 MT (Dr. Njiru KMFRI Mombasa 2018: Status of Capture Fisheries in the Kenyan Coast).



Source: La Manach, 2015 and FAO, 2016

Figure 5.3.7 Comparison of Long-term Trends in Marine Fisheries Production for Kenya

It is relevant to note that even though there is no data for inshore fishing effort index in marine capture fisheries, the fishing effort is herein deduced based on some of the data provided by KMFRI Mombasa.

a) The number of fishermen:

Table 5.3.2 Number of Inshore Fishermen

Year	Number of Fishermen
2004	9,017
2006	12,747
2008	12,077
2012	13,706
2014	12,748
2016	13,436

Source: Kenya Fisheries Service

Table 5.3.2 shows a 48% increase in the number of fishermen between 2004 and 2016.

b) The number of fishing vessels:

In 2014, there were 2,913 fishing vessels, wherein 40 of the vessels, or equivalent to just 2%, were equipped with engines. However, it is observed that in 2016 the total number of fishing vessels rose to 2,974, and out of this, 650 vessels, which accounts for 22%, were equipped with engines.

c) The number of landing sites:

It is noted that there were 110 landing sites in 2014, which increased to 197 in 2016.

It is imperative to note that despite the increase in marine fishing efforts, the fish catch for marine fisheries has remained constant at a flat growth rate.

2) Offshore/Deep-Water Fishing

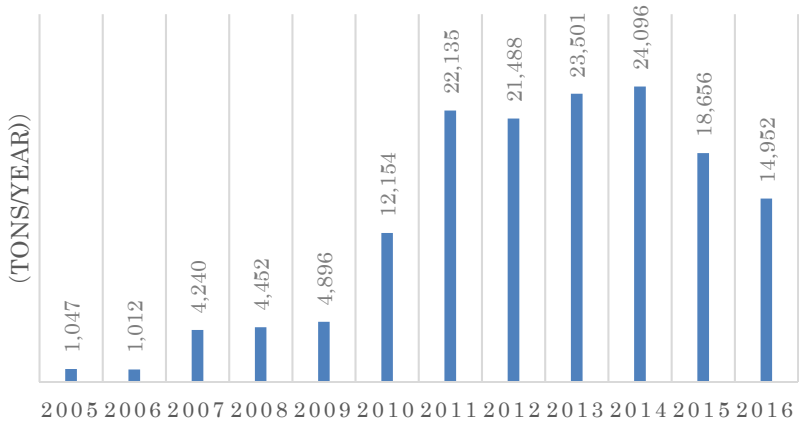
As noted, inshore fishing is undertaken by the local artisanal fishermen, while offshore deep-water fishing is dominated by the Distant Water Fishing Nations (DWFN), with a major focus on tunas (e.g., skipjack, yellowfin, and bigeye). Foreign fishing fleets are authorized to operate in Kenya's EEZ in accordance with the Regional and International Agreement and Cooperation provision of the National Oceans and Fisheries Policy, 2008 which states that, inter alia, "the Government will continue to grant fishing rights to other distant water fishing nations to fish in its Exclusive Economic Zone (EEZ) taking into account the state of the stock and economic returns" (FAO 2015). There is, however, no fisheries port for landing fish captured by offshore/deep sea fishing in the Kenyan marine coast.

5.3.2 Aquaculture

Kenya has 1.4 million hectares of land that is suitable for aquaculture, with a potential capacity of harnessing 14 million MT of fish at an estimated net worth of over KES 50 billion (USD 500 million) (FAO 2014).

(1) Inland Aquaculture

Before 2009, there was no significant progress that had been achieved in inland aquaculture, with an estimated production of 1,000 MT to 4,000 MT. However, in 2010 the fish production increased dramatically leading to a peak production of 24,096 MT in 2014. This dramatic increment is closely linked with the government-led intervention in aquaculture through the Economic Stimulus Program (ESP), wherein approximately KES 4.0 billion (USD 40 million) was channeled into the sector in 2009 to 2012. Within this ESP program, over 48,000 fish ponds were constructed, fingerlings and feeds supplied to fish farmers, and mini-processing plants were set up as well as human resource capacity building through training, strengthening of coordination offices, and fish farming institutes (Charo-Karisa and Gichuri, 2010). After the ESP program came to an end, fish production also drastically decreased for two consecutive years, yielding only 18,656 MT and 14,952 MT in 2015 and 2016, respectively.



Source: KNBS 2017 and State of Aquaculture in Kenya 2017

Figure 5.3.8 Aquaculture Production Trends in Kenya

It should be noted that for the last two to three years, the fish cage culture in Lake Victoria has been growing rapidly. Currently, there are 3,398 cages in Lake Victoria which are owned by 27 individuals and 16 groups (KMFRI, 2017). It is estimated that the rapid increase in cages in Lake Victoria has resulted in the doubling of cage production to around 5,000 MT-10,000 MT. This is likely to offset the declining trends in pond-based fish production (State of aquaculture in Kenya, 2017).

(2) Marine Aquaculture

Currently, production records indicate that there are over 100 MT produced from the culture of different marine species (e.g., seaweed, milk fish, prawns, and crabs), wherein 50% of the total production is attributed to seaweed production. It is worthwhile to note that in 2007, the total area under marine aquaculture was 6.7 ha, wherein 79.8% was for earthen ponds, while 20.3% was for crab cages and nil percent for seaweed farms (State of aquaculture in Kenya, 2017). Nevertheless, in the last two decades, there has been much focus placed on the culture of mud crab, oyster, prawn, milk fish, and seaweed (KCDP, 2015). Also, the culture of marine tilapia has since been attempted by the Kenya Coastal Development Program (KCDP) in an effort to bolster rural development in the coastal regions.

It is important to note that juvenile/fingerling breeding is fully dependent on wild catch which is mainly collected in mangrove systems and shores since there are no hatcheries that have been developed to meet the demand for grow-out ponds. It was observed that KMFRI is still at the developing stages to come up with a hatchery-produced juvenile/fingerling. It was also noted that KMFRI has a plan to establish the Marine Aquaculture Research Center (tentative name). When this noble gesture of a research center is realized, it will play an important role in implementing marine resource management and developing technology for the seed production and the grow-out pond production. In Shimoni, Kwale County, KMFRI has set aside a 5-ha land for the center, and construction of an office building has since commenced.

5.4 Challenges

Challenges in fisheries development in Kenya are extracted and clarified based on data/information collected through documents/papers provided by relevant offices/organization and field surveys. The challenges are examined in categories as follows: marine capture fisheries, inland capture fisheries, inland aquaculture, marine aquaculture, distribution and value addition, capacity of marine aquaculture development, and compound feeds.

5.4.1 Challenges in Marine Capture Fisheries

(1) Limited Data/Information on Potentials of Offshore Fishing

Efforts towards encouraging private enterprises to venture in offshore fishing has been hampered by limited or very little access by private enterprises to more accurate and persuasive data/information on feasibility and potentials of offshore deep-water fishing in the EEZ. This is due to insufficient technical and instrumental capacity to assess stocks of natural resources in the EEZ, thus making it difficult to convince these private enterprises to invest in offshore deep-water capture fisheries.

(2) Absence of Fisheries Ports Infrastructure and Related Facilities

Kenya Law has a mandatory requirement that at least 30% of the catch by foreign fishing vessels in the EEZ should land in Kenya; however, this provision of the law is not observed because there are no fisheries ports and related facilities that have the capacity to handle the quota stipulated in the law. As a result, there is indeed no fish landing in Kenya from these foreign fishing vessels. Due to the lack of facilities in the Kenyan marine coast, it is not possible to land fish captured by foreign fishing vessels and Kenyan offshore/deep-water fishing vessels that are expected to be operated by Kenyan fisheries companies in the future.

(3) Challenges of BMUs

In the discussion with the Beach Management Units (BMUs), the following challenges were noted and clarified:

a) Fish catch remains on the same level;
b) Fishing gear and craft/boat are not affordable for local people;
c) Facilities in landing sites are poor;
d) Techniques and vessels are not available for offshore/deep-water fishing; and
e) Capacity of BMUs is not sufficient to manage and implement activities, according to officers of county fisheries and regional KFS.

(4) Insufficient Capacity for Management of Coastal and Marine Resources

Fish catch of marine fisheries has been at a flat growth rate in spite of increased fishing efforts and increased number of fishermen. However, it was observed that the livelihood of majority of the residents in the coastal regions is derived from fishing and fish trading, which implies lackluster management of coastal and marine resources in improving the livelihood of coastal communities.

5.4.2 Inland Capture Fisheries

(1) Challenges Clarified by Fishers and BMUs in Lake Victoria

The following are challenges clarified by fishermen and BMUs in the Lake Victoria Region during the survey excursion:

a) Transboundary conflict

Lake Victoria BMUs are faced with a transboundary conflict wherein Kenyan fishermen are arrested in Uganda either because of trespassing into the Uganda part of the lake or illegal fishing. The fishermen are forced to pay hefty fines when their engine boats and fish catches are confiscated.

b) Transportation

It takes a few days to make a full truck load since fish landing has decreased. This causes mass postharvest loss in landing sites where preservation facilities are poor.

c) Ice plant

The capacity of ice plants cannot meet the market demand, and the machines often break down, thus hampering ice production.

d) Fish price

The selling price of fish is unstable and widely fluctuating. The price is fully determined by middle men. Fishers have no strategy/ability for bidding and marketing.

e) Postharvest loss and value addition

There is a lack of facilities, knowledge, and resources for fish preservation and value addition.

f) Capacity building

There is a lack of capacity for BMUs to enforce rules and regulations for fishing, including their own mandate.

g) Governance

There is a complicated governance structure in terms of management and licensing of fishing. The BMUs do not know who to refer to, whether national government or county government, in terms of management and licensing of fishing.

h) Cage culture

There is no conflict between cage farmers and fishermen, but there is a potential of conflict as more people get engaged in cage fish farming which will lead to encroachment for fishing grounds.

i) Illegal fishing and lack of resources for patrol

BMUs also lack patrol gear; therefore, they cannot enforce rules in the lake.

j) Pollution of the lake and encroachment of the lake by water hyacinth

(2) Decline of Catch in Lake Victoria

Fish catch in the lake drastically declined in the 2000s and has remained on the same level throughout the years despite the increased fishing efforts. This is a clear indication and evidence of decreasing natural resources in Lake Victoria.

(3) Absence of Effective Services System

Abnormal propagation of water hyacinth hinders in Lake Victoria.

5.4.3 Inland Aquaculture

(1) Decline in Earthen-pond Production

The production of inland aquaculture has been decreasing in the last two to three consecutive years, with production of 18,656 MT in 2015 and 14,952 MT in 2016, vis-à-vis a peak production of 24,096 MT in 2014. This decrease in production is attributed to the limited supply of quality and affordable feed and fingerlings. This is coupled with the issue of the water-holding capacity of earthen ponds. It is imperative to note that most of the earthen ponds are operated by smallholding farmers who cannot afford to construct liner ponds. Their earthen ponds have a poor water-holding capacity. Moreover, these ponds are shallow in depth with heavy water seepage/leakage owing to poor methods of pond construction.

(2) Insufficient Technical and Infrastructural Capacity of Inland KMFRI

KMFRI has capable staff and researchers for technical research and development. Thanks to efforts by KMFRI, the production of inland fish farming has dramatically increased from 4,896 MT in 2009 to 24,096 MT in 2012. However, it is worth noting that practical technique and experience, which are more production-oriented and business-oriented, are still not sufficient to enhance further research and development.

It is also salient to note that KMFRI has basic infrastructure for research, such as laboratory, equipment, facilities, ponds, and tanks. However, it was observed that some of the stated facilities have degraded due to wear and tear from long-time usage.

(3) Absence of Effective Services System

The National Oceans and Fisheries Policy, 2008 recognized the weak links between research, extension, and management in the aquaculture sector. The extension services sector in Kenya, as constituted, is poorly developed and can be considered as one of the hindrances of aquaculture production in Kenya (Mawamuye et al., 2012; State of aquaculture in Kenya, 2017).

Extension officers at county offices of fisheries, who are implementation agencies of extension services in collaboration with KFS, clarified challenges of extension services as follows: technical capacity of extension officers is not sufficient; extension services officers are not well equipped with resources; and low budget allocation for extension services.

It was also noted that KMFRI plays a role as the technical resource, while KFS is responsible for the management of extension services. However, some of the fish farmers interviewed by the Japan International Cooperation Agency (JICA) Survey Team did not seem to understand the governance structure of the extension services system that serves them.

(4) Hatchery-produced Fingerling Unsuitable for Grow-out Pond

In the 1990s to early 2000s, there were projects/programs by international agencies/bodies that led to the already achieved progress in freshwater seed production. In those projects/programs, fish were fed with expensive-quality imported feeds from the larvae stage to the fingerling stage. It has been observed that this practice of expensive imported fish feed has continued in hatcheries in Kenya. These feeds contain high-level attractants through which the appetite of fish is induced. However, it is observed that fingerlings given imported feed in the hatchery show less appetite to domestic feeds, which is not rich in attractant, after the fingerlings are stocked in grow-out ponds. Moreover, it was also observed that grow-out fish farmers are encouraged by seed producers to use the imported feed for grow-out ponds at the expense of locally produced fish feeds.

(5) Sustainability of Floating Net Cage Culture

The rapid growth of cage culture is fortunately likely to offset the declining trend in pond-based fish production. The system of cage culture in Lake Victoria is technically termed as low volume high density (LVHD) method, wherein the cage is comparatively so compact (i.e., 30 m^3 at the largest) that huge volumes of new water can flow into an LVHD cage to maintain suitable water quality such as dissolved oxygen. Therefore, a super high density, 359 fingerlings per 1 m^3 (State of aquaculture in Kenya, 2017), can be practiced, and the productivity is high (at least 100 kg/m^3) in this method. It is imperative to note that the cage culture in Lake Victoria is a high-risk high-return practice.

However, sooner or later, the super intensive culture with a high productivity will surely affect the lake water and bottom bed. Colloidal sediments accumulated at the bottom of the lake cannot be eradicated due to the lack of strong currents and will cause deterioration of conditions in the culturing area and its surroundings. The situation will ultimately lead to a deadly decline in production, and, generally, once production is impacted upon negatively, it will always be difficult to resume to regular production.

Dependence to imported expensive feeds is another challenge in the LVHD cage culture. Fish in a super high stocking density would often require quality feed, such as imported expensive feed that are rich in proteins, vitamins, and minerals to mitigate the vulnerability of fish to disease in the LVHD cage.

(6) Intensive Carnivorous Food Habit and Compound Feed of Nile Perch

The Nile perch is one of the most important species in the fisheries industry in Kenya, but the catch of this species in capture fisheries has been sharply declining in the last decade. It is imperative that more studies in the biology/ecology of the species be conducted to ensure its resourcefulness in resource management and aquaculture. However, the compound feed for the species requires high protein levels due to its intense carnivorous food habit. Therefore, this species is currently not suitable nor profitable for fish farming.

5.4.4 Marine Aquaculture

(1) Delay in Marine Aquaculture Development

There has been progress in the freshwater aquaculture, while marine aquaculture development has generally lagged behind (State of aquaculture in Kenya, 2017). In 1990s, the Government of Kenya piloted projects/programs in feasibility studies for both commercial-scale and community-based farming of oyster, milkfish, prawns, and crabs, but there was no significant progress achieved due to:

a) Insufficient technical capacity;
b) Encroachment to mangrove system; and
c) Unavailability of hatchery-produced juvenile and fingerlings.

(2) Absence of Hatchery for Seed Production of Marine Species

Currently in Kenya, there are no commercial-scale hatcheries for marine species with capacity for mass production. Therefore, this implies that grow-out pond operators have no choice but to depend on wild catch juvenile/fingerlings for their pond operation, which is unstable both in quality and quantity.

(3) Insufficient Capacity of KMFRI Mombasa

KMFRI Mombasa has capable staff and researchers for technical research and development. The institute was a key player in the implementation of KCDP activities. However, practical technique and experience, which are more production-oriented and business-oriented, are still not sufficient for further research and development. Notwithstanding, facilities and equipment of KMFRI Mombasa are also insufficient for technical development of seed production, grow-out pond operation, and restocking for resource management. The Marine Aquaculture Research Center (tentative name) planned by KMFRI Mombasa is now expected to play an important role in marine aquaculture development. The area of the site is 6 ha, and construction of the office has since commenced. However, there is still a need for a more detailed plan for the proposed center.

5.4.5 Distribution and Value Addition

(1) Fish Import from China

According to statistics from the Kenya National Bureau of Statistics (KNBS), fish imports from China has grown by 60.2% from KES 624 million per year in 2014 to KES 1.02 billion per year in 2015. This increase is attributed to the fact that Kenya's fish production cannot meet the high local market demand for fish due to dwindling catches of capture fisheries. It is imperative to note that fish farming in Kenya has not been able to bridge the gap due to the shortage of fish feeds. It is observed that this overwhelming shortage of home grown fish from the lake has created a gap that is now being filled by a multi-billion shilling market for the China-bred fish (Standard Digital 2018). Massive fish imports from China is a serious threat to domestic fish production and is affecting both the fishermen and fish farmers in Kenya.

(2) Postharvest Loss

Fish is a highly perishable product. This is a major concern for fishermen and fish farmers, fishmongers, middlemen, and retailers because of the postharvest loss due to consumers' proclivity of considering freshness of the fish, as well as the prices. Post-harvest losses are closely related to the preservation system or cold chain systems. In this regard, it was observed that fish sold at markets in Kenya are usually not very fresh due to a poor fish preservation system. It should be pointed out that much of the postharvest losses cannot be avoided in most cases due to poor or lack of a fish preservation system.

(3) Education

The Bandari College is currently under the subject of discussion on whether it will be upgraded to a National Maritime Training Center to therefore be able to play a vital role of providing training for both seafaring and fishing technology and the development of national shipping capabilities. The discussion on upgrading the Bandari College faces a stiff challenge because the college is owned by the Kenya Ports Authority (KPA), which is reluctant to support the idea/plan of the transformation of Bandari College into a national college.

5.4.6 Capacity for Marine Aquaculture Development

KMFRI is a core technical institute for fisheries development in Kenya. The institute is endowed with capable scientists and staff. However, the practical know-how and experience, which are more production and business-oriented are not sufficient, as KMFRI is currently constituted for future research and development due to: i) poor facilities and equipment, including hatchery, grow-out ponds, and tanks; and ii) lack of practice and experience in marine aquaculture production.

5.4.7 Challenges in Feed Development

A decline in pond-based fish production since 2015 is attributed to less access to quality and affordable domestic feed. It was observed that there were indeed many fish farmers who use imported feed for their pond operation. However, it was also noted that the number of farmers who use domestically-produced feed has been increasing due to the improved quality of domestic feed, which are produced by an extruder machine that is able to produce floater fish feed.

It is imperative to point out that in the 1990s to the early 2000s, projects/programs by international agencies/bodies led to achievements in freshwater seed production. During these projects/programs, fish were fed with expensive-quality imported feeds from the larvae stage until the fingerling stage. Surprisingly, this practice has continued in the hatcheries in Kenya. This practice has a negative impact because imported feed contains high-level attractants which induces the appetite of fish. Ultimately, fingerlings fed with imported feed have less appetite to domestic feed, which is not rich in attractants, and are stocked in grow-out ponds. Moreover, grow-out farmers are still encouraged by seed producers to use the imported feed in the grow-out ponds.

5.5 Countermeasures

5.5.1 Marine Capture Fisheries Development

(1) Capacity Building for Data/Information Collection on Potentials of Offshore

Deep-water/offshore capture fisheries require heavy investment in hundred-tonner or thousand-tonner fishing vessels and fishing gears among other fisheries materials. Therefore, it is crucial that more scientific and persuasive data/information regarding the feasibility/potential of deep-water fishing be shared with enterprises/private sector in order to encourage them to invest in the deep-water fishing as a promising profitable venture.

(2) Fisheries Ports and Related Facilities

Fisheries ports and related facilities, once in place, will play an important role in marine fisheries development for a medium and long-term objective. The number and scale of fisheries ports should be determined based on fish catch by foreign vessels in the EEZ and domestic enterprises' trend of investment for deep-water/offshore capture fisheries. Shimoni, which is one of the safe and major landing sites, is a suitable site for the fisheries port. However, more field surveys should be conducted to determine a candidate site for the fisheries port.

(3) Resource Management for Diversification of Fishers' Livelihood

To address the issue of decline in inshore fishing, the balanced management of inshore resources with fishing practices should be enhanced by promoting i) healthy fishing practice, ii) restocking, iii) artificial reefs, and iv) marine aquaculture. It is prudent to note that effective management of marine resources is key to enhancing the livelihood of fishermen who are currently suffering from the dwindling of fish catch.

(4) Capacity Building of BMUs

It is postulated that when the capacity of county offices of fisheries is developed cumulatively, the capacity building of BMUs will also be carried out effectively.

5.5.2 Inland Capture Fisheries Development

(1) Resource Management for the Enhancement of Livelihood of Fishers in Lake Victoria

The catch in Lake Victoria has been on a decline year after year; therefore, effective management of natural resources, including environmental measures, should be exercised to protect the natural resource base that have been polluted mainly with household effluents and to some extent with cage culture in the recent times. Resource management, therefore, should include the following: i) appropriate and healthy fishing practice, ii) protection of breeding ground, and iii) restocking and aquaculture. Effective resource management in the lake is the key to enhancing the livelihood of fishermen who are currently suffering from the decline in fish catch.

(2) Capacity Building of BMUs

It is imperative to enhance the management capacity of county offices of fisheries, which will ultimately enhance the capacity building of BMUs to be carried out more effectively.

(3) Control on Propagation of Water Hyacinth

There are limits to which the physical removal of water hyacinth in Lake Victoria can be undertaken due to its intensive power of propagation and the high-level eutrophication of the lake water. In a similar scenario that happened decades ago in Japan, effective law and policy on sewerage system and usage of non-phosphorylated detergent were promulgated, which was highly effective in mitigating against eutrophication in many water bodies.

5.5.3 Inland Aquaculture Development

(1) Capacity Building of Inland KMFRI Sagana

Practical skill/know-how can be developed faster when staff/researchers of inland KMFRI are accorded more opportunities for involvement in the practical field of fish production. In such case, the technical capacity of KMFRI staff will be enhanced leading to a spiral effect that will also raise the technical capacity of the entire extension officers and fish farmers. Moreover, the facilities and equipment of KMFRI needs to be renovated for further research and technical practice.

There must be two types of technical support: one is for smallholding fish farmers and another one is for commercial/large-scale farmers/enterprises.

(2) Enhancement of Extension Services

The link between research, extension services, and management can be enhanced by: (i) technical capacity building of researchers and extension officers, (ii) clarification of roles for each player and the entire system of extension services, and (iii) securing resources and budget for extension officers and their activities.

(3) Promotion of Usage of Domestic Feed

Hatchery operators will be encouraged to use domestic feed for their operation when the national institute, KMFRI, abundantly demonstrates the ability of domestic feed for seed production. It is observed that quality-wise, domestic feed is inferior to imported feed due to quality and expensive raw

materials used in the manufacturing of imported feed. However, the quality of feed produced in Kenya has been improving greatly. Soon, the feed are likely to meet nutritional requirements of hatchery-reared fry and fingerling. Fish stocked in grow-out ponds will continue to use expensive imported feed unless hatchery operators use the domestic feed for their hatchery operation.

(4) Floating Net Cage Culture and Environment Improvement

The control of negative environmental impacts from LVHD floating net cage culture, where a stocking density is around 100 inds/m^3 - 400 inds/m^3, is urgently needed by carrying out regulations to the floating net cage culture in Lake Victoria. High volume high density (HVHD) floating net cage culture of marine tilapia can be grown in Kenya since the sea is more suitable for this than the lake with regard to the environmental aspect.

In Japan, the conventional floating culture with HVHD is now being practiced in the sea where there is an ocean current that removes sediments and moves them far away. Moreover, compared to lakes, the ocean has a high capacity of decomposition of mass organic matters.

5.5.4 Marine Aquaculture Development

Practical skill/know-how can be developed quickly when staff/researchers of KMFRI Mombasa are given more opportunities to be involved in more practical fields of production. Technical capacity of KMFRI Mombasa staff will be enhanced this way, and it will lead to a spiral effect in raising technical capacity for the entire extension officers and marine aquaculture farmers. Moreover, facilities and equipment of KMFRI Mombasa need to be renovated for further research.

The Marine Aquaculture Research Center (tentative name) planned by KMFRI Mombasa, once in place, will play a significant role in marine aquaculture development, which has lagged far behind to inland aquaculture development. The center aims at i) technical development of seed production including selective breeding, ii) seaweed culture including processing and marketing, iii) technical development and demonstration of grow-out pond management, iv) resource management, and v) education/training for extension services.

There must be two types of technical support, one for the smallholding farmers and another for the commercial/large-scale farmers/enterprises.

5.5.5 Distribution

(1) Freshness Preservation

One major challenge of the distribution of fisheries products is a poor fish preservation system causing mass postharvest loss. Therefore, processed products such as sun-dried, smoked, salted, and fried fish may reduce loss. Fish farming also can mitigate loss because, in the case of fish farming, there is a risk of postharvest loss due to a short process/time from harvest to buyers/middlemen/transporters.

(2) Value Addition

Compared with wild-catch fish, cultured fish has a big advantage of producing quality value-added products because of its freshness. Fish farming can therefore be a motivator in boosting value-added products by training fish farmers.

5.5.6 Capacity Building

Reconciliation/coordination of governance among relevant ministries in the central government that will enable an upgrade of the Bandari College into a national college is necessary.

The capacity building of new organizations established under the Fisheries Management Act 2006, namely, Kenya Fishery Service, Fish Marketing Authority, and Kenya Fisheries Advisory Council, has to be conducted intensively. In addition, capacity building of county governments is important because after devolution, the county governments play an important role in fisheries development.

5.5.7 Feed

Sustainability and profitability of fish framing in Kenya can be secured by using affordable and quality feed manufactured by domestic producers such as UNGA Feed and SIGMA Feed. Although KMFRI develops technology on feed manufacture, to foster the private sector, the institute may evaluate/check domestic feeds produced by private companies that are currently trying to develop affordable and quality feeds. The feed evaluation can be conducted practically by using experimental tanks and ponds located within the perimeters of KMFRI.

In Asian nations, including Japan, where aquaculture is well-developed, the national institutes assisted private companies in feed development at the early stage of aquaculture development. These institutes sometimes check/evaluate feeds, and the results can be shared with the companies, if necessary, to foster the private sector.

The existence of extruders, which has made it possible to produce floater feeds, is an added advantage to accelerate aquaculture development in Kenya.

5.6 Priority Areas for Implementation of Countermeasure

Resource management is an indispensable countermeasure to challenges of both inland and marine fisheries development and environment of the hydrosphere in Kenya. Aquaculture and restocking of desired species are effective and efficient ways of management of the natural resources. Therefore, it is necessary to enhance the capacity of KMFRI in this regard since it is the core institute for resource management, including aquaculture in inland and marine water. The capacity building of KMFRI includes the renovation of facilities and equipment.

5.6.1 Inland Aquaculture

Table 5.6.1 shows a simulation of inland aquaculture development. The simulation is run according to yields of 10,000 MT, 50,000 MT, and 100,000 MT, based on an assumption of the following: i) Feed Conversion Ratio is 1.5 with domestically-produced feed, ii) productivity of earthen pond is 1.5 ton/ha, iii) feed price is USD 0.8/kg, and iv) farm-gate price is USD 2.5.

Table 5.6.1 Simulation of Inland Aquaculture Development

Inland Production	Area :ha	Workers	Workers for distribution	Total amount in farm :US$	Sales in market US$	Feed Value: US$	Contribution to GDP %
10,000	6,667	33,333	10,000	25,000,000	47,500,000	12,000,000	0.10
50,000	33,333	166,667	50,000	125,000,000	237,500,000	60,000,000	0.52
100,000	66,667	333,333	100,000	250,000,000	475,000,000	120,000,000	1.03

Source: JICA Survey Team

The contributions to GDP with productions of 10,000 MT, 50,000MT, and 100,000 MT are 0.10%, 0.52%, and 1.03%, respectively.

5.6.2 Marine Aquaculture

More data/information collection is needed to make an accurate plan/simulation of marine aquaculture development since it is still at a very early stage in Kenya.

Chapter 6: Shipping/Maritime Affairs

6.1 Development Plan and Strategy

6.1.1 Integrated National Transport Policy

The Ministry of Transport, Infrastructure, Housing, and Urban Development (latter Ministry of Transport and Infrastructure Development) formulated an Integrated National Transport Policy in 2009. Since then, there has been no other official policy in the transport sector. However, the government intends to develop a new Integrated National Maritime Policy (INMP) during the Third Medium Term Plan (MTP III) period. The salient points of the Integrated National Transport Policy 2009 are as follows:

(1) Maritime Transport

- Develop the maritime transport sector to support Kenya's economy;
- Develop Mombasa Port as a main gateway to Kenya and other East African countries;
- Restructure Kenya National Shipping Line (KNLS);
- Promote Public-Private Partnership (PPP) scheme in maritime transport operations;
- Develop globally competitive maritime education and training (MET) for seafarers;
- Strengthen the function of Kenya Maritime Authority (KMA);
- Develop and enhance cruise tourism; and
- Develop an awareness of maritime transport issues in the general public.

(2) Inland Water Transport

- Develop a seamless integrated multi-modal transport system in the northern corridor;
- Exploit the full potential of the lake basin in Kenya in conformity with Kenya Vision 2030;
- Develop and refurbish Kisumu Port for inland water traffic;
- Promote cheap domestic transport mode for passengers/goods within Kenya waters;
- Increase the tourism potential in the lake basin; and
- Promote the development of human resources including seafarers serving Lake Victoria.

(3) Human Resource Development in Maritime Transport

- Develop the Bandari College as a fully equipped seafarer training institute;
- Look for practical sea time training opportunities; and
- Develop and retain human resources in Lake Victoria area for inland transport.

6.1.2 Medium Term Plan III

Based on Kenya Vision 2030, the Kenyan government usually issues a five-year medium-term plan.

For the third period covering 2018 to 2022, a new sector called the "Blue Economy" was established which comprise of the State Department for Fisheries and The Blue Economy and State Department for Maritime and Shipping Affairs.

The salient points relating to maritime and shipping affairs in the Blue Economy Sector Plan 2018-2022 are as follows:

(1) Flagship Programs and Projects

- Bandari College is to be transformed to a National Maritime Center of excellence to serve the entire maritime industry. It is expected to produce 1,000 seafarers annually.
- An Integrated National Maritime Policy (INMP) is to be developed for a long-term sustainable vision of the maritime sector.
- Kenya National Shipping Line (KNSL) is to be revived and operated as a regional transshipment carrier. KNSL will be involved in the operation of Container Terminal 2.
- Localization of Marine Cargo Insurance is to be enforced. The total amount of insurance premium for imports to Kenya is estimated at KES 23 billion in 2015. Only 13% (KES 2.9 billion) is underwritten by local insurance companies.

(2) Other Programs and Projects

- Enhance inland water maritime development and revamp the port facilities in Kisumu.
- Enhance the ship building and repair industry to create jobs. The industry has the potential to create about 1,000 jobs annually.
- Develop the container manufacturing and repair industry. The industry has the potential to create more than 1,000 jobs annually.
- Develop coastal shipping to cover coastal ports of Shimoni, Diani, Mtwapa, Kilifi, Malindi, and Lamu. The transformation of Mombasa Port into a transshipment hub will require that coastal feeder service to neighboring ports be introduced.
- Form a maritime cluster by providing funds to benefit organized clusters in the maritime and the shipping subsector. A framework for clusters enterprises will be developed.

6.2 Responsible Organizations

6.2.1 State Department for Maritime and Shipping Affairs

There are five state departments in the Ministry of Transport, Infrastructure, Housing, and Urban Development (latter Ministry of Transport and Infrastructure Development). State Department for Transport and State Department for Maritime and Shipping Affairs are closely involved in maritime matters. According to Presidential Order No. 1/2016 of May 2016, definition of function and controlling institutions of the two state departments related to maritime are described as follows:

Table 6.2.1 Function of the State Department of Maritime and Shipping Affairs

STATE DEPARTMENT FOR TRANSPORT	
Functions ・ Transport policy management ・ Maritime transport management	Institutions ・ Kenya Port Authority (KPA) ・ Kenya Maritime Authority (KMA) ・ Kenya Ferry Services (KFS)
STATE DEPARTMENT FOR MARITIME AND SHIPPING AFFAIRS	
Functions ・ Promotion of maritime and shipping industry ・ Ship registration in Kenya ・ Maritime cargo insurance ・ Establishment of effective admiralty jurisdiction ・ Development of central data and information center ・ Human resource development, management and research in support of Kenya's shipping industry	Institutions ・Bandari College ・Kenya National Shipping Line (KNSL)

Source: JICA Survey Team

The State Department of Infrastructure in the Ministry was in-charge of roads among other infrastructure administrative functions while the State Department of Transport was in-charge of port, railways, and airports and controlled the related institutions such as KPA (ports), KRC (railway), and KAA (airport).

The State Department for Maritime and Shipping Affairs is relatively new. The department was established in 2015 aiming at the promotion of the maritime and shipping industry in Kenya.

Other functions of the department include ship registration and human resource development in support of the shipping industry in Kenya.

The State Department of Transport is responsible for the transport policy management while Kenya Maritime Authority is an institution belonging to the State Department of Transport.

6.2.2 Kenya Maritime Authority (KMA)

(1) History and Legal Framework

KMA was established through Legal Notice Number 79 of 2004 with a mandate of regulating, coordinating, and overseeing maritime affairs in Kenya. In 2006, KMA was legally constituted under the Kenya Maritime Authority Act 2006. In 2009, the newly amended Merchant Shipping Act 2009 was enacted to provide the basis for maritime safety, security, training, and regulation for water transport and related industries. KMA plays an important role in the implementation of the Merchant Shipping Act. KMA is responsible for port and flag state implementation of various international instruments relating to maritime transport. KMA has the responsibility of domesticating international maritime conventions such as International Maritime Organization (IMO) to achieve international compliance in implementing safety and security as well as maritime environment protection standards.

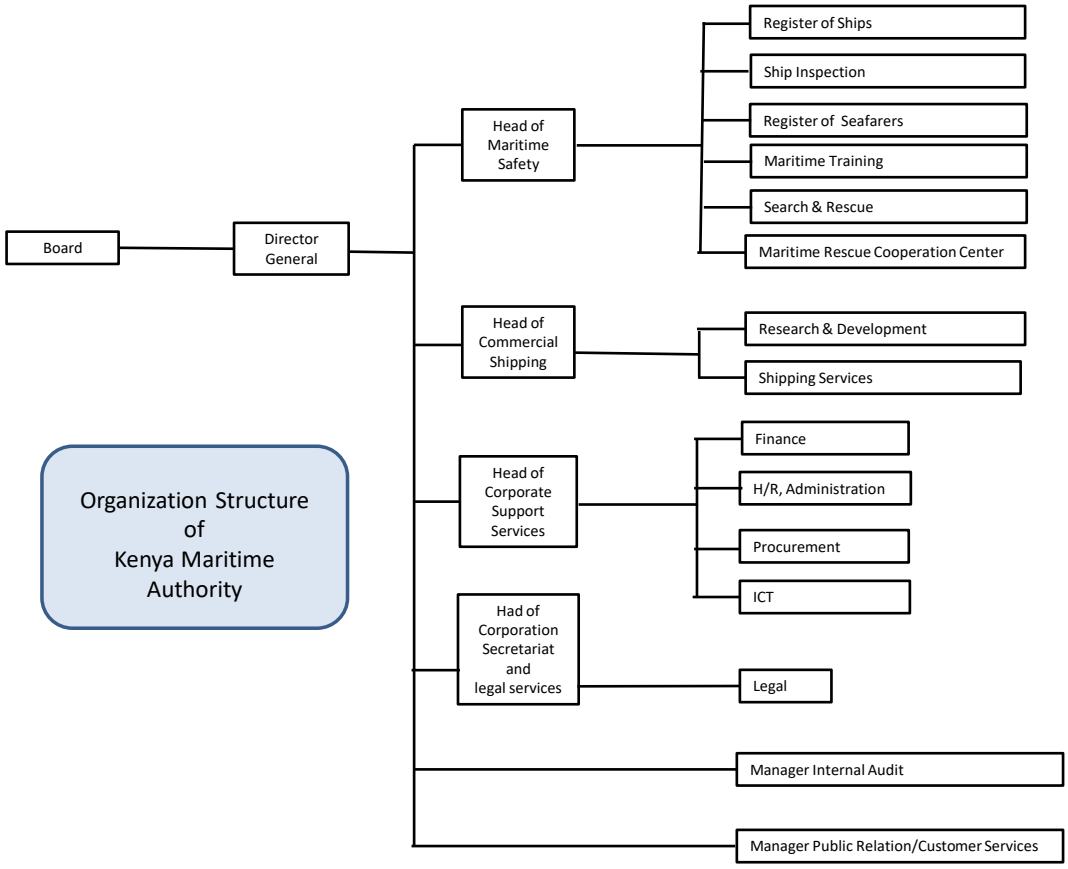
(2) Vision and Mission of KMA

The vision of KMA is "to be a leading maritime administration transforming Kenya into a globally competitive nation".

The mission of KMA is "to ensure sustainable safe, secure, clean, and efficient water transport for the benefit of its shareholders through effective regulation, coordination, and oversight of maritime affairs".

(3) Organizational Structure

KMA has four departments. They include marine safety, commercial shipping, corporate support services and corporate secretariat/legal services. It has a total workforce of about 90 personnel. Core functions of KMA are performed by the Marine Safety Department and Commercial Shipping Department. The organizational chart of KMA is as follows:



Source: JICA Survey Team

Figure 6.2.1 Organization Structure of KMA

(4) Key Functions of the Departments

The key functions of each department of KMA are as follows:

Table 6.2.2 Function of KMA Departments

Maritime Safety Department	Commercial Shipping Department
・Inspection of vessels ・Registration/certification of ships ・Maintenance and enforcement of STCW convention ・Management of marine environment protection ・Construction standard of ships ・Port state control ・Search and Rescue (SAR) ・Establishment and supervision of navigational aids ・Enhance international relations in respect to IMO and other organizations	・Coordinate, regulate and oversee orderly development of commercial maritime services ・Implement commercial shipping policy ・Monitor shipping lines cargo carrying activities ・Collaborate with maritime related organizations ・Maintain a register of shipping lines, agencies and other maritime industries ・Plan, monitor and evaluate training programs for seafarers
Corporate Support Services Department	**Corporate Secretariat/Legal Services Department**
・Budget control and revenue collection ・Accounting and book-keeping ・Human resources and administration ・Procurement ・ICT	・Board secretarial service ・Provision of legal service

Source: KMA

(5) Administration of Seafarer Training

KMA has a regulating function for maritime education and training (MET) including accreditation of training institutions. KMA is involved in establishing the MET policy guidelines and formation of MET curriculum in conjunction with the following organizations:

- National Industrial Training Authority (NITA)
- Kenya Institute of Curriculum Development (KICD)
- Kenya National Examination Council (KNEC)

6.3 International Partners

So far, there is no significant work done by international partners in the field of maritime and shipping affairs in Kenya. The following is an overview of activities of the major partners:

6.3.1 Trademark East Africa (TMEA)

TMEA is a non-profit organization established in 2010 with an aim to bring prosperity to the East African Communities (EAC) countries (Kenya, Uganda Tanzania, Rwanda, Burundi, South Sudan, and DR Congo).

TMEA's main source of funding includes UK (DFID), USA (USAid), Denmark (Danida), Netherlands, Sweden, Finland, Belgium, and Canada.

TMEA's activities are aimed at improving the logistics environment among EAC countries. The main focus has been the reduction of time and cost for cargo transported through the EAC countries. Owing to the intense collaboration with each country and other international donors such as the World Bank and the Japan International Cooperation Agency (JICA), the time required for transit has remarkably improved. TMEA has supported the establishment of One Stop Border Post (OSBP) at several border crossing points and development of customs automation and customs management system. They are also involved with many infrastructure improvement projects in the Port of Mombasa.

6.3.2 World Bank

The World Bank has a concept-stage project for the Lake Victoria inland water transport with the Government of Uganda. The program development objective is to facilitate the sustainable movement of goods and people across Lake Victoria while strengthening the institutional framework for navigation and maritime safety. The main development components in the project are the construction of lake infrastructure and key regional access roads. Implementing agencies are the Ministry of Works and Transport of Uganda, East Africa Community (EAC), and Lake Victoria Basin Commission (LVBC).

The World Bank financed the Rehabilitation of the Kenya Railway Training Institute's Kisumu Marine School. The project is to revamp the old KRC marine school which was closed when railway services to Kisumu were suspended. The re-opening of the school is in-line with the preparation for providing sufficient and qualified seafarers to cater for future demand of the lake water transport garnering strong support from the Kenya Maritime Authority. Funding for school infrastructure refurbishment amounts to KES 40 million.

6.4 Current Situation

6.4.1 Maritime Education and Training

The major Maritime Education and Training (MET) institutions in Kenya are listed below.

Table 6.4.1 Major Maritime Education and Training Institutions in Kenya

Name of Institution	Location	Remarks
Jomo Kenyatta University of Agriculture and Technology (JKUAT)	Juja (36 km Northeast of Nairobi)	Bachelor of Science (BSc) in Marine Engineering
Technical University of Mombasa (TUM)	Tudor, Mombasa	Diploma in Marine Engineering
Bandari College	Off Moi Avenue, Mombasa	Diploma in Marine Engineering Diploma in Nautical Studies Diploma in International Freight Management Diploma in Marine Transport Logistics
Indian Ocean Maritime Training Center	Watamu, Kilifi County	Short Course
Railway Training Institute Marine School	Kisumu	STCW courses
Kisumu Marine Training Center	Kisumu	Coxswain Training

Source: JICA Survey Team

(1) Jomo Kenyatta University of Agriculture and Technology (JKUAT)

JKUAT was established in 1981 as an agricultural university under cooperation with JICA.

Currently, the total enrollment of the university is about 40,000 students. The College of Engineering and Technology has 4,000 undergraduate students and about 400 students in graduate courses. The college houses among others, the School of Mechanical Manufacturing and Materials Engineering, under which the Department of Maritime Engineering and Maritime Operations falls. The department offers a Bachelor of Science in the Maritime Engineering course. The higher education course (degree level course) in maritime engineering was rolled out in 2010. Prior to that, the only institution offering MET courses was Bandari College in Mombasa where middle/lower level seafarer training was given. JKUAT was the first institution in Kenya to initiate a degree level maritime engineering course.

Basically, students who completed Marine Engineering BSc course in JKUAT seek jobs as officers on board. Theoretically, about 30 students complete the course every year. However, due to limited sea time training opportunities, only one student has successfully undergone sea time training and eventually licensed by KMA while three are awaiting examination by KMA for possible licensing. Currently, JKUAT has only six slots for sea time training against an annual demand of 30 graduates.

The onboard training opportunities are given by the Korean Maritime and Ocean University (about four to six students per year), European Ferry Operator DFDS (two students), and Singaporean Shipping Company PIL (one student). These precious opportunities are attained after painstaking efforts by not only the college but also by KMA, KPA, and the government. The rest of the students who unfortunately could not obtain the chance for onboard training have no choice but to give up applying for a seafarer's license and instead seek jobs in another area of the industry.

(2) Technical University of Mombasa (TUM)

TUM is amongst the oldest institution of higher learning in Kenya. The school started in the 1950s as one of the National Polytechnics and became a fully-fledged university in Kenya in 2013.

The university houses seven faculties mostly related to engineering. The Faculty of Engineering and Technology has the Mechanical and Automotive Engineering Department. The department offers a Diploma in Maritime Engineering Course which is a three-year (six-semester) course currently with a total enrollment of about 250 students. So far no one has attained an officer license since the course was established. Only four students have been absorbed as cadets onboard the working boat, owned by Southern Engineering Co. Ltd. (SECO) in Mombasa.

TUM is the only MET institution that owns an engine simulator in Kenya. The simulator was purchased in 2013 using the regular university budget.

(3) Bandari College

Bandari College was established in 1980 as a training and staff development institution for the Kenya Port Authority. The college is still recognized as an institution within KPA organization and comes under the Human Resources Division.

In 2010, the government decided to transform Bandari College into a comprehensive maritime education center and open its doors to people outside of KPA. In addition to the existing port related technical training, general logistics management training course was established. At the same time, seafarer training was added in the list of courses provided.

Since then, the government's policy towards Bandari College remains the same. In the recently drafted MTP III, the transformation of Bandari College into a National Maritime Center of Excellence and autonomous status from KPA organizational scheme is highlighted as one of the flagship programs.

The current educational structure of Bandari College is as follows:

Table 6.4.2 Educational Structure of Bandari College

Name of Unit	Remark
Maritime Training Unit	Seafarer training
Operation Training Unit	Port and logistics education
Technical Training Unit	Electrical engineering, mechanical engineering

Source: JICA Survey Team

The Operation Training Unit is the traditional unit which provides operational instruction on cargo handling machinery used in KPA port facilities. It provides a variety of courses from logistics higher education to short period training for familiarization with cargo handling equipment.

The latest course announcement of Bandari College (January 2018) is as follows:

Table 6.4.3 Bandari College Course Announcement January 2018

Course	Duration	Remark
MARINE TRAINING UNIT		
Diploma in Marine Engineering	3 years full-time	
Diploma in Nautical Studies	3 years full-time	
Craft Certificate in Marine Engineering	2 years full-time	
Craft Certificate in Nautical Studies	2 years full-time	
STCW Mandatory Course	20 days full-time	Security Awareness, First Aid, Fire-fighting/prevention
STCW Mandatory Course (Re-validation)	5 days full-time	
OPERATIONS UNIT		
Diploma in Maritime Transport Logistics	3 years part-time	
Diploma in Freight Management	3 years part-time	
Craft Certificate in Maritime Transport Logistics	2 years part-time	
Craft Certificate in Maritime Transport Operations	2 years part-time	
Foundation Diploma in Shipping	6 months part-time	
Equipment Operators Course	Forklift, Terminal Tractor, Toploader, Reachstacker	
TECHNICAL UNIT		
Diploma in Electrical & Electronics Technology Power Option	3 years full-time	
Diploma in Mechanical Engineering Production Option	3 years full-time	
Craft Certificate in Electrical & Electronics Technology Power Option	2 years full-time	
Craft Certificate in Electrical & Electronics Technology Production Option	2 years full-time	

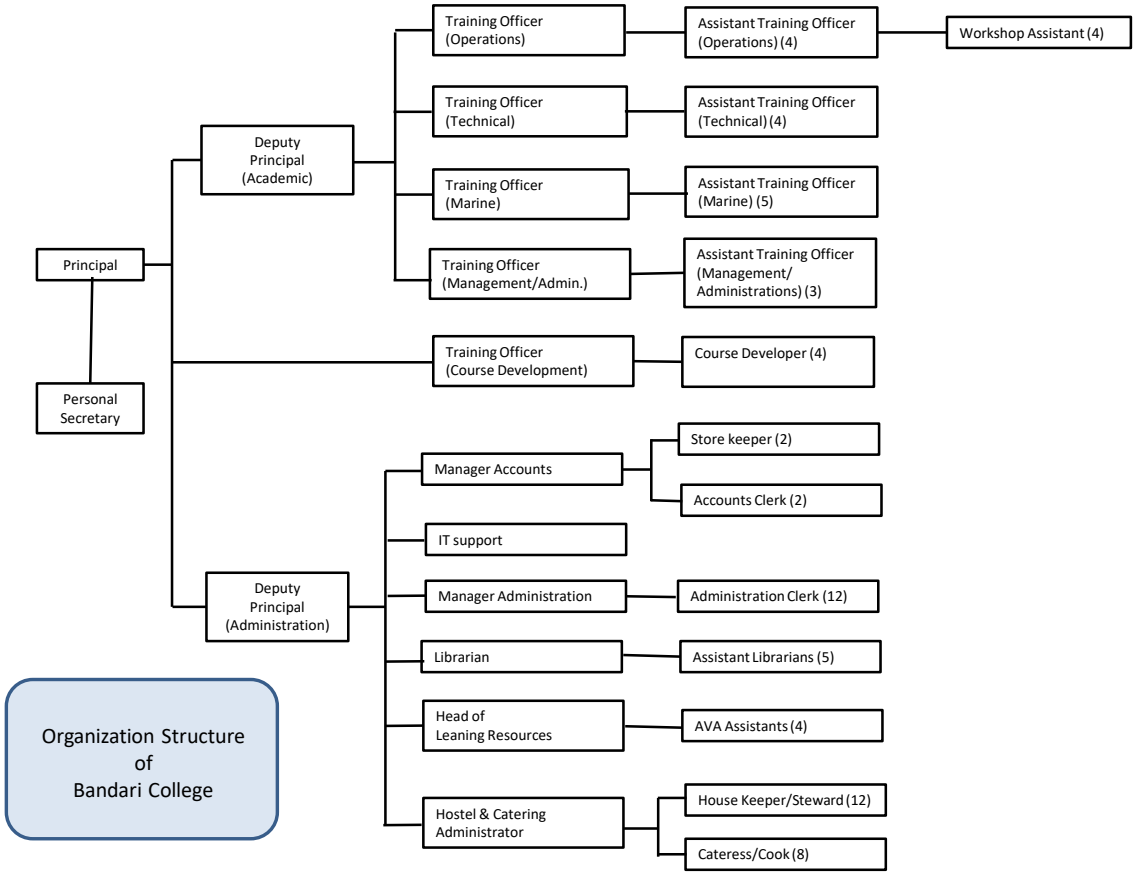
Source: Newspaper "Daily Nation" 30 January 2018

The number of students in Bandari College is about 300 per year for higher education (diploma and certificate courses) and about 250 at any given time for short period training (cargo handling equipment operation: from one week to ten weeks).

The number of teachers (training officers) is about 20 on a regular basis. In reality, the majority of instructors are resource persons not employed on permanent terms but engaged on a yearly basis. Majority of the resource persons (about 70%) are drawn from KPA.

The organization structure of Bandari College is shown below.

The number shown in parentheses after the job name indicates the number of staff.



Source: JICA Survey Team

Figure 6.4.1 Organization Structure of Bandari College

The infrastructure and equipment of Bandari College are as follows:

Table 6.4.4 Infrastructure and Equipment of Bandari College

Infrastructure and Equipment	Remark
Classroom	Total 20 rooms, Each 42 m^2 (6 m x 7 m), Each capacity about 20 students
Auditorium	Half-underground, capacity 200 audiences, joint use with KPA
Library	Total about 6,000 books, seating about 100, planning to install E-book terminal
Computer Laboratory	3 laboratories
Workshop	5 workshops in a separate building 1)Electrical engineering, 2) Mechanical engineering, 3) Marine engineering, 4)Welding and cutting, 5) Civil engineering
Cargo Hold Mock-up	Not for use（converted to stowage）
Fire-fighting Training Tower	Lost due to fire accident
Cargo Handling Equipment	No own equipment. All borrowed from KPA when needed.
Navigation Simulator	No deck simulator, no engine simulator
Swimming Pool	For marine training (STCW requirement)
Lodging Facility	For trainees from overseas and/or remote area. 50 beds

Source: JICA Survey Team

The classrooms and the library are fairly well equipped. Equipment for training is mostly obsolete and some of them are not in working order.

Cargo handling equipment used at the Operation Training Unit still belongs to and used by KPA. This sometimes results to difficulties in students' practical lessons because the equipment are not available at any given time. KPA's operational needs are given first priority over the college's practical lessons.

(4) Railway Training Institute (RTI) Kisumu Marine School

RTI is fully owned by the Kenya Railway Coporation (KRC). The Institute was inaugurated in 1956 to develop human resources for the then East Africa Railways and Harbour Corporation. From the start of RTI, the marine training division was located in Kisumu for the training of seafarers engaged in inland water transportation. However, due to the collapse of the railways services to Kisumu, the maritime school became inactive and eventually closed down.

In 2013, however, backed by the continuous needs of seafarer training in the Lake Region, KRC, with the strong support of KMA, decided to reopen the Kisumu Marine School.

The Kisumu Marine School has adopted the KMA syllabus in order to equip and certify Lake Victoria vessel operators with skills and competencies in safety, and protection and conservation of the marine environment. The school facility is set up in the area adjacent to the old marine school and KRC dry-dock. The facility utilises the old KRC warehouse and workshop buildings which they have refurbished with the support of the World Bank.

The school's activities currently consist of STCW courses but will gradually be expanded to include higher education courses such as marine engineering and nautical science.

The following is the course advertisement as of January 2018:

Table 6.4.5 RTI Marine School – January 2018 Courses

Courses	Duration	Remark
MARINE COURSES		
STCW Courses	20 days	・Fire training ・First aid ・Personal survival ・Survival craft and rescue boat ・Marine safety and security
MARINE COURSES (FUTURE)		
Seafarers Course Coxswain Commercial Diving Certificate in Nautical Science Diploma in Nautical Science Diploma in Marine Engineering Craft Certificate in Marine Engineering Diploma in Marine Transport Operations Craft Certificate in Marine Operations	1 year 10 weeks 10 days 2 years 3 years 3 years 2 years 1.5 years 1.5 years	
DIPLOMA COURSES		
Diploma in Supply Chain Management Diploma in Cooperative Management Diploma in Human Resource Management Diploma in Social Work & Community Development Diploma in Business Management Diploma in IT Technology	2 Terms	
CERTIFICATE COURSES		
Certificate in Supply Chain Management Certificate in Business Management Certificate in Library Studies (Librarianship) Certificate in Road Transport Management Certificate in Human Resource Management Certificate in Social Work & Community Development	2 Terms	

Source: RTI Marine School

Initial number of teachers at the reopening is five (three full-time and two part-time) with seven supporting staff members. The school facility is composed of three buildings (Administration, Classrooms, Workshop). The learning building comprised four classrooms, a library, computer laboratory, and a meeting room. The workshop building is an old KRC facility with some machineries, which can be used for training purposes.

(5) Other Maritime Education and Training (MET) Institutions in Kenya

In addition to the major institutions highlighted above, other institutions are listed as below.

Table 6.4.6 Other MET Institutions in Kenya

Name of Institution	Location	Remark
Indian Ocean Maritime Training Center	Watamu, Kilifi County	Short course
Zonal Training Institute	Moi Avenue, Mombasa	Short course
East African Center for Maritime Affairs	Moi Avenue, Mombasa	Certificate course
Kisumu Maritime Training Center	Kisumu	Coxswain training

Source: JICA Survey Team

Most of them are private institutions which provide elementary training for small craft operation.

The Kisumu Maritime Training Center is privately owned and operated by an ex-KRC rail ferry chief engineer.

6.4.2 Shipping

(1) Coastal Shipping

Coastal shipping (ocean shipping) of Kenya is not active. The vessels currently operating in Kenyan waters are limited to small crafts plying short range routes along the coast and the working ships in Mombasa Port such as tug boats, supply boats, bunker supply boats, and passenger ferries.

The actual number of Kenyan vessels is unknown but it is believed to be 50 at most. There is no Kenyan cargo ship trading internationally between Kenya and other countries.

In the 1960s, there was a national shipping line jointly operated by the East African countries of Kenya, Tanzania, Uganda, and Zambia under the trading name of "East African Shipping Line". It operated six cargo ships manned by East African crew and traded mainly between East Africa and Europe. They also extended their service network to East Asia including Japan. The company, however, disbanded after the collapse of the East African Community.

Kenya kept aspirations of running its own national shipping line and claimed a stake in maritime trade under the regime of the United Nations Conference on Trade and Development (UNCTAD) and "Code of Conducts for Liner Conferences" in particular. However, the situation surrounding world liner shipping had drastically changed after the 1980s due to the rise of containerization and enactment of the American New Shipping Act. Traditional freight conference system was practically abandoned; and in its place, open competition started governing the world shipping including container shipping.

The Kenya National Shipping Line (KNSL) was established by the government in 1987 as an international shipping line offering its services to and from Kenya. The KNSL does not have its own service network run by their own fleet. It charters some container space on the container ships owned and operated by the Mediterranean Shipping Company (MSC) and hence considered as "Non-Vessel Operating Common Carrier" (NVOCC). It issued the Bill of Landing (shipper/consignee) under KNSL's name, provide containers (leased container, not their own) and assume responsibility of carriage to their customers while all the shipping arrangements are left to the space provider (MSC). Actual performance of cargo carriage is minimal and the company largely relies on funding from the government to keep their business afloat.

In a different area of shipping, Kenya Ferry Service Ltd (KFS) provides ferry services as a government-owned shipping company. KFS is 80% owned by the government while the remaining 20% is held by KPA. KFS operates passenger/vehicle ferries between downtown Mombasa Island and Likoni on the mainland located on the opposite side. Transit takes 15 minutes and service is provided round the clock, 365 days a year. The ferry service is utilized as the main trunk line connecting the Mombasa Island with the southern areas along the coast until such time when Likoni Bridge or Dongo Kundu Southern Bypass Road shall have been materialized. Transit fare is KES 120 for a sedan car but free for passengers. Currently, six ferry vessels are placed in service. The vessels are in fairly good condition but some maintenance and repair are required to ensure uninterrupted service.

(2) Inland Water Shipping

Inland water shipping (Lake Victoria water transport) is currently not active. Inland water shipping in Lake Victoria was developed at the beginning of the 20th century due to Britain's influence. Railway ferry services was launched in 1966 by the East Africa Railways and Harbour Corporation. Railway wagons loaded at the port city of Mombasa were railed through Nairobi to the Kisumu branch line through Nakuru. At Kisumu Port, the railway wagons were directly loaded onto railway ferries and shipped to the final destinations in Uganda and Tanzania.

The railway ferry service ceased in 2007 when the railway operation between Nakuru and Kisumu was suspended. The railway loading pier facility at Kisumu Port is getting old and is almost obsolete. The

railway ferry MV "Uhuru" is currently moored at KRC Kisumu dry-dock and is in no condition to resume work.

Uganda still owns and operates two railway ferries, while Tanzania owns one. The two countries are reportedly maintaining railway ferry services using three ships (unconfirmed).

Both Tanzania and Uganda are generally more active in the inland water shipping compared with Kenya, which is limited to privately-owned small cargo ships and small crafts plying along the coast and between the islands within Kenyan territory.

The only Kenya-registered cargo ship in Lake Victoria is MV "Norrs" which has a capacity of 493 D/W and two 262 HP engines; it has a length of 40.65 m, width of 7.10 m, and depth of 2.8 m. The ship is privately owned by a Kenyan national and trades between Kenya and Uganda.

There are ten small passenger crafts performing services within Kenyan waters. Four of which are rather new catamaran-type passenger crafts, built, owned and operated by a Kisumu based company named "Globology Ltd". With funding from Shell Foundation, the company operates scheduled passenger services between small islands in Kenyan waters. The remaining six passenger crafts are RoRo-type (landing craft-type) ships each of which is owned and operated by Kenyan nationals.

6.4.3 Shipbuilding and Repairing

There are two privately-run shipbuilding and repair companies in Mombasa.

(1) African Marine and Engineering Co. Ltd (AMGECO) Located in Mbaraki Area

Its facility includes one dry dock, one construction dock, lay-by wharves, and slipways. In addition to shipbuilding and repair, their business area includes bunkering, ship handling, and EPZ facilities. Details of the main facilities are as follows:

a. Dock Facilities

Table 6.4.7 Specification of African Marine and Engineering Co. Ltd. (AMGECO)

Spec	Dry Dock	Construction Dock
Length (m)	180.00	40.25
Entrance width (m)	24.75	18.00
Dock width (m)	26.40	24.40
Max/min depth (m)	7.95/4.00	-
Max depth on sill (m)	-	4.00
Vessel Capacity (tons)	20,000	-

Source: African Marine and Engineering Co. Ltd.

b. Lay-by Wharves

The wharves (340 m in length) are used for vessel repair and lay-by. They are capable of accommodating vessels up to LOA 200 m with a draft of 8.0 m. A mobile crane is available along the wharf.

c. Slipways

Two slipways are available capable of slipping barges, small harbor craft, pontoons, and fishing boat. Slipways are 20 m in length, 6.0 m in width and can accommodate vessels up to 120 tons.

d. Cranes

There is one 30-ton fixed crane, adjacent to the dock gate. One 7-ton and one 5-ton mobile cranes on rails which traverse the full length of the west side of the dock. One-ton fixed at the jetty, one-ton and one 12-ton mobile cranes.

(2) Southern Engineering Co. Ltd. (SECO) located Mbaraki Area, Opposite Side of AMGECO Across the Mbaraki Creek

The company has two floating docks and one jetty (length 160 m, draft 7.5 m)

In addition to shipbuilding and repair, they also are engaged in other fields which includes marine engineering and marine infrastructure construction, mechanical engineering and civil works, inspection and certification, heavy lifting. Details of the floating docks are as follows:

Table 6.4.8 Specification of Southern Engineering Co. Ltd. (SECO)

	Dock No. 1	Dock No. 2
Length (m)	26.0	40.0
Width (m)	26.0	19.0
Depth (m)	1.0	1.5
Vessel Capacity (tons)	-	1,200

Source: Southern Engineering Co. Ltd.

In addition to the two privately owned dock facilities, KPA has one ship-repair facility within KPA premises. This is mainly used for maintenance and repair of KPA owned harbor crafts, tug, and pilot boat.

6.4.4 Other Maritime Industry

There is a wide range of maritime-related industries. Apart from shipbuilding and repair, other maritime related businesses include container repair, bunkering, shipping agency, terminal operator, container freight station operator, ship-brokerage, ship-handling, marine insurance, among others.

The government focuses on container repair among others due to its potential of creating new jobs in the port area. The government also focuses on localization of marine cargo insurance.

The government enforced the insurance rule from January 2017. This is expected to bring additional income to the nation. According to the source, a total marine insurance premium paid by Kenyan importers in 2015 was estimated at about KES 23 billion. Out of this amount, only KES 3 billion was paid locally to Kenyan insurance underwriters while the majority was paid to foreign underwriters. The government's aim is to bring this back as a national income for the Kenyan insurance industry.

6.5 Challenges

6.5.1 Maritime Education and Training

(1) Opportunity of Onboard Training

In order to obtain a seafarer's license, it is required to have record of sea time (onboard) training for a certain period of time after completion of the required course at an accredited maritime training institution. Usually, the required period is 12 months for a licensed seagoing merchant mariner. In Kenya, the total number of domestic ships plying Kenyan waters is extremely limited. The number is estimated to be about 50 ships, including small boats. Therefore, it is difficult to provide opportunities for onboard training for all the students who completed the required course at maritime training institutions.

Training institutions, KMA, and other government agencies are all working concertedly to provide more opportunities for onboard training for Kenyan students. As a result of these endeavors, the following organizations are currently providing the onboard training opportunities:

Table 6.5.1 Organizations Providing Onboard Training

Type of Organization	Name of Organization
Overseas Maritime Institute	・ Korean Maritime and Ocean University ・ Dalian Maritime University
Foreign Shipping Company	・ DFDS (Danish ferry operator) ・ PIL (Singaporean shipping company)
Local Ship Operator	・ ALBA (bunker supply) ・ COMARCO (marine supply) ・ SECO (offshore supply boat)

Source: JICA Survey Team

Maritime training institutions are contracting other maritime institutions overseas with the aim of establishing relationships and sending the students to take the courses and experience the onboard training.

Some foreign shipping companies have accepted Kenyan students as cadets and are providing onboard training experience on their commercial vessels.

There are several marine-related businesses located in Mombasa. They own small vessels to conduct their business such as bunker supply, industrial supply, and marine work. Some of them accept onboard training of the students on their vessels.

However, in each case, there is a certain limit to the total onboard training opportunities (maximum five students per annum), thus it is impossible to provide the opportunity to all the students who wish to participate in onboard training unless Kenya owns the training ship like other foreign countries.

(2) Quality of Teachers

Due to the fact that almost no Kenyan ship is available in Kenyan waters, there is insufficient opportunity for the maritime institute instructors to accumulate experience and knowledge to effectively train their students at the maritime institutes. Although teachers are trying their utmost best to obtain necessary information and skills from available sources to provide the best possible lessons to their students, their efforts are limited due to the aforementioned reasons.

(3) Training Equipment

In providing education and training of maritime workers including seafarer and port operators, it is necessary to carry out practical training regarding handling of machinery/equipment used in the port and onboard the ship. Such training is conducted within the premises of training institutes, using the machinery/equipment belonging to the institute. However, most of the training institutes in Kenya do not have sufficient training equipment on their premises. Equipment installed in the workshop is generally very old and obsolete. In Bandari College for instance, all the training equipment used for cargo handling training are the property of KPA; Bandari College does not possess any equipment of their own. This situation needs to be improved in order to provide uninterrupted training sessions independent of KPA operations.

For the training of seafarers, it is desirable to have a deck-simulator and engine-simulator to gain the basic skills of operating a ship (navigation and engine control). Currently in Kenya, only one engine-simulator is available at the Technical University of Mombasa (TUM).

(4) Training Ship

Majority of the current onboard training opportunities are provided through the courtesy of concerned parties overseas (maritime universities and shipping lines). In order to secure regular onboard training, Kenya should have its own maritime training ship. This will produce a regular flow of newly licensed qualified Kenyan seafarers in the market thus contributing to the job creation for Kenyan youth. Otherwise, current efforts to enhance maritime training are stuck at the point of onboard training.

6.5.2 Shipping

(1) Coastal Shipping

Revival of Kenya National Shipping Line (KNSL) is one of the flagship programs and projects in the Blue Economy Sector Plan 2018-2022 (MTP III) (draft). The government intends to retain ocean freight earnings from Kenya-bound cargo by Kenyan flag shipping companies, which otherwise escape from Kenyan soil and are retained by foreign shipping companies.

The government further envisages the operation of a Mombasa second container terminal by KNSL with strategic partners to establish a transshipment hub. This will create base load cargo for future KNSL shipping activity.

Under the current international shipping situation, chances of gaining a fair share of international trade on the grounds of the UNCTAD code are remote. In today's shipping business, only shipping lines that provide competitive service with a competitive price (freight rate) can attract cargo and expand their scale of business.

The involvement of KNSL in terminal operation needs further examination and consideration since the Merchant Marine Act prohibits the participation of shipping lines in terminal operation.

Kenya Ferry Services Ltd (KFS) has a plan to go into coastal passenger transportation. It is a natural course of action considering the future plan of Likoni Bridge or Southern Bypass Road.

When the plans are eventually actualized, the importance of Likoni Ferry will shrink. On the other hand, traffic demand of the coastal area will increase along with the development of economic activities of the area. Therefore, there is a possibility of a coastal marine transportation service both for cargo and passengers as a supplemental means to road and air transportation.

The Northern Coastal Service (from Mombasa to Malindi/Lamu) and a Southern Service (From Mombasa to Shimoni) will be possible routes in conjunction with the development of tourism in the coastal area.

(2) Inland Water Shipping

There are two arenas of shipping activities in Lake Victoria. One is international shipping activities with Uganda and Tanzania. The other is domestic shipping within Kenyan waters.

In the international shipping field, East Africa Community (EAC) recognizes Lake Victoria as "Common Economic Interest Area" of the EAC countries. Lake Victoria Basin Commission (LVBC) has been established for the purpose of achieving a harmonized development among the EAC countries. The commission's secretariat office is located in Kisumu. Establishment of operational scheme for search and rescue in the lake is one of the outcomes in the initial stage of cooperation.

Along with the expansion of economic activities between EAC countries as well as increase in the traffic volume of the northern corridor, inland water shipping has potential as an alternative route within EAC. Advantages of inland water transport include lower transportation cost and shorter transit time.

Accordingly, it is expected that inland water transport is suitable for cargo transport, particularly bulk commodities with lower free on board (FOB) price such as grain cereals and edible oil.

The revival of railway ferry service is one of the options when the new Standard Gauge Railway (SGR) extension plan to Kisumu is finally realized. In the meantime, Uganda Railway has its own plan to construct a new SGR in Uganda. Connecting two SGRs across the land border would be a more practical solution than setting up a new railway ferry system between the countries.

For the inland water transport within Kenya, a major challenge is establishing safe and secure water transport means for regional residents. Most of the crafts currently used in the area are old small boats not fully complying with national safety standards set by the government. It is necessary to replace them with safer and newer boats. At the same time, the boats need to be manned by qualified crew who have completed the full training based on the current STCW requirements. Thus, enhancement of qualified marine training facility in the area is also required.

6.5.3 Shipbuilding and Repairing (Challenges)

The shipbuilding and repairing industry in Kenya is placed at an advantageous position along the east coast of the African continent. Kenya is centrally located in the eastern coastal range, and there is no significant competition foreseen from neighboring countries. The shipbuilding and repairing industry in Kenya should work to make their position more predominant by taking all efforts to attract possible customers in the region. Since shipyards in Mombasa maintain a certain level of qualified work, sales promotion activities would be the next step to be taken in order to expand their business.

6.5.4 Other Marine Industries (Challenges)

Localization of marine cargo insurance would certainly bring back insurance premium income to Kenya which is otherwise enjoyed by foreign insurance companies. In enforcement of this rule, the government should be cautious not to harm the sound business relations between Kenyan traders and their foreign counterparts. Since international trade activities are basically private deals among private parties, intervention in the business terms of commercial deals should be minimized.

6.6 Priority Areas for Implementation

6.6.1 Establishment of New Maritime Policy

For the enhancement of maritime and shipping affairs in Kenya, it is urgently required to establish a clear maritime policy. In 2009, the Integrated National Transport Policy was established and the basic policy for maritime sector was included in the policy. About ten years have elapsed since then and now is the proper time to look back at the development, review the current situation and establish a new maritime policy for the future through the analysis of current issues and challenges.

The drafted MTP III Blue Economy listed the development of an Integrated National Maritime Policy as one of the flagship programs and projects of the maritime and shipping affairs subsector, thus, the urgency of the issue is duly recognized.

6.6.2 Maritime Education and Training

(1) Opportunity for Onboard Training

Coordinated efforts among the concerned parties are required. KMA should be the focal point for this endeavor. All the requirements for onboard training should be centrally monitored and addressed to the organizations that may have possible solutions.

(2) Quality of Teachers

In order to provide maritime training with high quality standards, it is necessary for the instructors to maintain a certain level of knowledge and skill. Under the circumstances of limited resources in Kenya, two measures are envisaged:

a) Send the instructors to training courses in the related field in order to keep up to date with latest development in the industry to improve their teaching skills. Many overseas maritime institutes provide such courses.
b) Invite teaching supervisors from outside. Academic experts or active officers of merchant ships could be possible teaching supervisors who will provide practical and useful suggestions and information.

(3) Training Ship

It is desirable to have a purpose-built new training ship for the use of Kenyan seafarer training.

An alternative would be to look for the second-hand training ship that the current owner or maritime training organization overseas is willing to sell for replacement purpose or other reasons.

The cargo cum training ship concept, which is dealt with in Section 6.6.3 below in conjunction with revival of KNSL, should also to be considered.

6.6.3 Shipping

(1) Coastal Shipping

For the time being, the space charter arrangement with a partner shipping lines should be continued since there are no alternative or practical ways to maintain presence of Kenyan flag service under the current competitive international container service environment. At the same time, following options should be considered to vitalize KNSL activities.

1) Regional Container Feeder Service

Currently, there is no significant feeder service network from Mombasa. The Maersk Line and PIL are the only players in this field both having a relatively small size operation. This is obviously because of small-scale cargo movement within regional ports and perhaps feeder service is performed using another port as a transshipment hub. It would be meaningful for KNSL to establish a new feeder service based in Mombasa covering regional ports for the achievement of a national goal of fostering Mombasa as hub port in the East African Region. The service would rely on small size container vessels (200-500 TEU) that KNSL charters from the market. The route of service is from Mombasa to Tanga, Zanzibar, Dar es Salaam, Mtwara, Comoros or Seychelles and back to Mombasa. No significant number of containers is expected in this trade but by placing regular services, KNSL intends to undertake the carriage of major carriers' containers to those ports as their second carrier and possibly cultivate new trade among these ports. In this regard, KNSL will have a chance to shed its NVOCC status and become a real shipping company.

Moreover, with some small modifications, the ship can also be used as a training ship. The ship is used as "cargo cum training ship" so while performing commercial activities as a small feeder ship, the ship can be used for onboard training for students.

2) Participation in Bulk Export Shipment from Kenya

The shipping business is categorized into two. One is the liner shipping business that carries general cargo with advertised sailing schedule. This type of shipping is mostly performed as container shipping. The other one is non-liner shipping that carries one single commodity in one shipment

on a contract basis. This type of shipping is usually performed by bulk carrier. For the enhancement of Kenyan shipping, non-liner, bulk shipping area should be explored. There are several bulk commodities exported from Kenya such as soda ash and titanium. These export shipments should be targeted as the first step due to easy access to exporters. KNSL can charter a suitable vessel from the market.

(2) Inland Water Shipping

In line with the enhancement of trading activities among EAC countries, the northern corridor will become a more important logistics route in the region. Inland water shipping is deemed to be a potential alternative transport mode besides road and railway. In order to promote this transportation mode, it is imperative to strengthen the Kenyan fleet in the water but at the same time it is also important to establish a concerted effort among neighboring countries. Area for the joint efforts would include; harmonized development of each country's port facilities and the establishment of safe navigation system for mutual use such as navigation aids. Lake Victoria Basin Commission (LVBC) can play an important role in this regard.

Kenya is a key country for the development of the northern corridor having the sole gateway port Mombasa and the major road and railway network connecting to other hinterland countries. Accordingly, Kenya could also play a leading role in the development and effective use of inland water transport. For such purpose, it is important to enhance the inland water shipping fleet and to supply a sufficient number of qualified seafarers to operate the fleet.

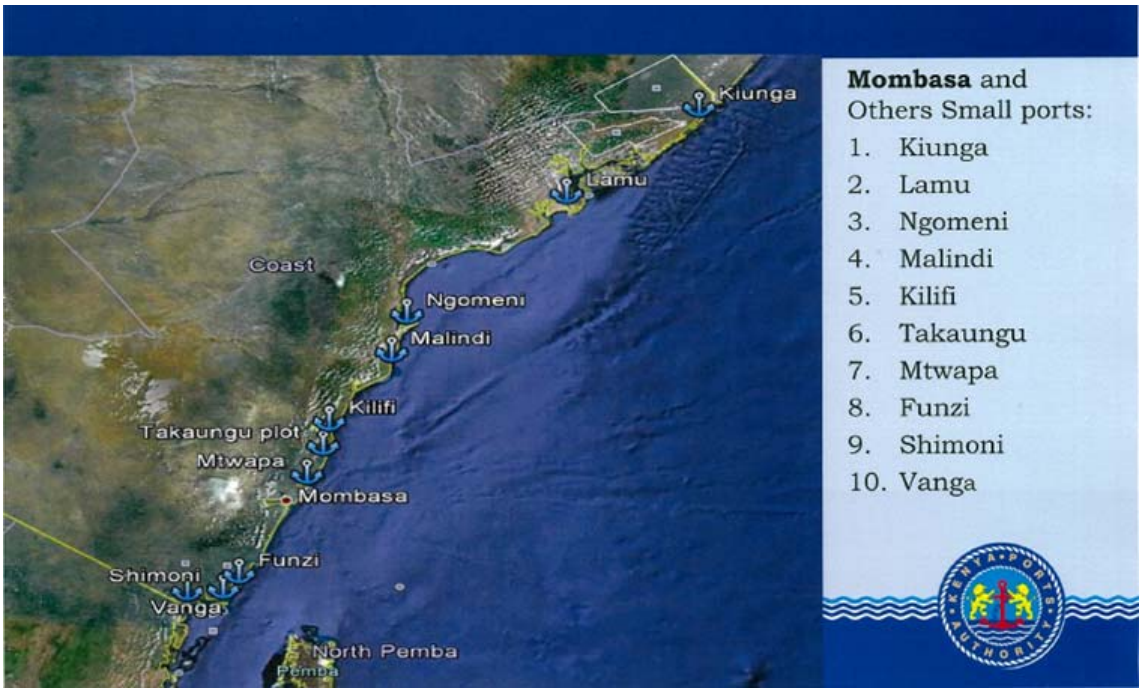
Chapter 7: Port Infrastructure

7.1 Policy and Strategy of Port in Kenya

7.1.1 Overview

Kenya's ports are located along the coast of the Indian Ocean and Lake Victoria. There are ten sea ports along the Kenyan coast as shown in Figure 7.1.1. Among them, Mombasa Port has played the predominant role. However, Lamu Port, currently under construction, is expected to play a similarly important role just as Mombasa Port. The other sea ports are small ports.

The Kisumu Port located on Lake Victoria once flourished as a node connecting the railway and water transportation. However, the railway transport service to Kisumu collapsed and as a result, the Kisumu Port has been underutilized in the recent years. There are also small quays along the lake.

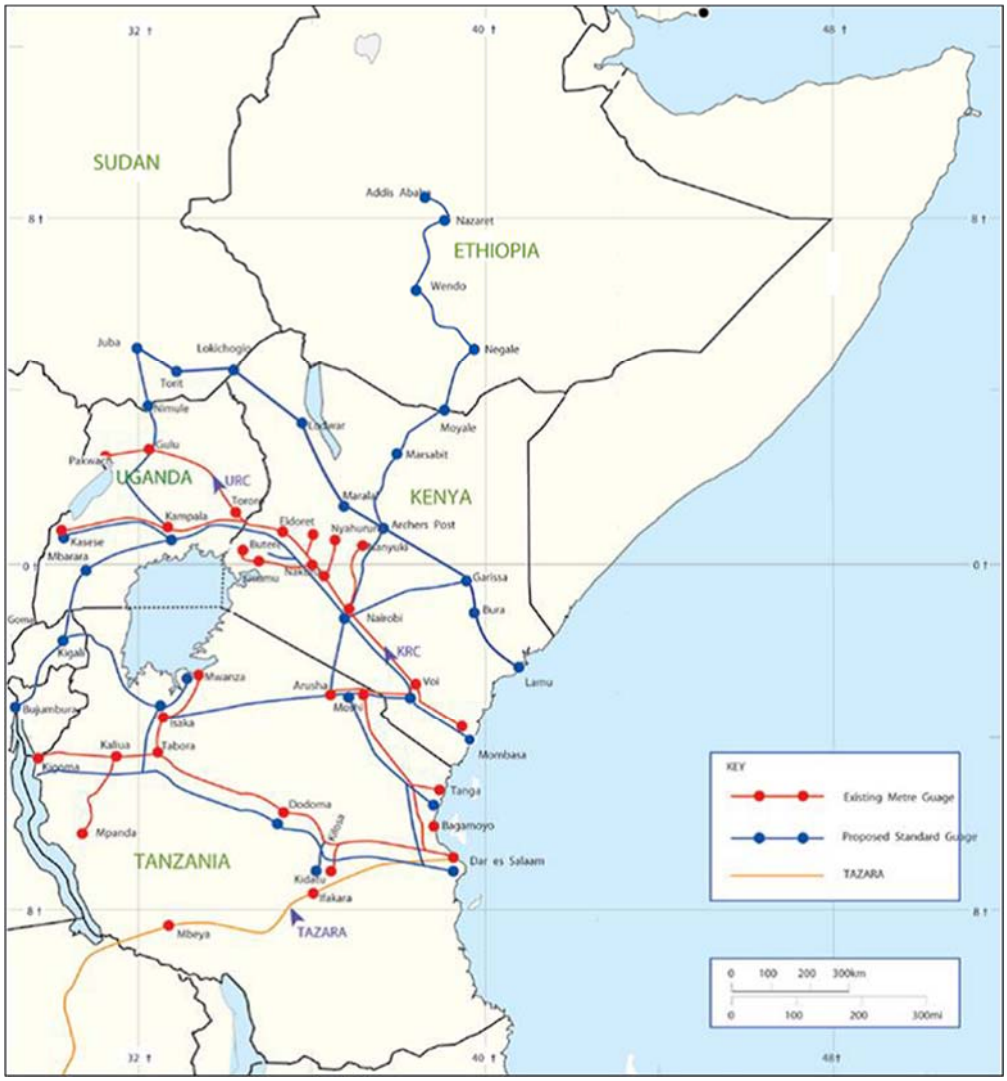


Source: KPA

Figure 7.1.1 : Ports of Kenya

7.1.2 Hinterland of Kenyan Ports

The hinterland of both Mombasa and Lamu ports are not limited to Kenya but covers neighboring countries as well. The northern corridor starts from the Mombasa Port and extends to landlocked countries such as Uganda while the Lamu Port Southern Sudan-Ethiopia Transport (LAPSSET) Corridor starts from Lamu Port and extends to landlocked countries such as South Sudan.



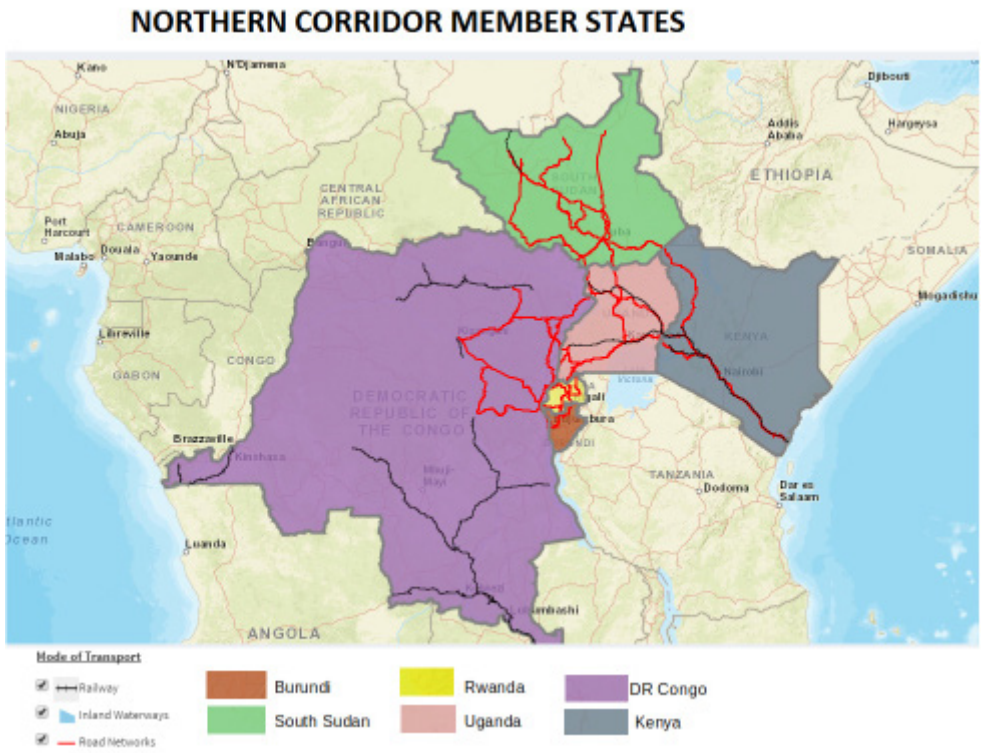
Source: KPA Homepage

Figure 7.1.2 Networking of East Africa

(1) Outline of the Northern Corridor

The northern corridor has played an important role in recent years thanks to the upgrading of the roads and railway transport systems. The introduction of the Standard Gauge Rail (SGR) further strengthened this role. At the same time, one-stop bordering of customs clearance is progressing.

Countries along the northern corridor are Kenya, Uganda, Rwanda, Burundi, South Sudan, Congo and others as shown in Figure 7.1.3.



Source: Northern Corridor Transit and Transport Coordination Authority Homepage

Figure 7.1.3 Countries Related to Northern Corridor

The railway upgrade to SGR in the northern corridor is listed among the projects of Kenya Vision 2030 aimed at reducing transportation cost by simplifying border crossing. With the financial support from China in implementing the SGR project, the Mombasa-Nairobi section was completed in 2017.

Source: Northern Corridor Transit and Transport Coordination Authority Homepage

Figure 7.1.4 Northern Corridor Road Network

Source: Northern Corridor Transit and Transport Coordination Authority Homepage

Figure 7.1.5 Northern Corridor Railway Network

(2) Outline of the LAPSSET Corridor

The LAPSSET Corridor Program objective is to establish a new route of transportation and logistics, which will facilitate seamless connectivity among the Eastern African countries of Kenya, Ethiopia, and South Sudan with an estimated population of 160 million people. The main components of the LAPSSET Corridor Program are as follows:

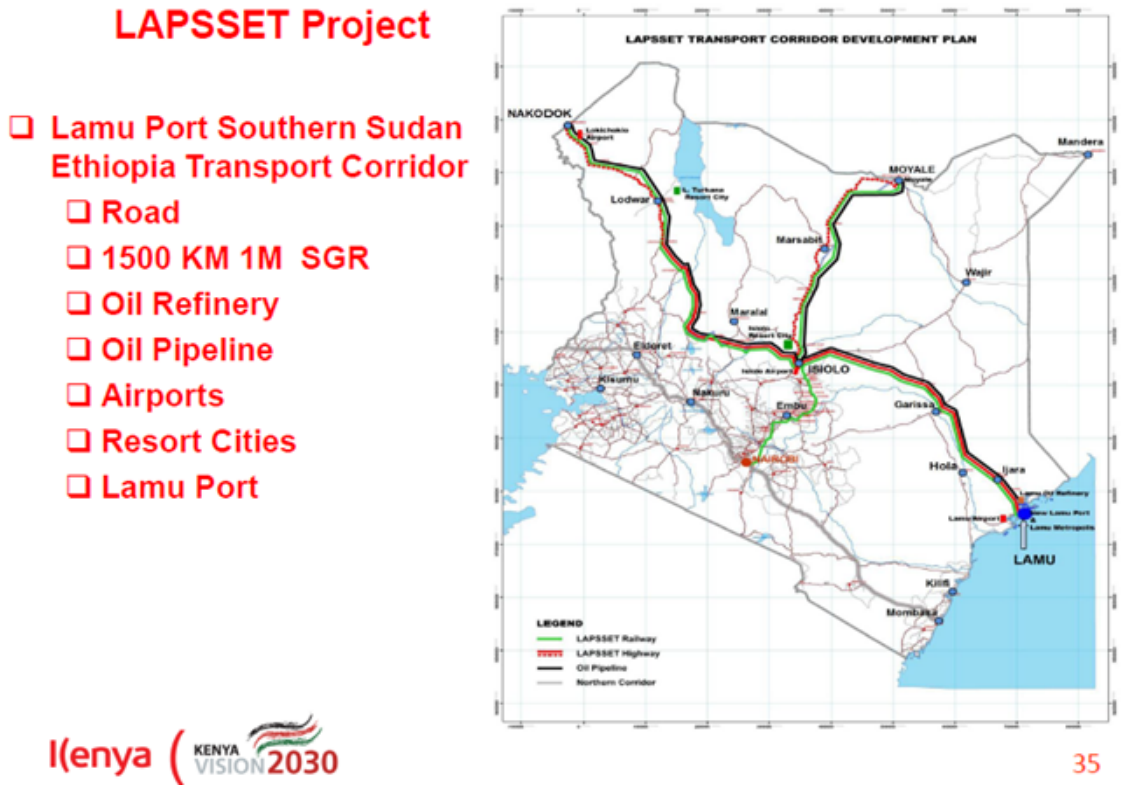
- Lamu Port in Manda Bay consisting of 32 deep sea berths;
- Inter-regional standard gauge railway lines from Lamu to Isiolo, Isiolo to Nakodok (Kenya/South Sudan border) and Juba (South Sudan), Isiolo to Moyale (Kenya/Ethiopia border) and Addis Ababa (Ethiopia), and Nairobi to Isiolo;
- Inter-regional highways from Lamu to Isiolo, Isiolo to Nakodok and Juba (South Sudan), Isiolo to Moyale and to Addis Ababa (Ethiopia), and Lamu to Garsen (Kenya);
- Crude oil pipeline from Lamu to Isiolo, Isiolo to Nakodok, and Nakodok to Juba (South Sudan);
- Product oil pipeline from Lamu to Isiolo, Isiolo to Moyale (Kenya), and Moyale to Addis Ababa (Ethiopia);
- International airports in Lamu, Isiolo, and Lake Turkana;
- Resort cities in Lamu, Isiolo, and Lake Turkana;
- Merchant oil refinery in Lamu;
- High grand falls multi-purpose dam; and
- Fiber optic cables and communication systems.

The LAPSSET Corridor is implemented by the LAPSSET Corridor Development Authority as the main coordinator.

Currently, the Kenyan government is focusing on the following four projects:

- The First Three Berths of Lamu Port

- Lamu - Witu - Garsen Road
- Lamu - Lokichar Crude Oil Pipeline
- Security along the corridor

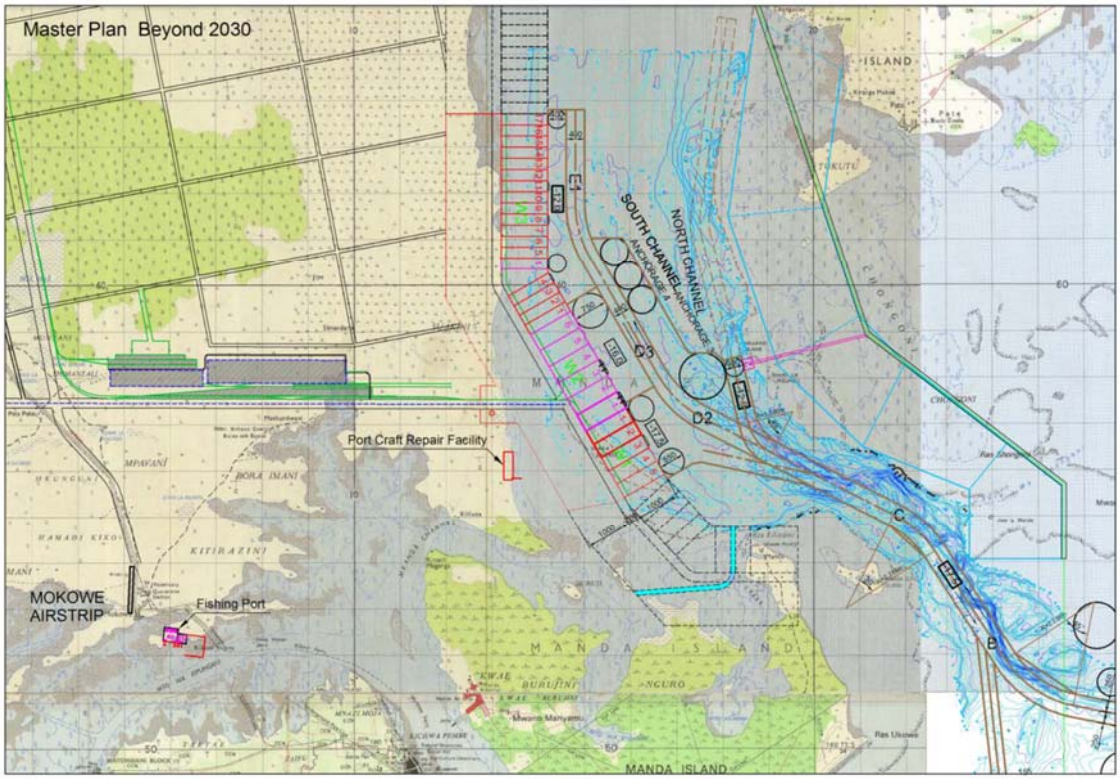


Source: Kenya Vision 2030

Figure 7.1.6 LAPSSET Corridor Project

It is imperative to note that Lamu Port is the gateway port of the LAPSSET corridor and that the Kenya Port Authority (KPA) is responsible for the construction of Lamu Port.

As of January 2018, the construction of the first three berths are underway with the scheduled completion date of December 2020. In this regard, the landlord model is proposed for port operation and therefore, KPA employed a transaction advisor (= consultant = MTBS) as it prepares for the opening of the port.



Source: KPA

Figure 7.1.7 Lamu Port Master Plan

7.1.3 Administration Policy of Kenyan Ports

The port infrastructure in Kenya is under the jurisdiction of the Ministry of Transport and Infrastructure Development (MoTID) while the KPA works as the executing agency of the policy as well as the administrator and operator of the ports.

(1) Role of MoTID

MoTID is responsible for the performance of the port system, legal framework of ports, guidelines, international cooperation in transportation, international rules (such as IMO's ISPS code), and coordination of economic policies such as the Kenya Vision 2030.

(2) Organization of the MoTIHUD (latter MoTID)

Since organization chart for the current Ministry of Transport and Infrastructure Development (MoTID) is not published during the survey period, organization chart for the former Ministry (Ministry of Transport, Infrastructure, Housing and Urban Development: MoTIHUD) was reviewed. There are five state departments in the MoTIHUD:

- State Department for Transport
- State Department for Infrastructure
- State Department for Housing and Urban Development
- State Department for Maritime and Shipping Affairs
- State Department for Public Works

The department in charge of ports and harbors is the State Department for Transport (SDT). The SDT is responsible for the following matters:

- Transport policy management;
- Maritime transport management;
- Rail transport and infrastructure management;
- Civil aviation management and training;
- Oversight and coordination of LAPSSET corridor program implementation;
- Registration and insurance of motor vehicles;
- National road safety management;
- Motor vehicles inspection;
- National transport safety;
- National roads development policy management;
- Mechanical and transport services; and
- Enforcement of axle load control.

(3) Organizations Supervised by SDT

The organizations supervised by the SDT are as follows:

- Kenya Railways Corporation (KRC (Amendment) Act, 2005)
- Kenya Railways Training School (KRC (Amendment) Act, 2005)
- Kenya Ports Authority (KPA Act)
- Kenya Airports Authority (KAA Act, 1991)
- East African School of Aviation (KCAA Amendment) ACT, 2002)
- Kenya Civil Aviation Authority (KCAA (Amendment) ACT, 2002)
- Transport Licensing Board
- Transport Licensing Appeals Board
- National Transport Safety Authority (NTSA)
- Kenya Ferry Services
- LAPSSET Authority (Kenya Gazette Notice 51, No. 58 of 2013)
- Kenya Maritime Authority

(4) Development Guidelines for the Ministry of Transport, Infrastructure, Housing, and Urban Development

The Ministry of Transport's development guidelines include the following:

- Integrated National Transport Policy, 2009

- Infrastructure Sector Plan

The outline is as follows:

1) Integrated National Transport Policy 2009

In response to Kenya Vision 2030, this is a policy paper on the transport sector covering all transportation fields in general including maritime affairs.

2) Infrastructure Sector Plan

As a follow-up to Kenya Vision 2030, the Medium Term Plans (MTPs) are formulated every five years. MTP II (2013 - 2017) has been issued while MTP III (2018 - 2022) is yet to be released (it is in the final draft stage).

Table 7.1.1 List of Infra Sector Plans

Sector	Description
Overview of Maritime	・ Priority is given to the improvement of efficiency by improving capacity of port facilities. ・ The main projects are the second container terminal, Dongo Kundu Special Economic Zone, modernization of ferry facilities, and improvement of single window system
LAPSSET	・ Kenya will construct the LAPSSET corridor in cooperation with other countries in East Africa. This will improve regional connectivity, expand trade, and increase investment potential. The aim is to construct a rapid transportation system and bypass to mitigate traffic congestion in cities.
Dredging and Widening of Mombasa Port	・ The objective is to allow berthing of post panamax vessels and create a two-way traffic. ・ Phase 1 of the works that covered the approach channel and the turning basin included dredging to 15.5 m. The container terminal was dredged to 12.5 m and all works were completed in April 2012.
Second Container Terminal at KPA	・ The objective of the project is to enhance container handling capacity by constructing a new container terminal and provide new handling facilities at Mombasa Port. ・ The project entails the construction of a new container terminal covering an area of 100 hectares. ・ Once completed, the port will have the capacity to handle 1.2 million TEUs per annum. The tender for the construction of the terminal was signed on 28 June 2011 and construction is ongoing.
Development of Berth No.19	・ The objective of the project is to increase cargo throughput. ・ The project involves extension of the existing Mombasa Container Terminal by developing a new berth of 160 m in length giving a combined quay length of 760 m from berths 16-19. ・ It will also involve reclamation of the sea to create about 5 ha of stacking yard space and dredging of the quay to 12.2 m deep. ・ Once completed, the terminal will be able to accommodate three post panamax vessels at the same time. The project is 80% complete and full completion is expected in 2018.

Source: JICA Survey Team

The evaluation on the shipping/maritime affairs sector of the Kenya Vision 2030 is shown and summarized in Table 7.1.2.

Table 7.1.2 Evaluation of Kenya Vision 2030 (Shipping/Maritime Affairs)

Sector	Description
Integrated Port Security System	・ The project involves the development of civil and communications infrastructure and installation of a comprehensive security solution including a 10 km of smart fence with barricade II locating sensor, gates with access control, a full CCTV solution with surveillance cameras, communication system and other security elements. The objective of the project is to enhance port security. ・ The project is undergoing trials and will be fully operational by the end of 2013.
Ferry Services	・ The objective of the project is to effectively utilize the maritime waters as an alternative mode of transport to the existing ones.

Sector	Description
	・ Two new ferries MV Kwale and MV Likoni were delivered in June 2010 while MV Nyayo and MV Kilindini ferries were upgraded. Rehabilitation and expansion of mainland ferry landing facilities are ongoing.
Supporting the Kenya Maritime Authority with IT	・ This entailed procurement and installation of a local area network and computers for the Kenya Maritime Authority headquarters. ・ The equipment was delivered and installed in 2008.
Equipment to Enhance Maritime Training Capacity	・ The component entailed the procurement of navigation bridge simulator software and ICT equipment and cabling of the training room for Bandari College. ・ The equipment was delivered and installed in 2008.
Shipping and Maritime	・ The objective of this program is to make Kenya a maritime nation by facilitating transshipment of cargo at the port of Mombasa. ・ The port of Mombasa is strategically located to serve Kenya and the land-locked countries of Uganda, Rwanda, Burundi, and the eastern part of the Democratic Republic of Congo.

Source: JICA Survey Team created based on Kenya Vision 2030

To enhance cargo throughput, the Government of Kenya will implement the following;

Table 7.1.3: List of Sector Plan for Infrastructure 2013-2017/19

Sector	Description
Port Efficiency Improvement	・ Automation of port and customs operations to transform the port into an e-port; and fast track the implementation of the National Single Window Clearance System to facilitate cargo clearance system through the port, thereby reducing delays in cargo clearance due to numerous agencies
Second Container Terminal at KPA	・ The objective of the project is to enhance container-handling capacity by constructing a new container terminal at Kipevu and provide new handling facilities at the Port of Mombasa. ・ The project entails construction of a new container terminal covering an area of 100 ha and will have capacity to handle 1.2 million TEUs per annum.
Development of Dongo Kundu Free Trade Port	・ This involves development of free port facilities on 3,000 acres of land owned by the KPA at Dongo Kundu area through public-private partnership arrangements. ・ The Government of Kenya will spearhead the development of the master plan, detailed engineering designs and implementation of the project.
Ferry Services	・ Rehabilitation and expansion of mainland ferry landing facilities ・ Demolition and construction of Mtongwe pontoons ・ Acquisition of two new ferries ・ Provide ferry services in Lamu and Lake Victoria ・ Integrated security solutions and infrastructure - to mitigate against terrorism threats and enhance safety and security of ferry users and equipment. ・ Feasibility studies and detailed design for the development of a viable bridge crossing linking Mombasa Island and the South Coast in Likoni.
Integrated Port Security System	・ Expansion of the Second Container Terminal Phase II and III- this will increase the container handling capacity. It will entail expansion of the yard and berth capacity. ・ Development of the Dongo Kundu Free Trade Port- this will involve construction of two berths to serve the Dongo Kundu Special Economic Zone. ・ Kisumu Port - It will involve revamping of the port with better handling facilities ・ Relocation of Kipevu Oil Terminal (KOT). The government plans to expand and modernize oil terminal facilities in Mombasa. The project entails development of four berths with capacity to handle bigger vessels of up to 200,000 DWT at a cost of USD 391 M.

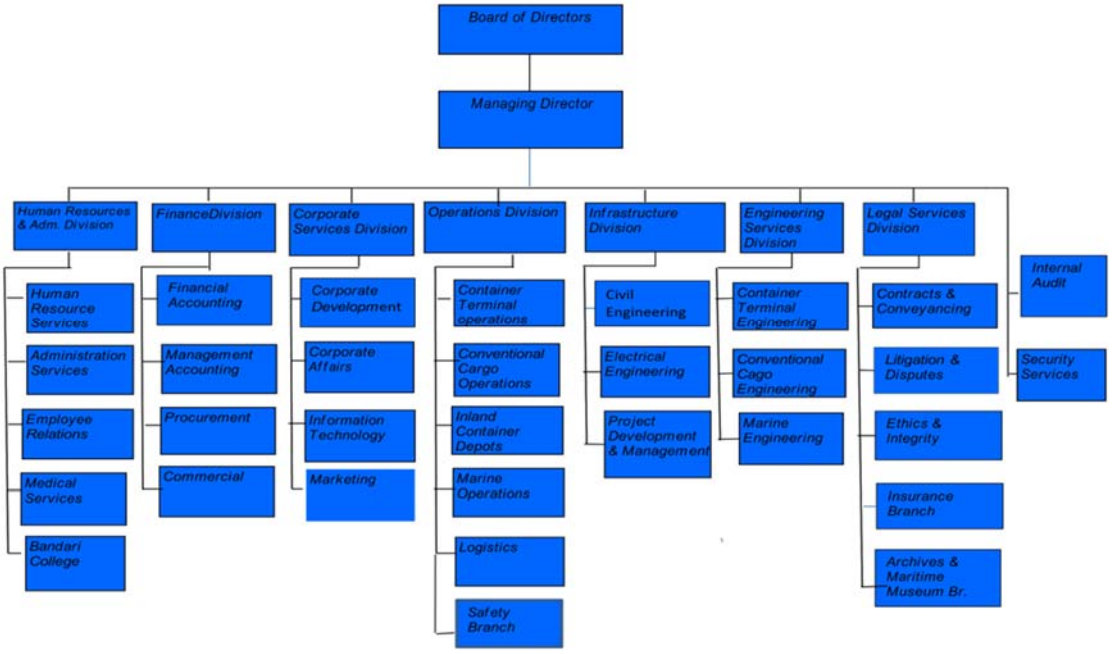
Source: JICA Survey Team created based on MTP III Infrastructure (draft)

7.2 Kenya Port Authority (KPA)

The Kenya Port Authority (KPA) was established in 1978 under the Cabinet Decree (Cap 391). KPA is therefore responsible for managing and operating Kenya's coastal ports and lake ports, including the Mombasa Port. In addition, it manages inland ICDs (Embakasi, Eldoret, Kisumu).

7.2.1 Organization of KPA

KPA has seven divisions under the managing director as shown in Figure 7.2.1. These are the Human Resources and Administration Division, Finance Division, General Affairs Division, Operation Division, Infrastructure Division, Engineering Division, and Legal Services Division. The number of staff at KPA is about 7,000.



Source: KPA Homepage

Figure 7.2.1 Organization Chart of KPA

7.2.2 Activities of the KPA

KPA is engaged in the following operations:

- Marine services: Pilotage, towage, mooring, dry docking, provision of aids to navigation and maintenance of the channel and turning basin;
- Stevedoring and shore handling services: Cargo handling services for containers, general cargo, dry bulk and bulk liquid;
- Reception of cruise passengers;
- Storage of cargo awaiting onward shipment; and
- Security of cargo and persons.

7.2.3 Strategic Objectives of KPA

KPA is focusing on the following strategic objectives:

a) Improving Competitiveness

- Increasing competitiveness as a regional hub;
- Building partnerships, collaborations and linkages; and
- Improving labor productivity.

b) Enhancing Internal Organization

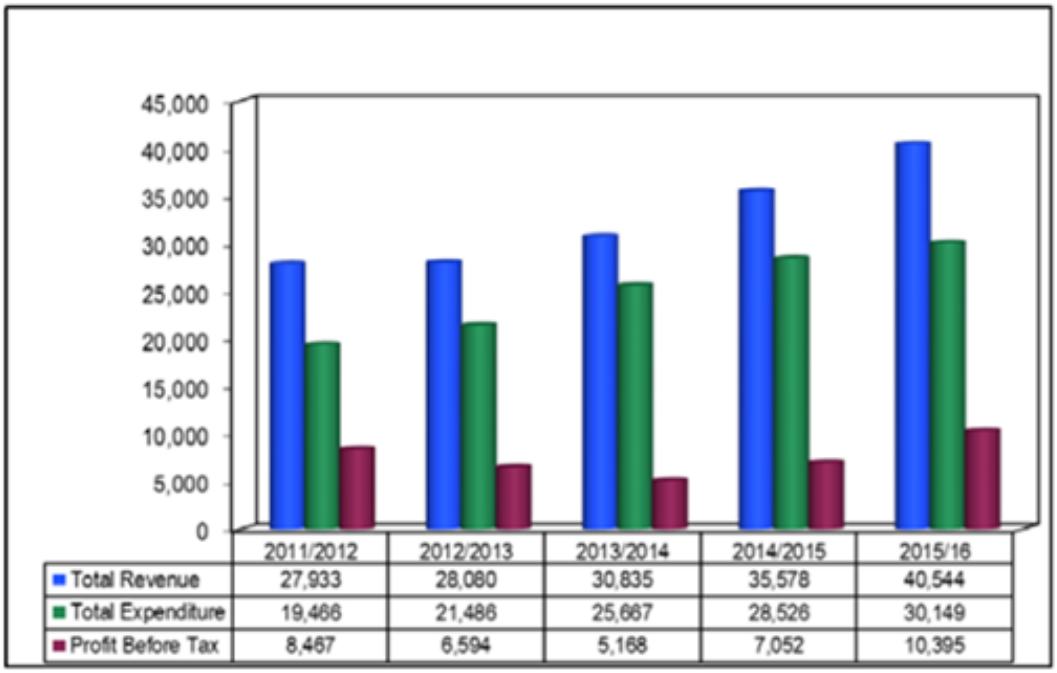
- Promoting good governance;
- Ensuring financial sustainability; and
- Enforcing modern principles of business risk management.

c) Regional Development and Expansion
d) Sustainability

- Improving environmental management in all projects;
- Implementing the Green Port Policy; and
- Continuing with stakeholder engagements.

7.2.4 Profit and Loss of KPA

Figure 7.2.2 shows the annual evolution of income and expenditure of KPA. Forty-five percent of the total revenue is generated from containers. KPA's business performance has been stable in recent years.



	2011/2012	2012/2013	2013/2014	2014/2015	2015/16
Total Revenue	27,933	28,080	30,835	35,578	40,544
Total Expenditure	19,466	21,486	25,667	28,526	30,149
Profit Before Tax	8,467	6,594	5,168	7,052	10,395

Source: KPA (Annual Review and Bulletin of Statistics 2016)

Figure 7.2.2 Profit and Loss Statement of KPA

7.3 International Partners in Port Infrastructure

7.3.1 Japan

Currently, Japan has offered much cooperation in relation to the Mombasa Port development. Outline of the important project are as follows:

(1) Mombasa Port Development Plan (Phase 1)

On 3 September 2016, the opening ceremony of the new container terminal (Berth 20 and 21) was held under the auspice of President Kenyatta.

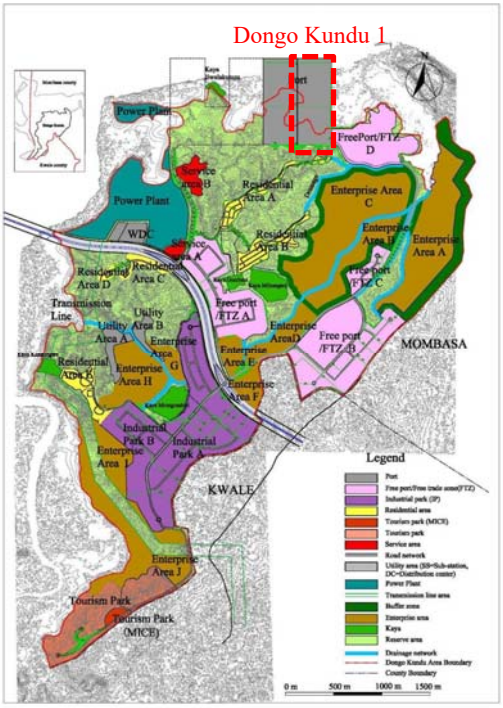
a) Project Owner = Kenya Port Authority (KPA)
b) Consultant: Japan Port Consultant Co., Ltd.

c) Contractor = Toyo Construction Co., Ltd.
d) Contract completion period = March 2012 - February 2016 (48 months)
e) Construction contents

- No. 20 quay wall (steel pile type) = water depth 11 m, extension 210 m
- No. 21 quay wall (steel pile type) = water depth 15 m, extension 350 m
- Gravity type small-scale quay wall = depth of water 4.5 m, extension 283 m
- Container yard pavement = 28 ha

(2) Mombasa Special Economic Zone Development Project (F/S)

The project was started in December 2016. The new port development namely: Dongo Kundu Port-Berth 1 is included as a component of the SEZ development.



Source: Mombasa SEZ Master Plan, JICA

Figure 7.3.1 Land Use Plan of Mombasa SEZ and the Port Location

7.3.2 World Bank

The World Bank has had a remarkable input in the port infrastructure in Kenya especially in the areas of policy making, policy implementation, legal and institutional reform. The World Bank handled rehabilitation of the northern corridor, strengthening the management capacity of the road agency, and strengthening the capacity of the Ministry of Transport in 2005-2010.

(1) Rehabilitation of the Northern Road Corridor (IDA USD 190.44 million, total USD 750.78 million)

Strengthening and rehabilitation of about 373 km of selected priority road sections along the northern corridor which include: improvement of the North Airport Road connecting the Mombasa Highway to the Old Embakasi Airport (about 8 km); and consultant services for supervision works at restructuring. In December 2005, there was an increase in the government's counterpart share of financing for road

works from 25% to 33%. At the time of additional financing component, Project A was expanded to cover unfunded rehabilitation and improvement of three road sections.

The Mau Summit-Kericho, Kericho-Nyamasaria, and Nyamasaria-Kisumu Airport-Kisian, totaling 158 km. In addition, a new sub-component was the repair and replacement of roads and bridges damaged or destroyed by floods in late 2006 and early 2007, and restoration of other public infrastructure assets including buildings, vehicles, and equipment damaged after the general elections in December 2007.

a) Roadside amenities and HIV/AIDS mitigation
b) Private sector participation in road management and maintenance
c) Road safety improvement
d) Institutional strengthening in the roads sector and technical assistance
e) Support to Kenya Airports Authority
f) Support to Kenya Civil Aviation Authority
g) Support to the Ministry of Transport and Communication. (IDA USD 2.20 million, total USD 2.48 million)

This includes strengthening of the Ministry of Transport and Communications (MOTC) through purchase of equipment, support to Bandari College, technical assistance and training, and sector studies related to maritime laws and regulations, implementation of the new transport sector policy and regional trade and transport facilitation. The World Bank is implementing a program aimed at facilitating intra-regional trade and enhancing transportation efficiency to strengthen regional economic integration. In the One Stop Border Post (OSBP) in East Africa, the World Bank, Africa Development Bank, Trade Mark East Africa ("TMEA") support hard infrastructure development for each border while the World Bank, the United States, and TMEA support the software side. At Mombasa Port, the World Bank has been supporting the operation and maintenance of ports, including unification of various systems such as operations and customs clearance. In addition, TMEA has been reinforcing the organization of KPA and supporting efficiency of cargo handling operations.

7.3.3 African Development Bank (AfDB)

The Bank's Country Strategy Paper (CSP) 2014-18 for Kenya was prepared at a time when the country had concluded a peaceful political transition, launched the Second Medium Term Plan (MTP II) 2013-17, embarked on a comprehensive devolution process and discovered oil, gas, and coal deposits. It also comes after the bank launched its Ten-year Strategy (TYS) 2013-22 for Africa, Private Sector Strategy 2013-17, and Gender Strategy 2014-18. Kenya concluded a peaceful political transition following the national and county elections held in March 2013 and subsequently started to implement a devolved system of governance. Recent discoveries of natural resource deposits, notably in the petroleum sector, may have the potential to boost the country's socio-economic development and reduce poverty in the long run. Also, the Government of Kenya, in 2013, launched MTP II for the period 2013-17 aimed at elevating the country to a middle-income country by 2030. However, Kenya is grappling with high unemployment rates especially among the youth, poverty and inequality, and faces a large skills gap of its workforce as well as inadequate infrastructure. This CSP comes at an opportune time for the Bank to assist Kenya address some of these critical challenges and realize its aspirations. It builds on the achievements of the 2008-13 CSP and deepens the gains from on-going support. At the same time, the CSP 2014-18 is innovative in terms of proposed modes of engagement, financing mechanisms, analytical underpinning and strategic selectivity. It also mainstreams the TYS's key objectives of inclusive and green growth as well as gender equality, promotes structural transformation, and aligns its two strategic pillars to the TYS's core operational priority areas of infrastructure and skills development.

7.3.4 Trade Mark East Africa (TMEA)

TMEA, established in 2010, is a non-profit organization promoting regional trade facilitation that is organized and operated by a total of eight donors including the UK Ministry of International Development (DFID). TMEA headquarters is in Nairobi with a branch office in Mombasa. In addition

to Kenya, countries like Uganda, Tanzania, South Sudan, Congo, etc., have similar headquarters. The trademark's organization is officially registered and has a Memorandum of Understanding (MOU) with the Kenyan government. Despite rapid economic growth of the region, including Kenya, transportation cost is still high. TMEA's main purpose is to reduce the transportation cost.

TMEA has worked on improving physical access on trade and improving trade environment. In 2010-2017 was regarded as the first phase of its activities; TMEA worked to shorten transportation time and reduce cost. The organization has achieved many milestones. For instance, the cargo transit time to Kampala from Mombasa was initially 15 days but has since been reduced to four days. Similarly, transit time to Kigali from Mombasa has also been reduced from 20 days to 7 days.

Newly customized custom automation was introduced so to reduce customs clearance in East Africa to a single customs clearance. The effect of one-stop border post has been able to reduce the time by 80% for the border crossing in Uganda, Rwanda, and Tanzania. Phase 2 of the activity will be the period of 2017-2023. TMEA will continue with Phase 1 and aim for the growth of the economy. For that purpose, TMEA is going to do an Attract Trade Activity.

Regarding Kenya, the World Bank is eyeing coastal areas, fishing and textiles as key growth sectors. For instance, the coast of Kenya is part of the tuna's move around course, but at present, because of the lack of capacity by Kenya, other nationalities like Indonesia and others catch the fish without Kenya's consent. TMEA on the other hand is currently considering a concept of job creation in the fishing industry in Kenya coastline. In addition, TMEA also is keen on the potential of tourism in expanding job opportunities in the region, and TMEA has thus made plans to include Mombasa Port Cruise Terminal No. 1 in the Integrated Tourism Policy of 2013.

In the western region of Kenya, TMEA has promoted the concept of trade/logistic theme wherein TMEA aims at creating a trade/logistic hub in Kisumu. The target cargo is bulk items such as clinker, maize, among other. In the development of infrastructure, TMEA was involved in the building of Mombasa's boat repair center and one-stop borders post. In road construction, TMEA also expanded the road that links the airport to Mombasa Port from two lanes to six lanes. Phase 2 includes the expansion of Magongo Road and KPA's harbor road, pavement of yard, and so on. In addition, TMEA has also supported financing of cranes and reach stackers, as well as construction of Shed. TMEA through a German consultant participated in rehabilitation of berths 11 to 14 which had aged having been constructed in 1915. The consultants were in-charge of the detailed design (DD) for rehabilitation. The funds for construction will be provided by the European Investment Bank, French Bank (AFD) alongside an EU grant of 20 million. Financing for the border posts have since been implemented in Malaba, (Uganda-Kenya) Namanga (Tanzania-Kenya), Taveta (Tanzania-Kenya), Mirama Hills (Uganda-Rwanda), and so on. Moreover, additional gate and security measures for berths 11-14 have been implemented. The Embric Project handled the planning of Mombasa Green Port Policy, tree planting, removal of asbestos roofing, countermeasure to slope collapse, plant environmental standards and so on.

TMEA helped to procure eco-friendly electric cranes, hopper that generates no dust, belt conveyor (multipurpose, soda ash) etc. In addition, the DD has since been finished and looking for a financer. The DD also considered recycled waste oil from ships. About tourism, the bidding for renovation works of the cruise terminal has since been completed. Subsequently the boat charter, bureau standard, and maritime regulations have also been examined leading to review of the established framework of the law that was made in 1950 and revised in 1978, and the third revision has since been completed. The energy supply facility for vessels to stop the engine at the time of ship's berth was also included in the DD. TMEAs future plans include taking steps towards preliminary phase and the pilot phase.

Regarding Bandari College's reform (restructuring, autonomous conversion), there are plans to consider accepting students from foreign countries. Trademark/East Africa partners are UK, US Aid, Denmark DANIDA, Netherland, Sweden, Finland, Canada, Belgium etc. IBM is in charge of the one-stop border

system. Other donors also include the Japan International Cooperation Agency (JICA). Other activities in the trade mark East Africa in Kenya are as follows:

- Information for trade (Infotrade) in Kenya web portal officially launched.
  It will take a trader a maximum of five minutes to access summarized information on international trade procedures in Kenya.

- Supporting Kenya's industrialization: Mombasa Port, SEZs and targeted development cooperation
  The program has highlighted Kenya's lagging industrialization, characterized by falling manufacturing to gross domestic product (GDP) ratios in the past few decades.

7.3.5 China

(1) Northern Corridor SGR Project

The completed section of SGR from the port city of Mombasa facing the Indian Ocean to the capital Nairobi (470 kilometers long railroad) in late May 2017. Construction of the 609 km-long line began in October 2013 and was completed in December 2017. At least 60 new jobs per kilometer of track or approximately 30,000 jobs were expected to be created during the period of construction.

The Mombasa-Nairobi phase of the project was estimated to cost KES 327 billion (USD 3.8 billion). China Exim Bank provided 90% of the financing while the remaining 10% was contributed by the Kenyan government. The SGR project is proposed to connect Mombasa to Malaba on the border of Kenya and Uganda and continue onwards to Kampala, Uganda's capital city. It will further run to Kigali in Rwanda with a branch line to Juba in South Sudan. Branch lines along the route will extend to Kisumu, Kasese, and Pakwach.

(2) Development of Eldoret SEZ near Kisumu

Kenya-Eldoret-Special Economic Zone-Launching Ceremony

The launching ceremony of the special economic zone project in Eldoret, Kenya was held on July 7, 2017 and the ceremony was characterized by parading of construction vehicles. The launched special economic zone (SEZ) project is expected to attract about USD 2 billion of foreign investments. The project is a joint venture between Kenyan-based company Africa Economic Zone and China's Guangdong New South Group. (Xinhua/Pan Siwei)

7.3.6 USAID

In Kenya, USAID supports the Government of Kenya Vision 2030 to transform the governance and economy of Kenya by supporting devolution. USAID works toward that goal across all programs including health, education, economic growth, environment, youth empowerment, democracy and conflict mitigation. The underpinning principle is that Kenya continued economic progress hinges on investing in young people. In this regard the Government of Kenya with support from USAID, is teaching millions of children to be fluent readers. The commitment of Kenya to this partnership is reflected in the results of an independent evaluation of the program, which showed that many Kenyan children are reading at international fluency levels.

According to the statistic figures of the USAID assistance indicates that much of USAID's budget is allocated to health issues. Funds represent allocations based on USAID's 2016 fiscal year (FY). USAID's programs in Kenya operated with approximately USD 28 million including funding for education, democracy, and governance activities.

7.3.7 Korea

Kenya signed a seven-year trade agreement with South Korea towards improvement of health, education, energy, ICT and industrialization sectors. The pact on cooperation in e-Government, signed by the Foreign Affairs Ministry, will see Kenya and South Korea share best practices and technical exchanges to increase efficiency and effectiveness of government.

The construction of the second phase of the Korean funded project- Kenya Advanced Institute of Science and Technology (KAIST) in the Konza Techno City is set to commence in the second quarter of 2017; this is according to the Kenya Vision 2030 Delivery Secretariat. Regarding Shimoni, the Korean organization called "Shelter Solution" proposed a comprehensive development plan of KWALE Province including Shimoni in the BTO scheme of 25 years. The large-scale development estimated to be USD 65 billion in total. It is unknown whether it is being supported by the Korean government or proposed solely by a private enterprise group.

7.4 Mombasa Port

Mombasa Port is one of the most important deep-sea ports on the east coast of Africa and is a gateway for Kenya, Uganda, Northern Tanzania, Burundi, Rwanda, South Sudan, Somalia, Ethiopia, and the Congo (Democratic Republic). It is located 4 degrees 3 minutes on south latitude and 39 degrees 37 minutes on east longitude.

7.4.1 Port Facilities in Mombasa Port

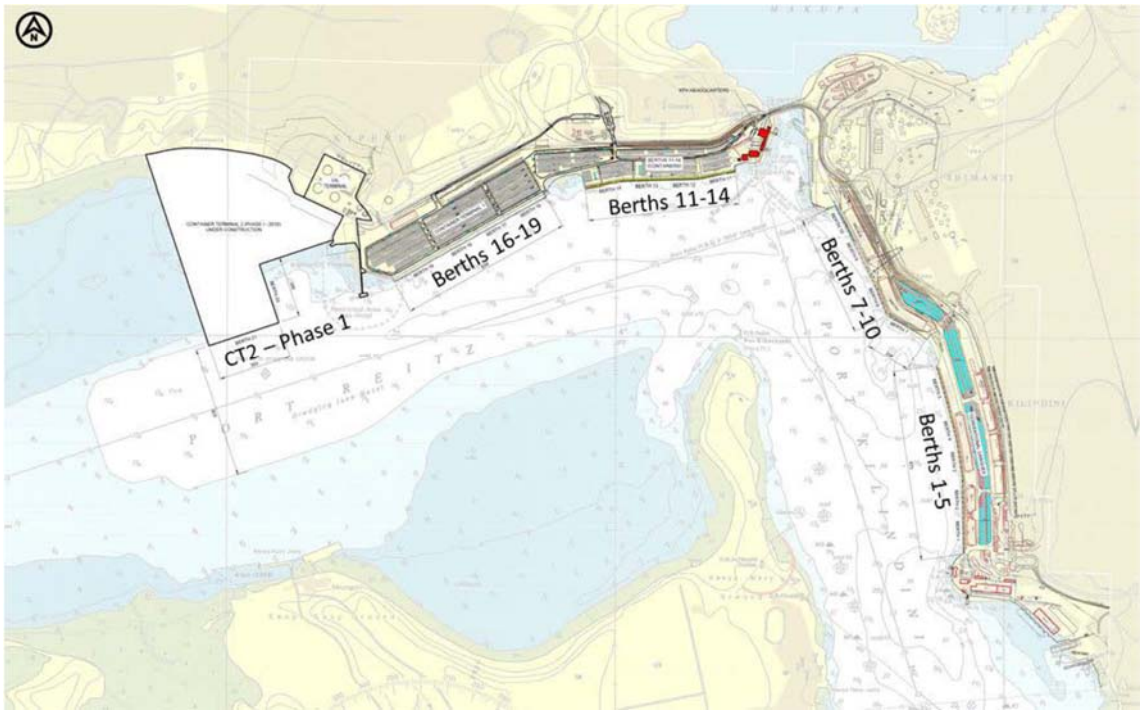
a) Mooring Facilities

The Mombasa Port has experienced an increase in cargo throughput the recent years, and the size of ships have become larger (more than 200 m). However, since the existing berths were designed to accommodate only small size ships, berth # 1 - # 5 will be remodeled. Berths #8 to #9, Berths #12 to #14, and Berths #16 to #19 are also in the same state, and thus will also be remodeled.

Table 7.4.1 Mooring Facilities in Mombasa（2016）

1. Deep Water Berths	(i) Number 19 (ii) Total Length 3,844 m (iii) Draft 10 m -15 m
2. Bulk Oil Jetties (Tanker Berths)	(i) Number 2 (ii) Draft (a) SOT (9.8 m (b) KOT 13.4 m
3 Container Berths	(i) Number 6 (ii) Length 1,400 m
4 Bulk Cement Berths	(i) Number 2 (ii) Total Length 315.0 m (iii) Number of Silos 3.0 (iv) Capacity per Silo 6,000 tons
5 Dhow Jetties (Old Port)	(i) Number 2

Source: KPA Homepage



Source: KPA Home Page

Figure 7.4.1 Location of Berths in Mombasa Port

7.4.2 Cargo Handled at Each Berth

The handling cargos in the existing Mombasa Port are listed below.

a) Dhows and General Merchandise

- Mubaraki (Bulk cargo);
- Dock Yard (Repair and maintenance works);
- Zone-G: the yard around this area is currently used to store customs warehouse containers;
- Berth#1-#2: Motor vehicles, container-RoRo operations and cruise terminal;
- Berth#3: Grain Bulk Handlers Limited (GBHL);
- Berth#4-#6: General cargo-iron and steel, dry bulk and containers;
- Berth#7-#8: General cargo-iron and steel, dry bulk;
- Berth#9-#10: Soda ash, vegetable oils, dry bulk, general cargo;
- Berth#11-#12: General cargo, containers, dry bulk and containers;
- Berth#13-#14：Containers and motor vehicles;
- Berth#16-#19：Container terminal; and
- Berth#20-#21：New container terminal.

b) Oil Terminal

- Kipevu Oil Terminal-(KOT)
- Shimanzi Terminals

c) Other Facilities

The port of Mombasa owns and manages the following facilities besides the mooring facility:

- Fire station
- Port police station
- Bandari College

7.4.3 Cargo Volume in Mombasa Port

Handling cargo volume, cargo trend, and container volume in Mombasa Port are shown below.

(1) Total Cargo Handled in Mombasa Port

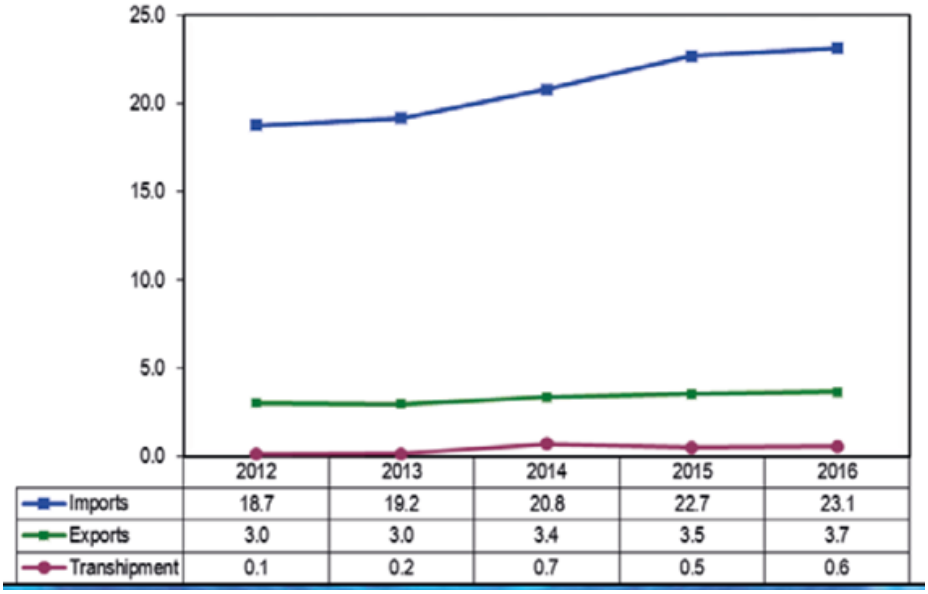
Table 7.4.2 Cargo Handled at Mombasa Port

	2012	2013	2014	2015	2016
IMPORTS ('000' DWT)					
Containerized Cargo	5,954	5,974	6,524	6,955	7,146
Conventional Cargo	1,302	1,726	1,830	2,143	1,846
Dry Bulk	4,811	4,913	5,231	6,350	6,447
Liquid Bulk	6,665	6,537	7,192	7,232	7,677
TOTAL	**18,732**	**19,150**	**20,777**	**22,680**	**23,116**
of which Transit In	6,201	6,196	6,691	7,167	7,217
EXPORTS ('000' DWT)					
Containerized Cargo	2,626	2,690	2,791	2,803	2,880
Conventional Cargo	153	128	108	113	122
Dry Bulk	106	65	422	578	606
Liquid Bulk	160	100	45	40	51
TOTAL	**3,045**	**2,983**	**3,366**	**3,534**	**3,659**
of which Transit Out	425	513	508	500	531
TOTAL IMPORTS & EXPORTS	**21,777**	**22,133**	**24,143**	**26,214**	**26,775**
Transhipment ('000' DWT)	143	174	732	518	589
TOTAL THROUGHPUT ('000' DWT)	**21,920**	**22,307**	**24,875**	**26,732**	**27,364**
Container Traffic (TEU)	**903,463**	**894,000**	**1,012,002**	**1,076,118**	**1,091,371**
Total Vessel Calls (No.)	**1,763**	**1,768**	**1,832**	**1,694**	**1,607**

Source: KPA (Annual Review and Bulletin of Statistics 2016)

(2) Cargo Trend (Overall)

Cargo trend is increasing, showing growth of several percent annually.

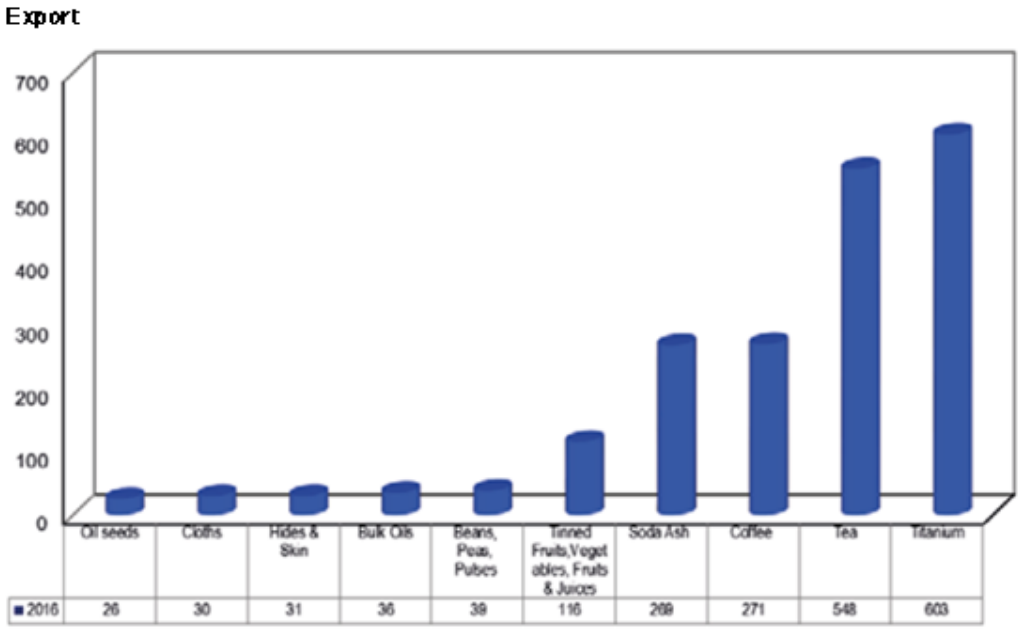


Source: KPA (Annual Review and Bulletin of Statistics 2016)

Figure 7.4.2 Evolution of Cargo Trend

(3) Export Cargo

Major export cargoes are titanium, tea, coffee, soda ash, and fruits. The main export destinations are China, India, Pakistan, among other nations.

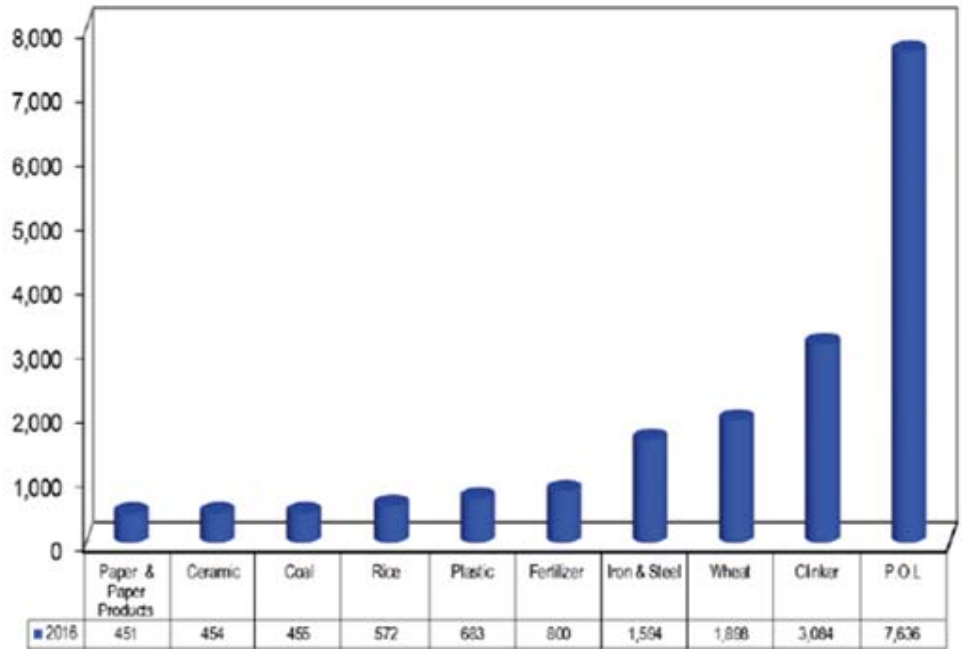


Source: KPA (Annual Review and Bulletin of Statistics 2016)

Figure 7.4.3 Goods Exported

(4) Import Cargo

Major import cargoes are petroleum, clinker, wheat, iron and steel, fertilizer, plastic, etc. Major trade origins are China, United Arab Emirates (UAE), India, and Saudi Arabia. Japan is the sixth import origin country.



Source: KPA (Annual Review and Bulletin of Statistics 2016)

Figure 7.4.4 Goods Imported

(5) Container Traffic

Container handling volume in 2016 was 1.091 million TEU, compared with a tentative value of 1.18 million TEU in 2017 which showed an increase of more than 8% compared with the previous year.

Table 7.4.3 Handled Container

		2012	2013	2014	2015	2016
IMPORTS	Full	441,067	441,004	482,055	514,086	527,816
	Empty	3,705	8,385	6,617	5,970	8,167
TOTAL		444,772	449,389	488,672	520,056	535,983
EXPORTS	Full	120,712	129,522	130,757	121,531	128,913
	Empty	325,912	298,820	331,719	391,841	378,444
TOTAL		446,624	428,342	462,476	513,372	507,357
TRANSHIPMENT	Full	10,553	12,118	52,707	37,384	42,586
	Empty	1,514	4,151	8,147	5,306	5,445
TOTAL		12,067	16,269	60,854	42,690	48,031
TOTAL	Full	572,332	582,644	665,519	673,001	699,315
	Empty	331,131	311,356	346,483	403,117	392,056
TOTAL		903,463	894,000	1,012,002	1,076,118	1,091,371

Source: KPA (Annual Review and Bulletin of Statistics 2016)

(6) Transit Traffic

Transit cargoes to neighboring countries destined to Uganda, Tanzania, Rwanda, South Sudan, etc.

Table 7.4.4 Transit Traffic

		2012	2013	2014	2015	2016
UGANDA	Imports	4,499,302	4,508,118	5,132,276	5,592,914	5,922,160
	Exports	346,193	404,198	389,844	384,418	424,555
	Total	4,845,495	4,912,316	5,522,120	5,977,332	6,346,715
TANZANIA	Imports	168,006	180,131	173,022	190,880	171,238
	Exports	18,163	12,344	14,827	13,898	11,319
	Total	186,169	192,475	187,849	204,778	182,557
BURUNDI	Imports	38,917	66,227	78,961	75,690	35,755
	Exports	243	682	139	121	39
	Total	39,160	66,909	79,100	75,811	35,794
RWANDA	Imports	247,730	223,127	221,323	273,815	180,281
	Exports	12,508	16,972	14,589	18,109	13,741
	Total	260,238	240,099	235,912	291,924	194,022

SOUTH SUDAN	Imports	736,266	716,470	696,816	652,513	552,179
	Exports	30,390	58,679	64,520	50,018	45,673
	Total	**766,656**	**775,149**	**761,336**	**702,531**	**597,852**
D. R. CONGO	Imports	464,989	491,367	383,461	362,976	341,843
	Exports	17,369	20,346	24,267	33,156	35,092
	Total	**482,358**	**511,713**	**407,728**	**396,132**	**376,935**
SOMALIA	Imports	16,359	6,969	4,592	11,697	3,950
	Exports	53	29	19	-	25
	Total	**16,412**	**6,998**	**4,611**	**11,697**	**3,975**
OTHERS	Imports	29,115	3,531	387	6,973	9,688
	Exports	39	47	73	-	999
	Total	**29,154**	**3,578**	**460**	**6,973**	**10,687**
TOTAL	**Imports**	**6,200,684**	**6,195,940**	**6,690,838**	**7,167,458**	**7,217,094**
	Exports	**424,958**	**513,297**	**508,278**	**499,720**	**531,443**
	Total	**6,625,642**	**6,709,237**	**7,199,116**	**7,667,178**	**7,748,537**

Source: KPA (Annual Review and Bulletin of Statistics 2016)

7.4.4 Port Efficiency

(1) Average Port Dwelling Days

It is imperative to note that a ship staying for a long time in Mombasa Port does not necessarily mean inefficiency. However, if the number of staying days of a ship in the port can be reduced, then the availability of vacant berths will also increase and other ships will not have to wait for long for berths to be vacant.

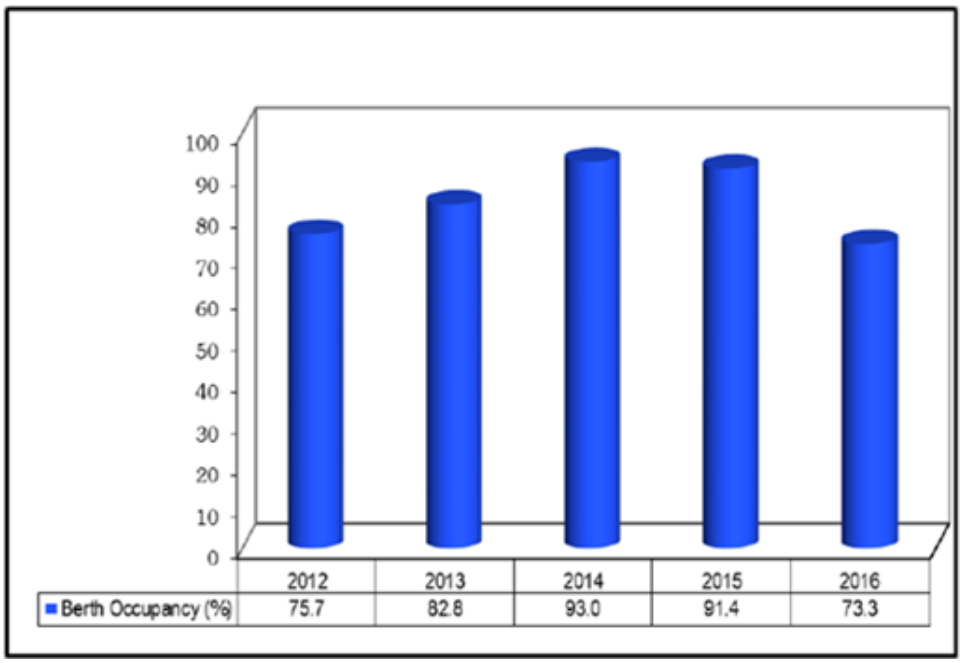
Table 7.4.5 Vessel Calls and the Average Port Days

SHIP TYPE	NO. OF SHIPS	GRT	LOA (METERS)	PORT TIME (DAYS)	AVG. PORT (DAYS)
Barge	22	22,731	1,366	104	4.7
Bulk	250	8,023,658	47,226	1,122	4.5
Car Carrier	168	8,917,417	32,392	144	0.9
Container	477	14,209,071	101,288	1,207	2.5
Fishing	35	13,265	1056.9	94	2.7
Gen Cargo	240	1,320,276	20,075	731	3.0
Passenger	11	147,677	1290	15	1.3
Roro	45	2,166,870	10,262	72	1.6
Tanker	202	6,625,026	37,376	799	4.0
Tug	43	15,406	1,356	99	2.3
Yacht	1	195	36	2	2.1
Naval	11	49,090	1275	43	3.9
Others	102	605,392	7,894	258	2.5
TOTAL/AVERAGE	**1,607**	**42,116,074**	**262,893**	**4,690**	**2.9**

Source: KPA (Annual Review and Bulletin of Statistics 2016)

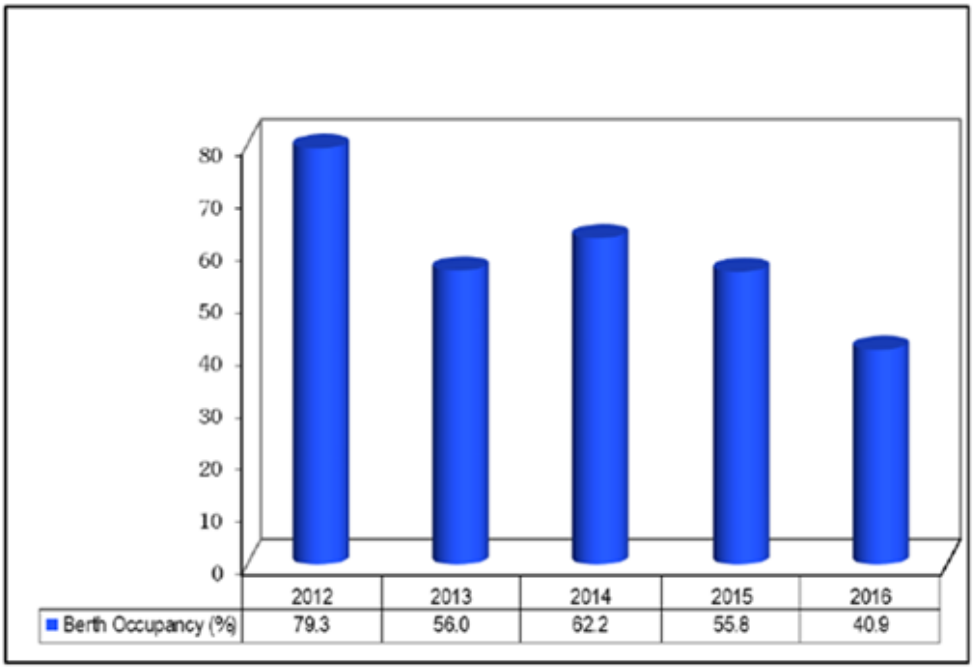
(2) Berth Occupancy Rate

As berth occupancy rate increases, the waiting time for ship becomes longer, resulting in higher shipping cost. In addition, delivery dates must be extended hence weakening trade competitiveness of such a port. In 2016, the occupancy rate of container berth was over 60% which indicates shortage of container berths. This shows the need to construct additional container berths.



Source: KPA (Annual Review and Bulletin of Statistics 2016)

Figure 7.4.5 Berth Occupancy of Mombasa Container Terminal



Source: KPA (Annual Review and Bulletin of Statistics 2016)

Figure 7.4.6 Berth Occupancy of Mbaraki Wharf

(3) Average Tonnage of Dry Cargo

Dry cargo handling efficiency has improved year by year.

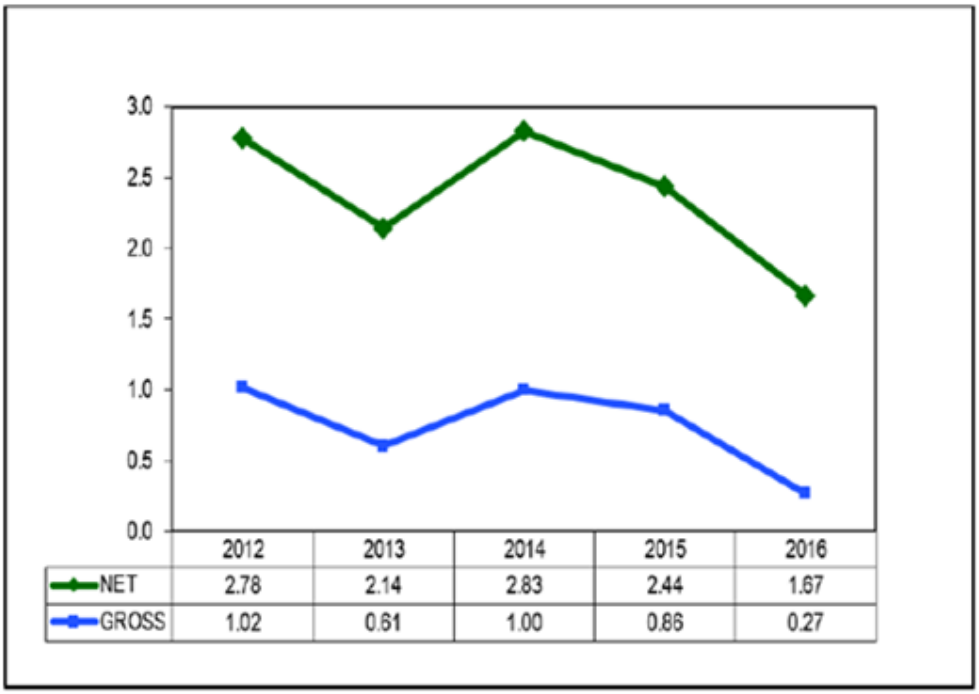
Table 7.4.6 Average Production of Dry Cargo per Gang Shift

Year / Month	2012	2013	2014	2015	2016
January	510	648	588	632	917
February	549	594	680	676	877
March	558	600	727	568	963
April	652	620	881	497	771
May	587	644	360	456	793
June	624	665	772	678	999
July	612	672	687	697	909
August	679	691	643	783	923
September	612	673	727	893	943
October	689	626	708	850	1,001
November	647	649	603	844	1,007
December	642	620	608	1,006	933
AVERAGE	**614**	**642**	**642**	**698**	**916**

Source: KPA (Annual Review and Bulletin of Statistics 2016)

(4) Waiting Time of the Ships

As a result of the improved efficiency, the waiting time per vessel has rapidly declined since 2014.



Source: KPA (Annual Review and Bulletin of Statistics 2016)

Figure 7.4.7 Average Waiting Days Per Ship

7.4.5 Development Project of Mombasa Port

The main contents of the Mombasa Port Development Project (MPDP) are as follows:

- Development of 19B after relocation of KOT
- Construction of Berth No. 19 which extended the container terminal, by a 240-meter quay length, providing additional 5 acres of yard space
- Improved gate and yard capacity.
- Modernization and acquisition of new cargo handling equipment.
- Upgrading of power from 11 kV to 132 kV.
- Dongo Kundu Master Planning and preparing the Resettlement Action Plan (RAP)
- Information Communication Technology (ICT) upgrades.
- Improving performance management - through the Wajibika Project.
- ISO and lSM recertification.
- Preliminary designs and identification of a new site for KOT.
- Conversion of Berths 11-14 into container terminals
- Rehabilitation of Inland Container Depots (ICDs)
- Fixed berthing window system

The above MPDP has been implemented 99%. Currently, KPA is implementing a new MPDP.

a) New Container Terminal Plan

Including the construction of 100 ha container and terminal as a whole, with a capacity of 1.45 million TEU/year. This will be implemented in three phases.

- Phase I

This involves construction of Berth No. 20 (210 meters) and 21 (350 meters) with a depth of 12 and 15 meters, respectively. It provides additional capacity of about 470,000 TEUs. This phase is fully funded and its progress is ahead of schedule.

- Phase II

Consists of the construction of Berth No. 22 (250 meters), 15 meters deep, and will give additional capacity of about 500,000 TEUs.

- Phase III

This comprises the development of Berth No. 23 which will be 300 meters in length, 15 meters deep and a side berth of 4.5 meters deep and 80 meters long.

The Phase 1 project has been completed and operation has started. Containers handled at Mombasa Port in 2017 were 13.344 million as a whole including Phase 1 according to a tentative report.

Phase 2 project is currently in the process of bidding. The evaluation of the bid ended on 15 January 2018 and construction will start in May or June of 2018. Renovation of Berth 11-14 will commence soon using funds from EU, France, and Denmark. It is assumed that construction will begin around July to September. Capacity of 900,000 TEU will be realized when construction works are completed in 2021.

b) Operation of New Container Terminal

Phase 1 was scheduled to be operated by a private company under a PPP scheme. In the qualification screening conducted in December 2014, seven companies were shortlisted. However, a government decision later on quashed the PPP idea and thus it will be managed by KPA.

c) Renovation of No. 19 Berth

In April 2013, the authority completed the extension of the container terminal by 240 meters, providing an additional 5 acres of yard space and a dredged draft of 13.5 meters thereby creating another new Berth, No. 19. This increased the terminal length to 840 meters, making it capable of berthing three vessels of 250 meters each. The authority can now handle larger vessels as evidenced by the recent call by Maersk owned Clemens Schulte with 255 M LOA and BM beam with an arrival draft of 13.9 M even keel.

d) Improved Gate and Yard Capacity

With the help from development partners, the authority has completed expansion of Gate 18/20 adding two additional lanes and canopy aimed at easing evacuation of cargo from the port. Also completed was widening of the Gate 10 road by at least 1 meter in each direction including drainage works. The widening applies to Moi Avenue over a length of approximately 580 meters, from Gate 9 and 10 to the roundabout at the "White House'.

In the same planning period, the authority also undertook improvement of yard facilities and stacking areas at Berths 1-10 (Kilindini) and Berths 11-14 (Kipevu). This has increased container yard capacity both for full and empty containers and conventional cargo, increased the number of yards operated using space efficient RTGs and/or wide span gantries and improved stack management and traffic flow arrangements within the port.

e) Procurement of New Cargo Handling Equipment

The Port of Mombasa is among the best well-equipped ports in the region. At the quayside, the authority has put in place an elaborate equipment acquisition program to invest in better performing equipment. Three Ship-to-Shore Gantry cranes (STSs) with twin lift capabilities and three mobile harbor cranes were acquired in 2011. In September 2014 the authority received seven RTGs from an order of 12, and in November 2014 the remaining five RTGs were delivered which have the capacity to stack one-over-five. The authority also acquired 20 terminal tractors between June 2014 and April 2015. Plans are underway to acquire more STSs, RTGs, harbor cranes, terminal tractors, and other operational equipment.

The additional equipment have enhanced service delivery and efficiency by reducing ship turnaround time.

f) Dongo Kundu Master Planning

The Government of Kenya (GoK) prepared the Kenya Vision 2030 which aimed to make Kenya an industrialized nation and transforming it into a middle-income country. Development of special economic zones (SEZ) in Dongo Kundu in Mombasa, Kisumu, and Lamu were proposed flagship projects to help achieve Kenya Vision 2030. The authority completed the Master Plan for the SEZ and Free Port in Dongo Kundu. KPA has also undertaken a Resettlement Action Plan (RAP) to resolve the encroachment of land by squatters.

Source: KPA Handbook (2017-18)

Figure 7.4.8 Location of Dongo Kundu Area

g) Fixed Berthing Window System

The authority introduced the fixed berthing window system at Berths No. 16 to 19. This system allocates berth slots to specific shipping lines and services so as to try to improve the reliability of ship turn-around time. The system was introduced on a trial basis but has picked up very well and successfully resolved the challenges that the authority faced with delays in handling and clearing vessels.

h) Information Communication Technology (ICT) Upgrades

The authority has taken an enormous leap onto the electronic processing platform following the deployment of the Financial Supply Chain Management system (FSCM), Supplier Relationship Management (SRM), and Employee/Manager Self Service (ESS/MSS) systems.

This has enabled the authority to achieve capabilities of execution of almost all business processes electronically within and both to and from business partners without them having to set foot in the port. This has expectantly secured respectable gains in the efforts being targeted by the Port Access Control Initiative in the restriction of unwarranted access to the port areas as well as related ethics and integrity initiatives following increased transparency within the relevant processes.

i) Upgrading of Power from 11 kV to 132 kV

The project to upgrade the port power supply from 11 kV to 132 kV was completed, bringing the current capacity to 30 MVA. The port power supply is now sufficient, stable, and reliable while the long and frequent power outages which in the years past are now minimal.

j) Environment Projects

KPA has implemented the Green Port Initiative including removal of asbestos roofing, use of solar and wind power for road lighting, bio-eco-terrace (protection of slope surface and planting of 8,000 trees). The facility for supplying electricity from the quay to the ship has been ready for all the quays.

However, because the capacity of the power plant was insufficient, power supply will begin from 2019. KPA also installed a dustless belt conveyor, two modern cranes (electric drive) will start operation. Four eco hoppers (hopper which does not scatter dust made by DFID) have also been acquired.

In order to reduce scattering of dust from clinker carrying trucks, KPA also installed a conveyor belt to improve the loading system for railway wagon.

k) Budget Plan of the Project

The annual budget allocation plans for major projects are as shown in Table 7.4.7 below.

Table 7.4.7 Annual Budget Allocation Plans for Major Projects

	Projects	Estimated Project Cost	Annual Resource Allocation			Total for Planned Period
		(KES in Millions)	2015/2016	2016/2017	2017/2018	Three Years
1	Second Container Terminal Phase II	38,000	6,750	7,247	6,350	20,347
2	Operationalization of the Second Container Terminal	6,340	1,580	4,760	0	6,340
3	Feasibility Study for Shimoni Port	120	20	20	80	120
4	Conversion of Berths 11 - 14 into Container Benhs	30,000	0	6,500	143	6,643
5	Equipment Acquisition/ Replacement Program and other KPA Projects	15,453	4,440	6,453	4,650	15,543
6	Other procurements, Infrastructure Development, ICT, Yards, Benhs	16,000	5,000	6,690	4,000	15,690
7	Relocation of KOT (Kipevu Oil Terminal)	20,000	100	10,240	7,500	17,840
8	Feasibility Study for Dongo Kundu —Free Port Development	120	-	50	70	120
9	Lamu Port - construction of the first three berths	44,400	2,000	8,000	12,150	22,150
10	Development of Kisumu Port and other Lake Victoria ports	7,000	125	50	1,750	1,925
11	Rehabilitation of ICDs, starting with Nairobi ICD	3,500	100	100	100	300
12	Phase II Dredging- Bongo Kundu	8,000	-	--	2,000	2,000
13	Harbor Mobile cranes and Eco hoppers and other projects	2,207	2,207	-	-	2,207
14	Bandari College as Center of Excellence	1,464	560	300	350	1,210
	TOTAL COST:	184,800	22,882	50,410	39,143	89,553

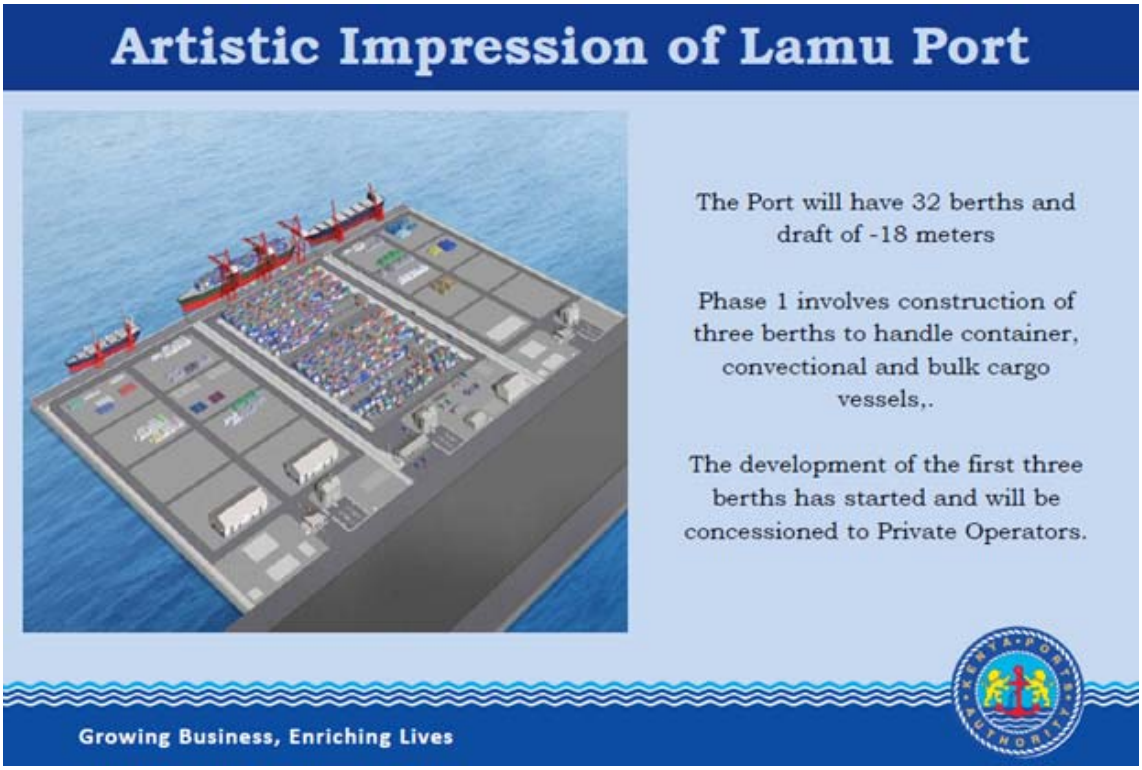
Source: KPA (The business Plan 2015/16-2017/18)

7.5 Development of Other Ports

Although the main function of KPA is the administration of Mombasa Port, KPA also constructs and manages ports other than Mombasa. Among other important projects KPA is involved in include: the construction of Lamu Port, rehabilitation of Kisumu Port, and construction of Shimoni Port.

7.5.1 Lamu Port

Lamu is the gateway port to the LAPSSET corridor. Three berths are currently under construction and will be completed in 2020.



Source: KPA

Figure 7.5.1 Lamu Port

7.5.2 Kisumu Port

Kisumu Port is located on Lake Victoria on the northern corridor. Due to deterioration of the railway service, the port is no longer in a thriving state. In the past, Kisumu Port was operated by East African Railways and Harbors Corporation (EARHC), but it was transferred to KPA in 2017 and is currently scheduled for redevelopment.

(1) Main Facilities of Kisumu Port

Port facilities are grouped in a wide area of land some 6 ha in size. This area includes:

- 262 m quay,
- Rail-wagon ferry pier, including 90 m of berthing space alongside the pier, on reclaimed land, almost perpendicular to the main quay,
- Warehouse measuring 50 m by 16 m on the main quay,
- 3,000 m^2 paved storage area directly behind the warehouse, and

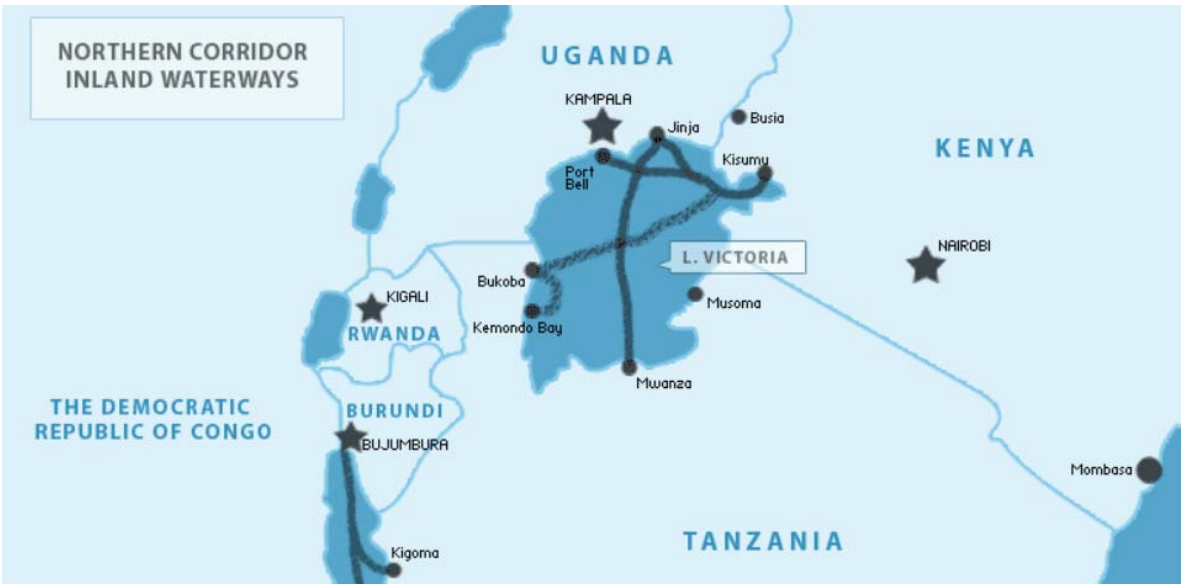
- Offices for the harbor master, customs, and police division.

(2) Concept of Kisumu Port PPP Project – Feasibility Report Page 1-18 February 2016

One of the starting questions regarding Kisumu Port is: "What is the role for Kisumu Port?" as Kisumu's Port business is currently at an extremely low level. A detailed analysis and discussion of the identified port roles to consist of the following:

- Transit port, focusing on transit cargo from Mombasa to the EAC Region
- Local cargo port, focusing on export of regional products and import of local products from Uganda and Tanzania
- Passenger ferry port, focusing on passenger transport between EAC destinations around Lake Victoria
- Port related services, focusing on the Kisumu Port shipyard
- Special economic zone (SEZ)/logistics hub

It is concluded that from a demand and revenue potential perspective, the port should focus on cargo handling. It could become an important hub for East African Community (EAC) trade, as it is conveniently situated for cargo destined for certain regions of Uganda, the Democratic Republic of Congo (DRC), Tanzania, Rwanda, and Burundi.



Source: Northern Corridor Transit and Transport Coordination Authority Homepage

Figure 7.5.2 Northern Corridor Inland Waterways

At the East Africa Committee Meeting in 2012, KPA was charged to manage Lake Ports in harmony to other East African countries like Tanzania and other countries wherein the port authority handles also the lake ports. In this regard Kisumu Port was therefore transferred to KPA in August 2017. Kisumu Pier, Homa Bay, Kendu Bay, Kowuor, Asembo Bay, Mbita, Muhuru Bay, Mfangano, and Port Victoria piers comprise the other ports on the Kenyan part of the lake. All of the listed piers are underutilized due to the rapid growth of water hyacinth. The takeover by KPA is expected to lead to the revival of the once vibrant ports. It will also include former ports such as Miti Mbili, Mainuga in Rachuonyo, Sindo in Homa Bay, and the Lwanda Kotieno jetties. At the time of takeover of the ports, it was estimated that it will cost about KES 500 million. The Kisumu Port rehabilitation is awaiting budgetary allocation for next year (from April) and the construction period is estimated at about a year and a half. According to

the study conducted by MTBS, operation of a large passenger ferry would be unprofitable. As such, services on a small ship may be preferable.

However, there is another plan to build a new port in Kisumu. The study is being carried out by Royal Haskoynig and the report is expected to come out in June or July 2018. Approximate construction cost is about KES 15 Billion.

(3) Outline of Globology Ltd. (Lake Ferry Service)

As for the ferry service of the lake, pioneering efforts of a private enterprise known as Globology Ferries are already in place.

MV Captain Dan

Source: Globology Ferries Homepage

Figure 7.5.3 View of a Ferry Boat Sailing on Victoria Lake

- The company was established in 2015 thanks to a grant from the Shell Foundation in UK. Globology operates four vessels which were designed specifically for the East African environment. Ferries have twin hulls to enhance safety.
- One ferry has a capacity of 65 people while the other three have a capacity of 130 people. There are six crew members aboard each ferry (total number of offshore employees is 32).
- CEO Mr. Teertsra is the master mariner from Shell Oil.
- First launching was in 2015, second launching was in 2016, and third launching was in August 2017, and fourth launching was in December 2017.

7.5.3 Development Plan for Shimoni Port

Currently, Shimoni has one pier on the coast, but the cargo volume is small. However, according to the Kwale Regional Development Plan, Shimoni Port will be used for fishing and tourism. Thus, developing Shimoni Port is considered to be a boost for the Blue Economy.

The outline of the F/S on Shimoni Port conducted by MTBS is as follows:

- Project cost: The cost is estimated at USD 12.5 million. The size of the quay is planned to be 150 m in length and 8 m in depth.

- Quay Wall: A quay wall of 150 m is planned.
- The quay wall: The quay wall should have a depth of CD 8.0 meters.
- Cold Storage Room: The cold storage room, should be about 4,000 m^2 and will have different storage rooms with temperatures of either 20 °C or 40 °C.
- Paving: The remaining land area should be paved to allow for movement of trucks, equipment, fish bins as well as the storage of reefer containers.

Table 7.5.1 Rough Cost Estimation of Shimoni Port

USD in Thousands	EN PV	Total
Investment Costs (CAPEX)	(11,900)	(12,479)
Operational Costs (OPEX)	(13,287)	(27,964)
Environmental and Social	(88)	(100)
Hinterland Transport	(1,640)	(3,469)
Road Construction	(8,811)	(9,975)
Economic Costs	(35,727)	(53,987)
Total Revenues	47,775	101,061
Fish Sales - Kenyan Fish Sector	68,554	165,000
Total Economic Benefits	116,328	266,061
Net Economic Cash Flow	80,602	212,074
EIRR	30.30%	
B/C Ratio	3.26	

Source: F/S Report of Shimoni Port

Apart from the above, the Korean organization called Shelter Solution has proposed a comprehensive development of the Kwale Region in the BTO model. The outline is as follows:

Table 7.5.2 Outline of Comprehensive Development of the Kwale Area

- Project Name:- **Shimoni integrated Development Project(SIDP).**
- Project owner: **Coast Development Authority.**
- Project Value Estimated At **Usd63.5Billion.**
- Financed 100% By **Shelter Solution ltd and International Funding partners.**
- Procurement Model: **Build Transfer Operate.**
- Contract Period: **25 Years.**
- Technology: **Shelter Solution ltd and Consortium.**
- EPC Contractor: **Shelter Solutions ltd & International partners.**
- Technical advisers & Local Consultants: **Shelter Solutions Ltd and Consortium.**

Source: Shelter Solution (Korea)

7.6 Customs' Recent Activities

Customs replaced the previous Simba System with the Integrated Customs Management System (ICMS). ICMS is a system which Kenya Revenue Authority (KRA) has been implementing since 2014-2017 with the intention to improve Kenya's Customs processes and procedures to allow less manual transactions and thus fast track cargo clearance at all its customs points. ICMS is positioned not only to improve inefficiency, but also as a system to promote future increase in transportation.

Additional berths in Mombasa Port, SGR, Naivasha Dry Port on the northern corridor and the mega Lamu Port are developments that are expected to increase cargo volume to East Africa through Kenya Ports Authority. It is salient to note that the Simba System cargo clearance from the Port of Mombasa was very slow, characterized by frequent system breakdowns, many systems depending on one platform,

use of only browser (windows explorer) and hence not able to accommodate advancement in technology. In an effort to improve efficiency, the ICMS has since helped to reduce all these inefficiencies of the Simba System by about 90%.

7.7 Approach to KPA's Blue Economy

7.7.1 Outline of the Superior Plan

Kenya's Blue Economy Implementation Committee was announced in the Official Gazette of 6 January 2017. The key members are State Department for Fisheries and Blue Economy, Maritime and Shipping Affairs, Transport, and Environment. PPP schemes will be adopted for the development of the Blue Economy. The focus for Kenya's Blue Economy, according to the Kenya Marine and Fisheries Institute is on coastal tourism, offshore oil and gas exploration, deep and short-sea shipping, cruise tourism, fisheries and aquaculture, inland water way transport, offshore wind, blue biotechnology, marine mineral mining, marine aquatic products, and ocean renewable energy.

(1) Kenya Vision 2030 Sector Plan for the Blue Economy 2018-2022

Since maritime development is one of the critical themes, four maritime related projects: i) development of fisheries and maritime infrastructure, ii) Vijana Baharia Program, iii) raise fish production, and iv) diversification of tourist packages, are identified as national flagship projects in Kenya Vision 2030. Table 7.7.1 summarizes the flagship projects in Kenya Vision 2030 vis-à-vis Blue Economy.

Table 7.7.1 Flagship Projects in Kenya Vision 2030

4.1	Flagship Programs and Projects
4.1.1.	Development of Blue Economy Master Plan
4.1.2.	Development of Human Resource to Manage the Blue Economy
During the plan period the sector will:	
i.	Develop a competence-based capacity for the Blue Economy:
ii.	Empower traders and investors to participate in the Blue Economy:
iii.	Maritime Education and Training: Bandari College will be transformed to a National Maritime Center of Excellence to serve the entire maritime industry including hosting a world-class fisheries center and help in the development of skills needed to grow the Blue Economy. The college will also be expected to provide the maritime labor needed both for the development of national shipping capabilities as well as creation of a pool of 1,000 qualified seafarers annually to supply global demand by the international fleet.
4.1.3	Supply of Blue Economy - skilled labor for the international market
4.1.4	Implementation of Fisheries Management and Development Act, 2016
4.1.5	Development/review of policy, legal, regulatory and institutional framework for Kenya's Blue Economy
4.1.6	Integrated National Maritime Policy
4.1.7	Development of a National Maritime Spatial Plan Sound planning, efficient use of resources and spaces will be documented in a National Maritime Spatial Plan. This will create greater certainty to private sectors when planning new areas of investments; identify compatible uses within the same area of development; reduce conflicts among incompatible users and the nature; streamline licensing processes; and promote overall efficient use of the resources and space thereto.
4.1.8	Development of National Fleet
4.1.9	Development of Fisheries and Maritime Infrastructure The Kenyan coast is strategically located in the West Indian Ocean Region, one of the most important tuna fishing areas globally. Kenya can derive increased economic benefits from tuna fishing in the Kenyan EEZ and the adjacent high seas by landing of fish from the Distant Water Fishing Nations fleets operating in the region. This will be done through undertaking strategic investments in competitive port facilities and services to service these vessels. The proposed investments include: development of small commercial port in Takaungu; fish markets in Kisumu, Lamu, Mombasa, and Nairobi; upgrading of Bandari College into National Maritime Center of Excellence; fish ports in Mombasa, Lamu, Kilifi, and Shimoni that is expected to create

	12,000 jobs and add KES 20 billion to the GDP; jetties; fish processing, cold storage facilities and ice plants; accreditation of International Fish Quality Control laboratories in Nairobi, Mombasa, and Kisumu; and provision of inspection facilities at border inspection posts. Recovery of encroached public land reserved for jetties, landing sites, fishing ports and access roads to beaches will also be a priority.
4.1.10	Aquaculture Technology Development
4.1.11	Revival of Kenya National Shipping Line (KNSL)
4.1.12	Vijana Baharia Program The program aims to harness the potential of the huge number of youth who do not qualify or are unable to join universities and other tertiary institutions by providing them with proficiency-based training so as to access jobs in the maritime sector. This will be undertaken in collaboration with the Bandari Collage and the National Youth Service to produce 1,250 strong workforce annually. The curriculum for the proficiency training in maritime and shipping affairs will be developed in collaboration with all the industry players.
4.1.13	Enforcement of the Insurance Act
4.1.14	Raise Fish Production Fish production will be raised from 128,649 metric tons in 2016 to 304,000 metric tons per year through the regulated landing of fish and promotion of aquaculture development. Aquaculture business and value chain development will contribute towards employment of youth and women.
4.1.15	Raise Per Capita Consumption of Fish
4.1.16	Organize and Support Beach Management Units (BMUs)
4.1.17	Diversification of Tourist Packages Tourist packages will be diversified to include cruise, sport fishing, game safaris, marina, dolphin and whale watching. This will be done through promotion of private sector investments in the Blue Economy tourism sector. These will include water sports, sea cruises, sport fishing including the riverine sports and angling, marine game safaris, marina, yachting, dolphin parades and whale watching.
4.1.18	Cooperation and Implementation of Regional / International Frameworks and Standards.

Source: Kenya Vision 2030

7.8 Challenges

7.8.1 Issues Related to Facilities

To cope with the capacity shortage of the container terminals in Mombasa Port, KPA is developing new container terminals and improving the existing berths. KPA is also trying to ease road congestion in the vicinity of the port by constructing a bypass road and widening the existing roads; these works are currently in progress. Phases II and III of the new container terminal and the relocation of the oil berth are other key remaining yet to be implemented projects.

Development of the Dongo Kundu SEZ is vital for stimulating the Kenyan industry. Accordingly, KPA is currently reviewing and refining the master plan and relocating illegal settlers who have been occupying KPA's land.

Regarding the LAPSSET corridor, KPA will complete the construction of three berths of the Lamu Port within a year or two.

In relation to the Blue Economy, KPA is preparing the investment plan for Kisumu Port and Lake Port. Similarly, KPA is studying the construction of Shimoni Port.

7.8.2 Issues Related to Management

The reduction of the time for delivering cargo (from the time a vessel arrives until the cargo reaches the target destination) is an important issue for KPA and related organizations. This issue will be dramatically improved by the introduction of a one-stop border post and IT system, etc.

To improve the efficiency of terminal operation, terminals have been expanded and new operation software has been introduced. Through these initiatives, the efficiency of terminal operations is expected to improve in the short-term.

Regarding KPA's financial condition, income and expenditures have been balanced in recent years. KPA's finances are expected to remain stable for the foreseeable future.

KPA's large staff of about 7,000 employees should receive education and training to achieve higher productivity. In this regard, it may be necessary to revise the training curriculum of Bandari College.

7.9 KPA's Role in Supporting the Blue Economy

Although the port and harbor itself is not the main player in the Blue Economy, development of the transport and functional space provided by the port has a great influence on the promotion of the Blue Economy.

Therefore, in the port sector, KPA believes the following initiatives will contribute to the promotion of the Blue Economy.

a) Further strengthening of Mombasa Port operation
b) Restoration of Kisumu Harbor and small piers of the lake
c) Construction of Shimoni Port
d) Renovation of the cruise terminal in Mombasa Port
e) Renovation of the shipyard located in Mombasa Port
f) Expansion and upgrading of maritime/crew education facilities at Bandari College

Chapter 8: Tourism

8.1 Scope

Tourism in Kenya has a major impact on the economy and it is estimated that the tourism sector contributes about 10% of Kenya's gross domestic product (GDP) and caters for about 9% of employment in Kenya[22]. According to Kenya Vision 2030, which is the long-term growth strategy of Kenya, the tourism sector is listed as the first of eight sub-sectors supporting the economy of Kenya[23]. Quoting Kenya Vision 2030, "to be a top 10 long haul tourist destination offering a high-end, diverse, and distinctive visitor experience" is set as the future vision of the tourism sector.

In pursuit of Kenya Vision 2030, the Kenya National Tourism Blueprint 2030 (KNTB 2030) was developed wherein tourism policies were established in the Ministry of Tourism and Wildlife (MOTW). In this regard, KNTB 2030 positioned Beach & Marine and African Safari as major tourism resources that attract tourists because the two resources make Kenya unique and distinctive from other competitors. This competitive edge is greatly related to the increase in long haul of tourists, as aforementioned in the future vision of the tourism sector in Kenya and captioned in Kenya Vision 2030, which clearly mentions Beach & Marine as one of the most important tourism products in Kenya, as well as African Safari.

On the other hand, the competitive nature of Kenya's Beach & Marine in comparison with its neighboring countries is also high. In a research of the United Nations Environment Program (UNEP) that compared the economic effect of Beach & Marine on tourism in nine western Indian Ocean countries including Tanzania and South Africa, Kenya was ranked first with respect to the economic effect of Kenya's Beach & Marine. It is salient to note, therefore, that because of the high competitiveness of Kenya's Beach & Marine compared to neighboring countries, it is expected to become one of the main factors that attracts tourists to Kenya in the future.

The purpose of this chapter is to clarify the measures undertaken by the Government of Kenya (GoK) that are necessary in promoting the tourism sector in relation to the Blue Economy in glare of the beach areas and the Lake Victoria area. The subsequent section of this chapter describes the necessary measures vis-à-vis plans and policies of GoK in the tourism sector in relation to the Blue Economy and the current situation.

8.2 Development Plan/Strategy

The two major plans that are at the backbone of the national tourism policy in Kenya are as follows:

- Kenya Vision 2030: The economic pillar of Kenya Vision 2030 aims to achieve an economic growth rate of 10% per annum and to sustain the same growth until 2030. As aforementioned, the tourism sector is listed as the first of the eight subsectors supporting the Kenya economy, and the future vision of the tourism sector is set as "to be a top 10 long haul tourist destination offering a high-end, diverse, and distinctive visitor experience". Based on this vision, a medium-term plan is formulated every five years. However, it is imperative to mention that

[22]: Source: HP of Ministry of Tourism and Wildlife, Kenya

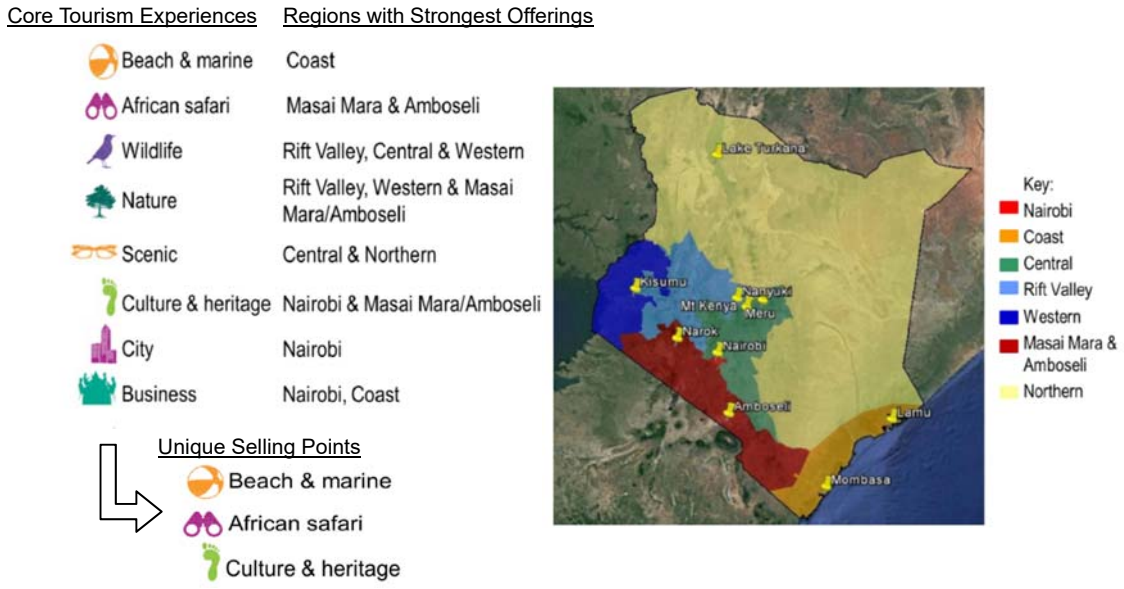
[23]: The seventh sub-sector "oil and other mineral resources" are newly added from the Second Medium Term Plan (2013-2017) and the eighth sub-sector "Blue Economy" is newly added from the Third Medium Term Plan (2018-2022).

the Third Medium Term Plan (2018-2022) is yet to be officially launched. With regard to tourism, the Third Medium Term Plan has been finalized and was obtained from the MOTW during this survey period.

- Kenya National Tourism Blueprint 2030: The MOTW has developed KNTB 2030 to propel the sector's growth through a coordinated approach to tourism product development, institutional and stakeholder management, marketing, and development of people in tourism. The following key points are mentioned in the plan with regard to product strategy:

  - Kenya's core tourism experiences, which are the main drivers of tourism in the country, are: 1) Beach & Marine, 2) African Safari, 3) wildlife, 4) nature, 5) scenic, 6) culture and heritage, 7) city, and 8) business tourism. Others are secondary experiences that support the core experiences.

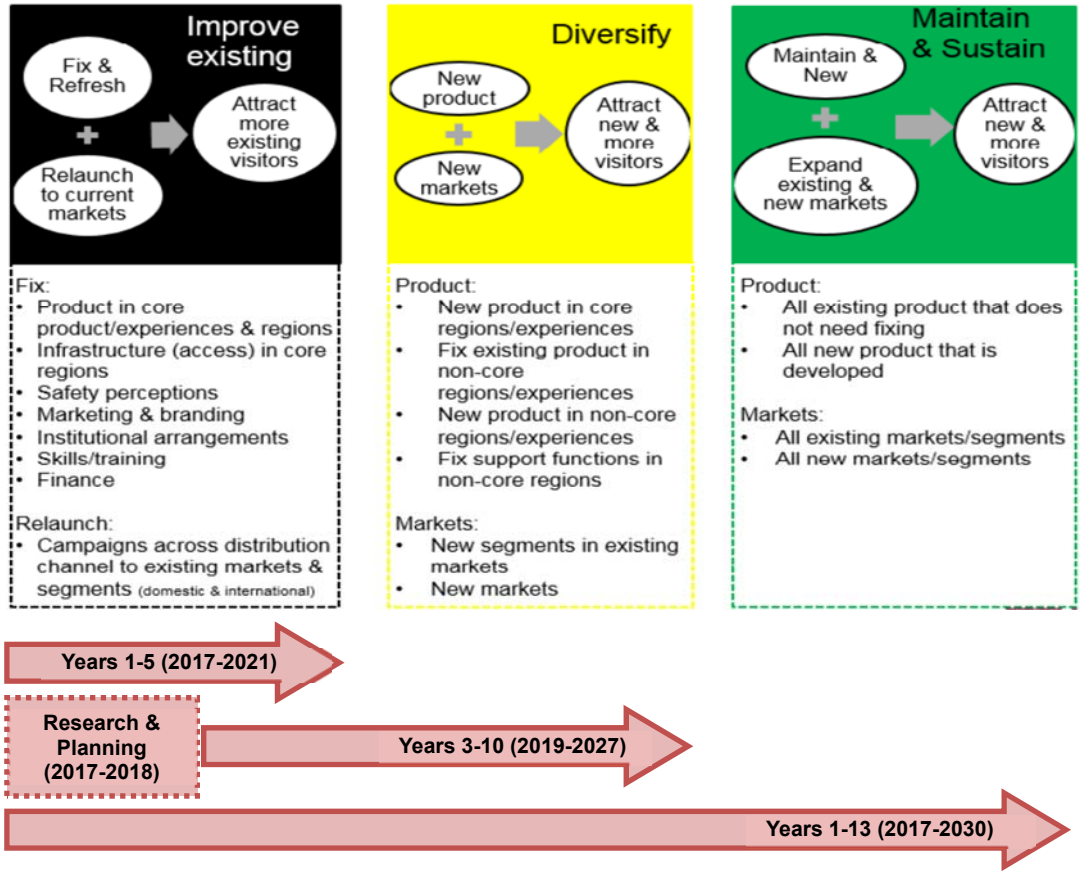
  - Figure 8.2.1 shows the core tourism experiences and indicates which tourism regions have the strongest proclivity to core tourism experiences. Within the core experiences are some absolute unique selling points (USP) which set Kenya apart from any other competitive tourism destination. These are: 1) Beach & Marine and 2) African Safari. These two USPs must, however, be as authentically Kenyan as possible to stand out from other competitive countries. A third USP is Culture & Heritage, which provides authenticity and "sense of place" to the two primary USPs.



Source: Kenya National Tourism Blueprint 2030

Figure 8.2.1 Kenya's Core Tourism Experiences

  - The strategic approach toward 2030 was set with three kinds of priorities as shown in Figure 8.2.2 and are as follows: 1) improve existing, 2) diversify, and 3) maintain and sustain. The first priority is to fix and refresh existing core experiences and regions to attract more visitors for the timeframe set between 2017 to 2021. The prioritized experiences are African Safari and Beach & Marine, and the prioritized regions are Masai Mara and Amboseli and Coast. The second priority is to develop new products and markets and the third priority is to maintain and sustain the products and regions which was covered by the first and second priorities.



Source: Kenya National Tourism Blueprint 2030

Figure 8.2.2 Strategic Approach

- Tourism Sector Plan 2018-2022 for the Third Medium Term Plan (MTP III) (draft): This plan is a medium-term plan about the tourism sector for 2018-2022 of Kenya Vision 2030. This includes target indicators for MTP III, implementation status of projects of the Second Medium Term Plan, and programs and projects for MTP III with their time frame and budget. During the MTP III, the priorities of the tourism sector are the short-term aspect of the KNTB 2030 to "improve existing" and partially the medium-term aspect to "diversify".

From the above, it can be seen that high priority is placed on Beach & Marine in the coastal area for the immediate period (2018-2022) concerning tourism development around water bodies in Kenya.

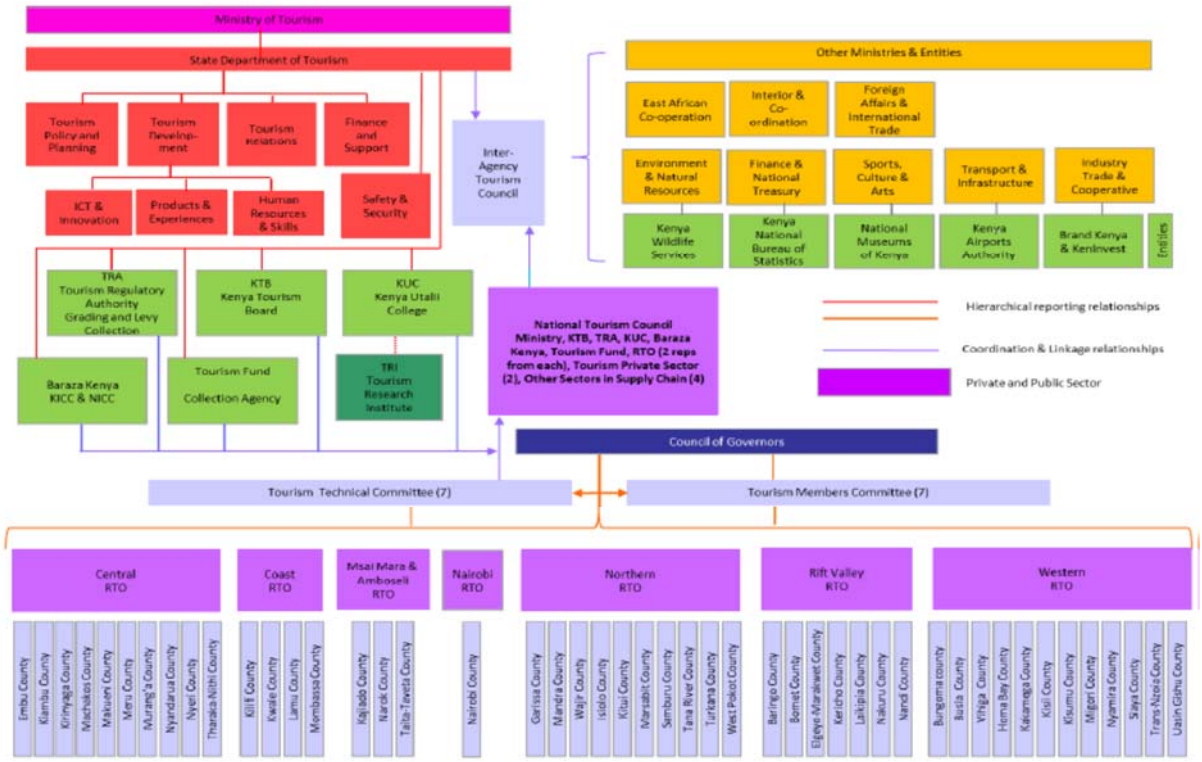
8.3 Responsible Organizations

8.3.1 Legal Framework

The establishment of relevant authorities to provide for the development, management, marketing, and regulation of sustainable tourism and tourism-related activities and services, and for connected purposes in the tourism sector are predicated upon the Tourism Act 2011.

According to the Tourism Act 2011, KNTB 2030 formulated institutional structures and redefined the roles of each organization in the tourism sector. Figure 8.3.1 shows the institutional structure proposed by KNTB 2030. Moreover, the counties will be grouped into seven tourism destinations, and each will have a regional tourism organization (RTO) which will operate in partnership with the private sector. These RTOs will thereafter develop and implement tourism and product development strategies, destination marketing, and coordination of visitor information provision. It is imperative to point out that the counties have an important role of implementing tourism product development including spatial

planning for tourism, and developing and operating tourist amenities (e.g., parking, ablutions, public transport), as well as developing, maintaining, and, where appropriate, operating key tourism facilities.



Source: KNTB 2030

Figure 8.3.1 Kenya Tourism Institutional Structure

8.3.2 Structure in Public Sector

(1) Outline

The roles of public institutions at national, regional, and county levels are summarized in Tables 8.3.1, 8.3.2, and 8.3.3.

Table 8.3.1: Roles of Key Public Institutions at National Level

Institution	Key Role
Ministry of Tourism and Wildlife (MOTW)	The MOTW and the State Department is responsible for the national tourism policy and planning, research and monitoring, and development and finance allocation. Development includes human resources, product and experiences, as well as innovation and information and communication technology (ICT).
Inter-Agency Tourism Council (cabinet secretaries and principal secretaries)	The inter-agency tourism council of the National Minister of Tourism ensures that policies and plans of the various ministries and other relevant national entities and the policies and plans for tourism are synchronized with and in support of tourism development.
National Tourism Council (MOTW, tourism entities, regions and private sector)	This coordinating council ensures synchronization and common goals for all of Kenya by ensuring that regional and county plans and marketing are aligned with the national plans and marketing. It also allows sharing of expertise and resources, where appropriate, between regions and counties. The MOTW and its various entities meet with the county tourism technical committee members and CEOs of RTOs and the private sector. The MOTW and its various entities meet to coordinate planning and marketing with respect to tourism regions and counties.
Kenya Tourism Board (KTB)	The KTB is responsible for international and domestic marketing of Kenya as a tourism destination, including national convention bureaus and specific research in support of marketing.

Institution	Key Role
Tourism Regulatory Authority (TRA)	The TRA does tourism registration and quality assurance/grading.
Tourism Fund	The Tourism Fund will outsource the collection of levies to the Kenya Revenue Authority and will remain a collection agency.
Kenya Utalii College (KUC)	KUC will be restructured into a center of excellence in tourism and hospitality training. The Tourism Research Institute will be a semi-autonomous agency under KUC.
Baraza Kenya	Baraza Kenya will manage the Kenyatta International Convention Centre (KICC), as it currently exists, and the Nairobi International Convention Center (NICC), which will be developed at the current Bomas of Kenya under a public-private partnership (PPP).

Source: KNTB 2030

Table 8.3.2 Roles of Key Public Institutions at Regional Level

Institution	Key Role
Regional Tourism Organizations (RTOs)	RTOs develop regional tourism strategies and conduct regional tourism marketing for the domestic and international markets. They must align their international tourism marketing efforts with those of KTB to ensure synergy and work with county tourism departments, county tourism boards, and/or local tourism associations, where applicable, on planning, product development, and developing/packaging new themes, routes, and experiences. They should establish an integrated regional tourism information system (including accredited information offices network) together with the counties and the private sector. RTOs will include formal partnership arrangements with the private sector on governance, funding, and strategic inputs.

Source: KNTB 2030

Table 8.3.3: Roles of Key Public Institutions at County Level

Institution	Key Role
County Member Committee	The County Member Committee will coordinate with the County Technical Committee to ensure that, where applicable, collaboration across all counties with respect to tourism activities is achieved and the council of governors are kept informed and are able to provide inputs.
County Technical Committee	The County Technical Committee coordinates activities, where applicable, across the seven RTOs and supports information sharing on new practices, as well as liaises with the National Department on all tourism matters.
Counties	The counties' line function departments should be responsible for all integrated development matters, including the development of tourist attractions, the provision of public amenities and infrastructure in support of tourism, and the general maintenance of the environment. The development plan of the counties should include: ・ Establish and provide financial support to the RTO and County Tourism Board, if in existence ・ Work with the RTO in developing and implementing tourism planning, development, and marketing ・ Upkeep and development of public tourist attractions (e.g., historical, cultural, and environmental) ・ Conduct spatial planning in support of tourism and allocate land and infrastructure for tourism development ・ Licensing of tourism operators ・ Provide public amenities, such as parking, ablution facilities, and public transportation, in support of the tourism industry ・ Conduct spatial planning in support of tourism and allocate land and infrastructure for tourism development ・ Plan and provide local road signs ・ Maintain the general safety, upkeep, cleanliness, and beautification of the local area through relevant bylaws ・ Manage the information office/s of the county area and feed into the regional information system ・ Market specific events, conferences, and meetings that occur in the county area ・ Assist the TRA as a first point of registration for tourism businesses with respect to the national registration system ・ Promote tourism awareness, a culture of hospitality, and involvement in tourism among the local population ・ Keep a general watch over tourism matters and advise the RTO regarding tourism issues and development requirements ・ Initiate basic training and education programs to improve tourism knowledge and skills within the framework set at the national level

Institution	Key Role
	・ Establish a tourism business advisory network to encourage and stimulate entrepreneurship ・ Initiate programs to facilitate and increase participation by previously disadvantaged communities and entrepreneurs in tourism Some of the above may be devolved to a tourism board should such an entity be considered necessary.
County Tourism Boards	Generally, counties should not have a tourism board. It is intended that by pooling resources into an RTO based on destinations, more coordinated and integrated development, support, and marketing of tourism will occur. However, some strong tourism counties could have a tourism board. The following tourism-specific functions should be carried out by a County Tourism Board: ・ Be established by the council and private businesses in a local area as a legal entity that represents these parties ・ Be jointly funded by the council authority and private-sector/industry members in the area, as well as from own revenue, including marketing commissions ・ Include a significant number of persons who represent previously disadvantaged constituencies ・ Develop and implement marketing strategies ・ Develop and implement event strategies and operate a convention bureau in support of bids for events, and management and coordination around events

Source: KNTB 2030

(2) Ministry of Tourism and Wildlife (MOTW)

The MOTW is responsible for the formulation of tourism policy, management, and product development. This mandate is derived from Executive Order No. 2/2013 and the Tourism Act 2011. The MOTW developed KNTB 2030 and matters related to policy formulation, coordination, planning and research, product development, and international cooperation activities in the field of tourism.

1) Organization Structure

The MOTW is structured into three technical divisions, namely: Tourism Policy Division, Tourism Product Development Division, and Tourism Relations Division.

2) Role of the Divisions

Table 8.3.4 summarizes the specific functions for each of the divisions.

Table 8.3.4 Roles of the Divisions of Ministry of Tourism and Wildlife

Department	Key Role
Tourism Policy Division	・ Formulate and implement the National Tourism Policy (KNTB 2030) ・ Formulate and oversee the implementation of the National Tourism Strategy every five years ・ Participate in the implementation of Kenya Vision 2030 Sector Plans ・ Initiate the development of National Tourism Master Plan ・ Develop a framework for tourism development and management planning to inform county tourism development ・ Develop integrated tourism area development plans to enhance uniformity and sustainable use of shared tourism resources across counties
Tourism Product Development Division	・ Formulate strategies for effective tourism product development and diversification ・ Promote and encourage the development of diverse tourism product across the supply chain focusing on value addition ・ Promote modern and cost-effective uptake of e-tourism ・ Undertake tourism marketing intelligence research and market analysis to inform marketing policies and strategies ・ Produce, document, and disseminate tourism products and services information ・ Establish tourism information centers and signage ・ Sensitize and create awareness on tourism products development for Small and Medium-sized Enterprises in tourism.
Tourism Relations Division	・ Development and implementation of Memoranda of Understanding (MoUs) and Agreements of Cooperation between Kenya and other countries on tourism issues. ・ Establish joint commissions for the implementation of the MoUs and Agreements ・ Development and implementation of multilateral agreements

Department	Key Role
	・ Participation in the United Nations World Tourism Organization (UNWTO) policy decision-making processes ・ Implementation of the UNWTO resolutions and policies ・ Collaborate with other UN specialized organs, such as UNEP, UNDP, UN-HABITAT, UNCTAD, and ILO. ・ Ensure Kenya's tourism interests are well taken cared of within the East Africa Community (EAC) and other regional economic blocs, such as COMESA and NEPAD. ・ Facilitate and coordinate international and local tourism trade negotiations ・ Mainstream into the tourism sector, tourism-related statutes, protocols, and conventions to which Kenya is a signatory, such as CITES, UNFCC, and WTO. ・ Coordinate inter-ministerial engagement to address cross-cutting issues that affect tourism, including security, infrastructure, energy, and environment ・ Coordinate multi-stakeholder forums for the purpose of interaction, sharing information, and ensuring harmonization of tourism development ・ Identification and promotion of programs and projects for PPPs to enhance sustainable development of the tourism sector ・ Coordinate development and implementation of Tourism Crisis Management Strategy ・ Establish and oversee the management of Tourism Sector Safety, Communications, and Crisis Management ・ Center in collaboration with government agencies and other stakeholders such as Kenya Wildlife Service and Kenya Tourism Federation ・ Enhance collaboration between relevant government security agencies, private sectors, and local communities regarding provision of security and safety to both hosts and visitors ・ Liaison with Tourism Police Unit on matters of tourism security ・ Monitoring of travel advisories and respond to emerging threats ・ Ensure continuous training on safety and security matters in the tourism industry

Source: Ministry of Tourism

(3) County

Kenya's devolution process commenced in March 2013 after the first general election held under the Constitution of Kenya, 2010. The new constitution provided for county governments to be established in each of the 47 counties in Kenya.

In each county government, there is a department in-charge of tourism based on devolved functions and processes. In this regard, for example, there is an MOTW for Kisumu County under the Kisumu County government.

1) Organization Structure

The MOTW of Kisumu County has three directorates, specifically for tourism, sports, and arts and culture.

The tourism directorate of the MOTW has three departments, namely: Tourism Research and Product Development, Tourism Standard Development, and Tourism Promotion and Marketing.

2) Role of Departments

Table 8.3.5 summarizes the specific functions for the departments.

Table 8.3.5 Role of the Departments of Ministry of Tourism and Wildlife of Kisumu County

Department	Key Role
Tourism Research and Product Development	・ Research and develop differentiated tourism products ・ Collect data and build database to help in planning ・ Develop tools to manage research and information
Tourism Standard Development	・ Set internal acceptable standards for hotels and other tourism facilities ・ Develop capacity building for staff to meet international standards in this sector
Tourism Promotion and Marketing	・ Use modern marketing tools to promote the county as a destination

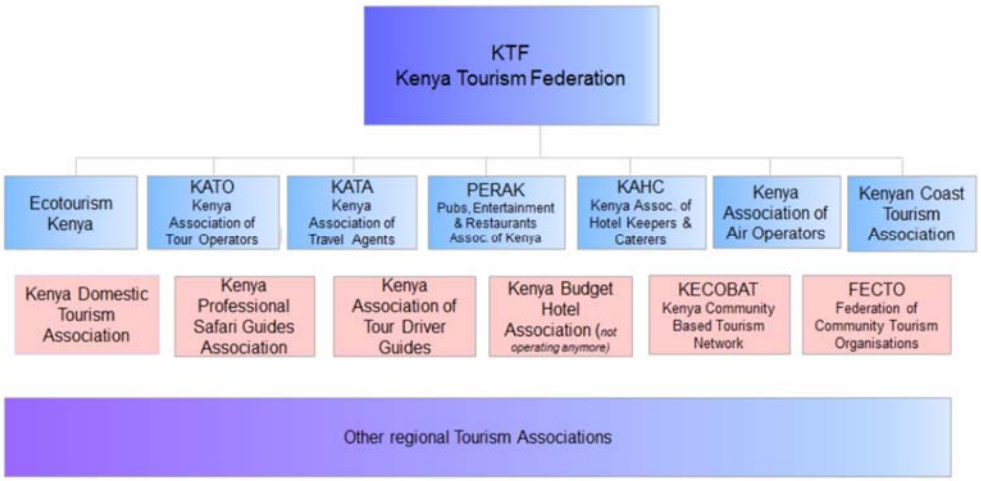
Source: MOTW of Kisumu County

8.3.3 Private Sector

Kenya's private sector in tourism is represented by more than 15 associations, including many smaller regional associations. The structure is illustrated in Figure 8.3.2.

The Kenya Tourism Federation (KTF) spearheads the private sector partnership with the Government. The key objectives of KTF are as follows:

- Provide a single voice for the tourism industry
- Enhance ethics and standards in the tourism industry
- Strengthen private sector representation on the various organizations/boards that impact on tourism
- Provide a forum through which the industry can give input to the marketing activities of the Kenya Tourism Board
- Lobby and constructively engage the government on issues critical to the industry



Source: KNTB 2030

Figure 8.3.2 Private Sector Structure

8.4 International Partners in Tourism

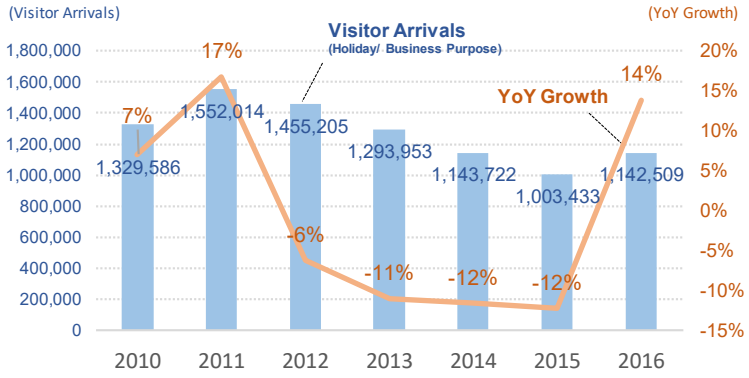
The two major international organizations that play important roles in the tourism sector are the International Financial Corporation of the World Bank and TradeMark East Africa. The projects implemented by these international organizations are described in Section 8.5.2.

8.5 Current Situation

8.5.1 Trend

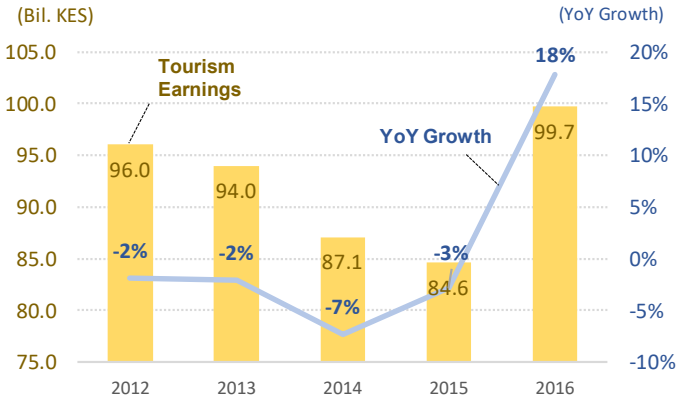
(1) National Trend

The tourism sector made a remarkable recovery in 2016, reversing the downward trend observed that started in 2012. The number of international visitor arrivals for holiday/business purposes rose by 14% from 1,003 thousand in 2015 to 1,143 thousand in 2016 (Figure 8.5.1). This is also reflected in the tourism sector earnings, which increased significantly by 18% from KES 84.6 billion in 2015 to KES 99.7 billion in 2016 (Figure 8.5.2). According to the GoK, the recovery was mainly attributed to improved security, successful conference tourism, and aggressive marketing in the domestic and international markets.



Source: JICA Survey Team based on Statistical Abstract 2017 by KNBS (Kenya National Bureau of Statistics)

Figure 8.5.1 Visitor Arrivals to Kenya for Holiday/Business Purpose



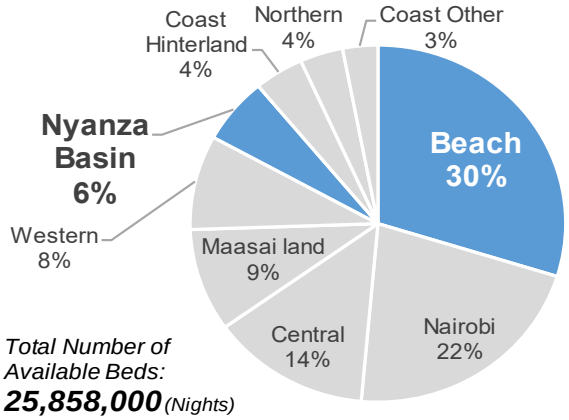
Source: JICA Survey Team based on Economic Survey 2017 by KNBS

Figure 8.5.2 Tourism Earnings

(2) Regional Trend in Beach and Lake Victoria

Beach area occupies the largest proportion of hotel beds in Kenya, accounting for 30% (Figure 8.5.3)[24], while Nyanza Basin, which covers the Lake Victoria Region, accounts for 6%. The beds in Nairobi are the second largest in proportion but are mainly for business use. This statistical data indicates that beach has the largest part and impact in the tourism sector of Kenya.

Stock investment for expanding hotel facilities in both beach and Lake Victoria Region seems not to have been active in 2016. The number of available beds had a significant decline of 19% in beach and a slight decline of 2% in Nyanza Region (Figure 8.5.4). The reason why the uptrend of visitor arrivals in 2016 did not bring a positive effect may be attributed to the low bed occupancy rate, wherein beach bed occupancy was 36% and

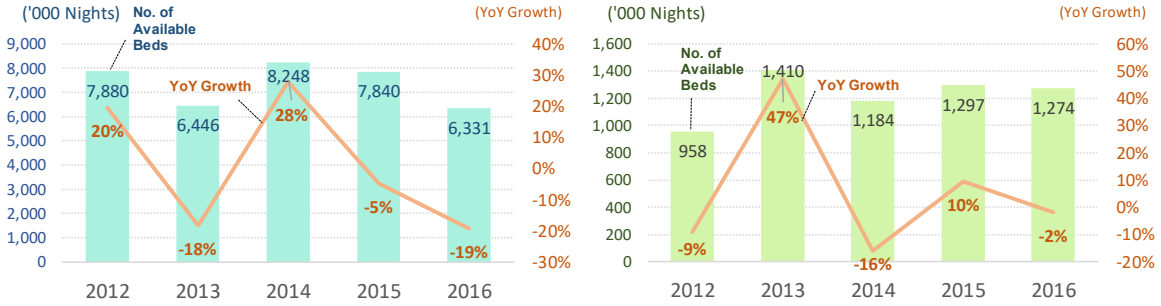


Source: JICA Survey Team based on Statistical Abstract 2017 by KNBS

Figure 8.5.3 Proportion of Number of Available Hotel Beds by Area (2016)

[24] "Beach" includes coastal strip up to 1 km inland and "Nyanza Basin" includes Nyanza Region and Kericho County, according to the definition of KNBS.

Nyanza Basin was 26% on average in 2016. In terms of average quantity, it is indicated that supply has a tendency to exceed demand in recent years.



(a) Beach **(b) Nyanza Basin**

Source: JICA Survey Team based on Statistical Abstract 2017 by KNBS

Figure 8.5.4: Number of Available Hotel Beds in Beach and Nyanza Basin

Regarding the country of residence of the guests that stayed in hotels in coastal areas[25], Kenya and European countries dominated the shares, with a combined total of about 93% in 2016. Kenyans had the largest share at 51.5%, which shows a large domestic demand for beach tourism (Table 8.5.1). European countries accounted for 41.7% of the total in 2016. Among which, Germany had the majority, accounting for 23.2%, followed by United Kingdom with 3.4%, and France with 2.6%. The number of guests from other African countries staying in the coastal area of Kenya was relatively smaller, accounting for only 2.2%. In Africa, Uganda and Tanzania had the most shares, accounting for 0.5% and 0.4%, respectively. Almost equal to the proportion of guests from Africa, Asian countries accounted for only 2.1%, with India representing 0.7%, followed by the Middle East with 0.6%, and China with 0.4%.

Table 8.5.1 Hotel Guest-Nights in Coastal Area by Country of Residence (2016)

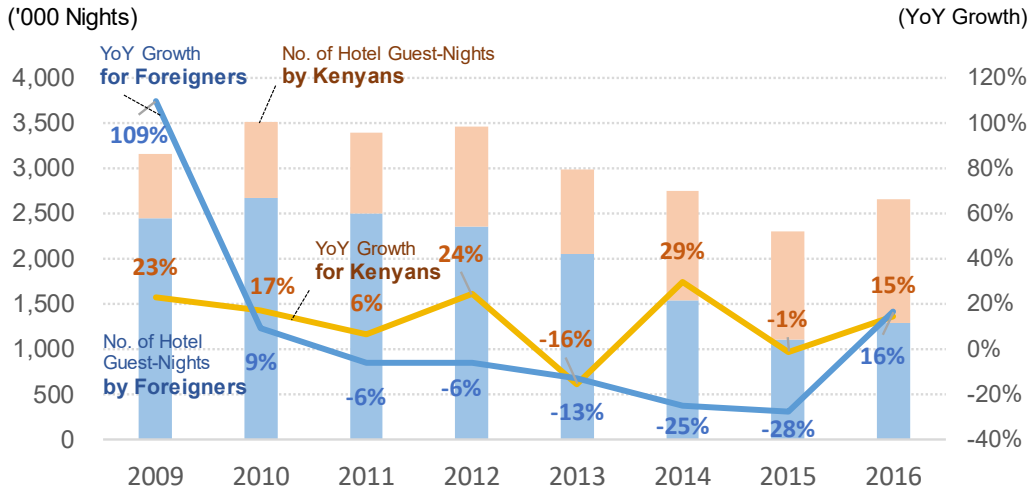
Country of Residence		Bed nights ('000)	Proportion (%)	
Domestic				**51.5%**
	Kenya	1,364.6	51.5%	
Africa				**2.2%**
	Uganda	14.4	0.5%	
	Tanzania	10.7	0.4%	
	East and Central Africa	2.6	0.1%	
	West Africa	12.8	0.5%	
	North Africa	5.1	0.2%	
	South Africa	7.2	0.3%	
	Other Africa	4.3	0.2%	
Europe				**41.7%**
	United Kingdom	90.1	3.4%	
	Germany	615.2	23.2%	
	Scandinavia	51.5	1.9%	
	France	68	2.6%	
	Switzerland	45.8	1.7%	
	Italy	35	1.3%	
	Other Europe	199.7	7.5%	
America				**1.2%**

[25] Because of limitation of opened statistical data, this data shows "Coastal" area which includes not only beach (coastal strip up to 1 km inland) but also coast hinterland and other coastal area. Beach dominates, however, the share of available beds in coastal area (30%) compared to sum of coast hinterland and other coastal area (7%), this data mostly indicates the trend of beach.

Country of Residence		Bed nights ('000)	Proportion (%)	
	USA	21.3	0.8%	
	Canada	6.9	0.3%	
	Other America	3.3	0.1%	
Asia				**2.1%**
	Japan	2.9	0.1%	
	India	19	0.7%	
	Middle East	14.9	0.6%	
	China	11.1	0.4%	
	Other Asia	6.8	0.3%	
Oceania				**0.3%**
	Australia and New Zealand	7	0.3%	
Others				**1.1%**
	All Other Countries	28.9	1.1%	
Total		**2,649.1**	**100%**	

Source: JICA Survey Team based on Statistical Abstract 2017 by KNBS

It is important to point out that the number of hotel guests in the coastal area had declined since 2010, but there has been a recovery in 2016 which showed a 16% increase compared to 2015. From the overview of the total domestic and foreign travelers as shown in Figure 8.5.5, the number of domestic guests had a steady increase in recent years, and the data recorded in 2016 is 1.6 times more than that recorded in 2010. In contrast, the data recorded from 2010 to 2015 showed a decrease in foreign guests. Although the number of foreign guests recovered by 16% in 2016, it should be noted that this is only about half of the highest turnout which was recorded in 2010.



Source: JICA Survey Team based on Statistical Abstract 2011, 2014, and 2017 by KNBS

Figure 8.5.5 Hotel Guest-Nights in Coastal Area by Domestic and Foreign Guest

8.5.2 Related Projects

(1) Kenya Government

Table 8.5.2 shows major tourism projects related to the Coast and Lake Victoria regions which are promulgated by the GoK.

Table 8.5.2 Major Tourism Projects Related to Coast and Lake Victoria Areas by GoK

Project	Scope	Priority Area	Progress
Development of Resort Cities	・Three resort cities are planned in Lamu, Turkana, and Isiolo, which are along the LAPSSET Corridor. ・The concept is to create a new tourism corridor base on group tours using the mass transportation network offered by the LASSET Corridor.	・Lamu (Mokowe) ・Turkana (Eliye Spring) ・Isiolo	・A pre-feasibility study carried out by Japan Port Consultants (JPC) for the LAPSSET Project and a sensitization workshop for the local leaders, the County Council of Turkana passed a resolution to avail land for the resort city. ・Preparation for the master planning of the Lamu Resort City are underway. ・Land acquisition is under way.
Implementation of Tourism Act (2011) and Sessional Paper No. 1 (2010)	・Development of National Tourism Strategy ・Establishment of Tourism Regulatory Authority ・Establishment of Tourism Research Institute	・Nationwide	・Implemented
Coastal Beach Tourism Product Development	a) Refresh and Revamp Beach Product ・Develop activity hubs/centers and information centers ・Diversify beach products to include cruises, sports, fishing, marina, and dolphin and whale watching b) Enhance Priority Beach Nodes ・Improve facilities within key beaches ・Improve/develop facilities within key beach tourism nodes to create visitor facilities and friendly environments ・Expand beach, water sport, and ocean activities ・Create beach access roads for visitors to public beaches, especial1y for locals and those not staying at resorts ・Enhance safety and security at beaches ・Develop visitor information, directional, and interpretive signage ・Develop and implement beach clean-up programs	・Mombasa ・Malindi ・Diani ・Kilifi	・Scheduled in 2018-2022
Mama Ngina Water Front Facility (under Heritage Tourism Program for Diversification)	・The facility will be redesigned and all the requisite facilities and services will be upgraded into a modern waterfront visitor meeting space which meets international standards.	・Mama Ngina area in the Mombasa Island	・Scheduled in 2018-2022
Adventure Tourism (under Diversification)	・Develop adventure tourism resorts	・Lake Victoria ・Mount Kenya	・Scheduled in 2018-2022
National Tourism Data and Information Project	c) Development of Tourism Satellite Account ・Facilitate collection of information on the profile and pattern of foreign and domestic tourism expenditures and thereby create a reliable source of tourism information and statistical database d) Tourist Information Improvement and Signage Program	・Nationwide	・No schedule

Project	Scope	Priority Area	Progress
	・Undertake surveys and document major tourist attractions, facilities, and services per county ・Develop clear and visible directional signage in prime tourist areas/high tourist traffic areas ・Develop tourism information centers in key tourist areas such as points of entry in collaboration with county governments ・Disseminate the information through booklets, internet, and other means		

Source: Tourism Sector Plan 2018-2022 for The Third Medium Term Plan and Interview to Ministry of Tourism and Wildlife

(2) International Financial Corporation (IFC) of the World Bank

- Feasibility Study for Mombasa Convention Center and Marina at Shimoni

  To meet the growing demand for a modern conference facility and to enhance product differentiation along the coastal region, the GoK conceptualized the development of the Mombasa Convention Center and the Marina at Shimoni. Since the necessary approval has been obtained from the PPP unit by 2017, the IFC of the World Bank was engaged to undertake the feasibility study and to source for a strategic partner to finance the two projects. According to the IFC feasibility report, the total cost for the Mombasa Convention Center and the Marina were projected at KES 8 billion and KES 4 billion, respectively. The Kenya Tourist Development Corporation under the GoK executed a lease agreement with Bamburi Portland Cement Company for land measuring 18 hectares along the Mombasa–Malindi Road, and in the process of establishing special purpose vehicles (Mombasa Convention Center Company).

(3) TradeMark East Africa (TMEA)

- Cruise Terminal at Mombasa Port

  TMEA is working with Kenya Ports Authority (KPA) to develop a cruise terminal and tourism blueprint for Kenya. Specifically, Berth No. 1 at the Mombasa Port has been earmarked for upgrading to a cruise terminal to be used by both domestic and international tourists. The total construction cost is KES 350 million, of which KES 250 million comes from the KPA and KES 100 million is from TMEA. In connection to the cruise terminal, TMEA is planning to construct a road link between KPA's Gate 18 and Changamwe Road to be used as an exit route for cruise passengers. Contracts for both the upgrading of the terminal and the link road have been awarded. The projected time for the terminal to start attracting cruise ships is around year 2020. Therefore, there is a need for a robust marketing strategy to be established before then.

8.6 Challenges

Challenges to tourism development at beach areas, Lake Victoria, and related points covered by the national policy are clarified based on data and information collected through reports and discussions provided by relevant organizations during the field survey.

a) Beach

- **High Competition**: High competition is emerging from similar destinations in Africa. Although a research by UNEP evaluated that Kenya's beach has the highest competitiveness among western Indian Ocean countries, the number of foreign guests to the coastal area of Kenya in 2016 fell to half of that of 2010. To recover the competitiveness, the beach should raise its attraction level. Authentic experiences including culture and heritage and diversified

tourism products should be provided. In addition, factors which deteriorate beach environment including safety and pollution issues have to be improved.

- **Limited Diversification of Tourism Products**: Tourism demands have been getting diversified in recent years. The increased internet access has enabled many people to access information not only through travel agencies. This is one of the biggest factors that diversify the demands. Kenya's beach products have not been innovative and diversified in tandem with changing the consumer needs and trends. Lack of product diversification is also disadvantageous for attracting long-term tourists and frequenters.
- **Beach Only Open to Hotel Guests**: Major beaches including Bamburi and Diani are only open to hotel guests in the actual sense of practice. People who do not stay at hotels along the beach have limited or no access to roads and facilities like toilets and shower rooms. Most of the hotels along the beach are mainly occupied by foreign guests, and this situation generates only limited demands. Improving convenience and opening the beach to local tourists will create new demand, diversification, and employment opportunities.
- **Factors Negating Beach Environment**: The beach environment of Kenya is quite nice with white sand, emerald green oceans, and a huge variety of marine life. However, there are several factors deteriorating the environment including security concerns, littered beach, and persistent local vendors. To fully utilize the beautiful environment, these negative factors must be improved.
- **No Functional Beach Management Body**: No organization works for managing the entirety of major beaches. A beach management body for security, cleanup, lifesaving, and planning beach activities is necessary to improve convenience and environment in each major beach.
- **Lack of Marketing and Management Skills Related to Regional Tourism**: One of the major reasons why the coastal area has not yet been able to respond to the diversification of tourism demand in recent years is that information collection and analysis for grasping the needs of tourists are not well-completed. In addition to understanding the needs, it is necessary to establish a tourism strategy that responds to the needs, including tourism resources other than the beach, and to work with organizations coordinating with a wide range of stakeholders to implement the plan.

b) Lake Victoria

- **Lack of Plan for Competitive Products and Diversification**: The Lake Victoria area has several kinds of tourism products including water activities, nature, adventure, Luo culture, and sports. The promotion of those products, however, has just begun, and it will take time to foster them to attract many tourists. A strategic regional tourism policy/plan is necessary to promote the products efficiently to gain competitiveness.

c) Nationwide

- **Threat of Security and Terrorism**: Kenya has experienced major terrorism attacks and acts of violence over the last five years. Consequently, adverse travel advisories were imposed by key market sources leading to a reduction in European charter frequency into the country in 2014 and ultimately a decline in international arrivals. These incidences resulted in massive erosion of Kenya's brand equity because of safety concerns. The trend of these terrorist threats, however, is subject to variation and has currently been largely neutralized.
- **Lack of Data and Information for Tourism Planning**: Whereas tourism data and information is important for policy and management decisions, the tourism sector lacks a well-coordinated tourism and information management system. This has resulted to poor data capture, reporting, analysis, and is therefore not adequate for timely and informed policy

decisions. According to the devolution of regional tourism management to county government, tourism data and analysis are necessary at the regional as well as the national levels.

8.7 Countermeasures

To deal with the challenges above, it is necessary to focus on the following countermeasures:

a) Beach

- **Diversification of Beach Products**: Diversifying beach products to include marine and ocean activities like cruises, boat rides, marine and beach sports (e.g., snorkeling, scuba diving, windsurfing, and beach volleyball), fishing, dolphin and whale watching, is important to cater to recent diversified customer demands. In addition to the activities, developing beach facilities, including restaurants and souvenir shops, is important to provide various ways of spending time for tourists.

- **Development of Tourism Center**: Although several activity menus are already provided at major beaches, tourists can access product information from limited sources like the website, tour company, and hotel. In promoting the diversification of tourism products in the future, a mechanism for efficiently providing information to tourist is necessary. To cater for the situation, the development of a tourism center for major tourist areas is proposed. It will contain an information center, a market, food and beverages, and an event space. The creation of market will contribute to providing a work place for local vendors who are currently hawking at the beach. The centers are planned to be located near tourist hubs, like airports, railway stations, and hotel zones.

- **Development of Beach Visitor Infrastructure**: Opening the beach to locals and those not staying at resorts will bring several positive effects, including economy expansion, job opportunities, and diversified demands. According to the African Development Bank (2011), the middle-class population in Kenya stands at 44.9% of the total population and 34% of Africa's population, which suggests a large potential of domestic and regional demand for tourism. In fact, the statistical data from KNBS on hotel guest nights in coastal areas shows a steady growth of domestic demand in recent years, and it accounted for 51.5% in 2016 (Figure 8.5.5). Another good point is that the domestic market is relatively less affected by external factors, including numerous international security issues in recent years. To attract domestic and regional tourists to the beach, it is crucial to remove obstacles and make the beaches friendly by creating access roads for visitors and developing visitor infrastructures, including toilet, rest houses with showers and locker rooms, and rest cottages.

- **Establishment of Beach Management Body**: Currently, there are several issues deteriorating the beach environment, including security concerns, abandoned litters, and persistent local vendors. In addition, if more local visitors, which may include some unruly customers, stay at the beach in the future, the environment will get worse. Therefore, a beach management system must be strictly implemented. A beach management body under the local government should be established, which will manage security, cleanup, lifesaving, and planning beach activities to improve convenience and environment for each major beach.

- **Capacity Development for Marketing and Management Ability of RTOs**: In order to respond to the diversified tourism demand in recent years, it is necessary to grasp the needs of tourists, to develop tourism strategies, and to implement countermeasures. According to KNTB 2030, the Coast RTO, including the four counties of Lamu, Kilifi, Mombasa, and Kwale, has a role to establish an integrated tourism information system in the area, to implement regional tourism marketing, to formulate tourism strategies, and to coordinate with the department. The establishment of the RTO, however, has just been proposed in 2017, and support for capacity building is necessary to make it function at an early stage. It is proposed

that experienced tourism experts in other countries cooperate on technology transfers to the Coast RTO. It is estimated that the RTO will preferentially develop the Mombasa County in the short-term, where existing infrastructure and markets can be used in addition to abundant tourism resources, and also develop neighboring counties that cooperated with the Mombasa County over the medium to long-term.

b) Lake Victoria

- **Regional Tourism Development Planning**: The Lake Victoria area has several kinds of tourism products, but most of them are located independently, with no connection to each other. To attract many tourists, diversification and connection are the key points. In addition to the activities, development and effective location of tourist facilities, like hotels, restaurants, souvenir shops, and information centers are important to raise customer satisfaction. A regional tourism plan is necessary to strategically manage regional development. The responsible organization for the planning is the respective county government or RTO.

c) Nationwide

- **Development of Tourism Satellite Account**: Tourism data and information is important for policy and management decisions. A program is proposed which will fast-track and expand the on-going Tourism Satellite Account to incorporate a holistic approach that encompasses all aspects of data collection, analysis, and reporting systems for the whole tourism sector. The program will facilitate collection of information on the profile and pattern of foreign and domestic tourism expenditure, thereby creating a reliable source of tourism information and statistical database. This database will contribute to regional tourism development planning for each local planning body.

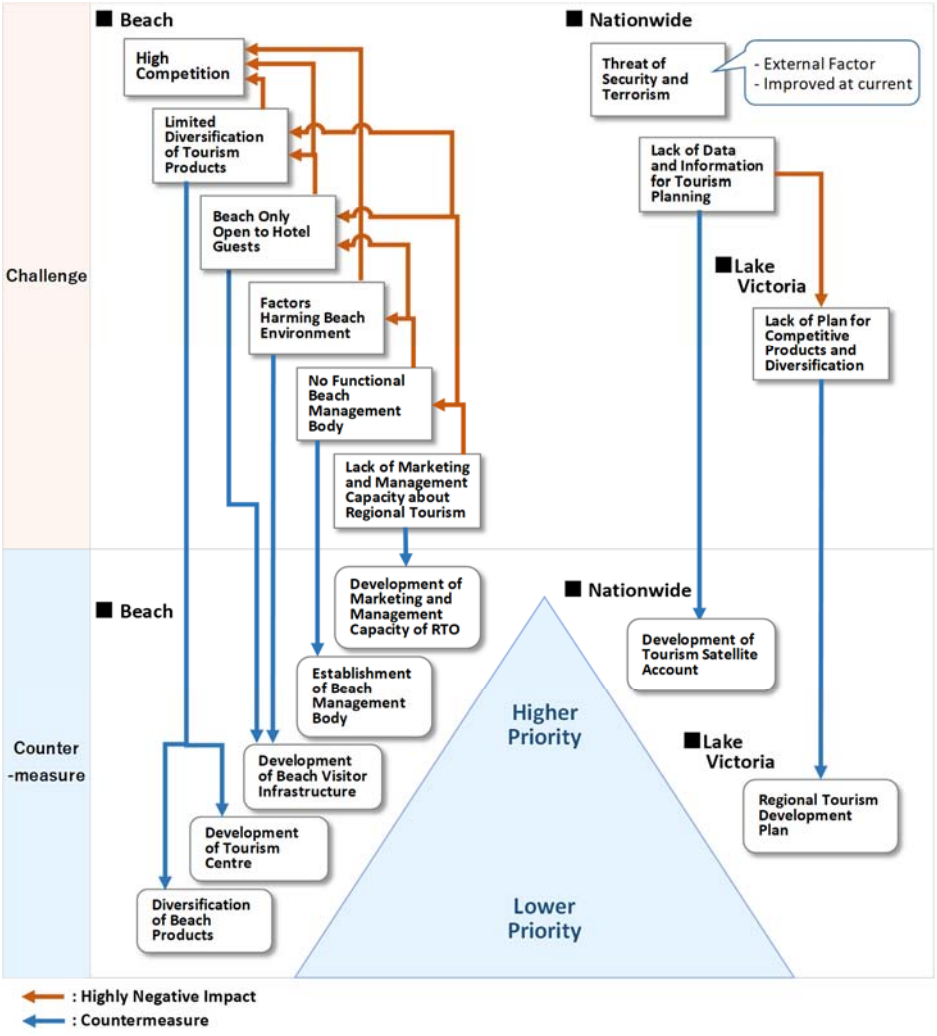
8.8 Priority Areas for Implementation

8.8.1 Priority for Countermeasures

There is the relation between the challenges aforementioned as "Improvement of Challenge-A has a positive effect on Challenge-B". This survey puts a higher priority on the challenge improvement wherein such improvement will also bring a positive impact to other challenges. Figure 8.8.1 illustrates the relation between the challenges and the order of priority for countermeasures.

With regard to the coastal area, the development of diversified products is mainly done by the private sector. In addition, it is more efficient to diversify and develop tourism products after improving the tourism industry environment. Urgent works by the government are therefore proposed to include capacity development of RTO, establishment of beach management body, and development of beach visitor infrastructure. Specifically, capacity development of RTO is a top priority. The effect and feasibility of each countermeasure will be enhanced by function of the RTO. It is expected that these measures will promote demand, and many private companies will participate in the diversification of tourism products.

It is not easy to compare priorities in cases where the implementation bodies are different. However, because smaller regions including the Lake Victoria Region have few tourist research data to use for making plans and policies, it is expected that the national government will develop the tourist research data urgently to boost the regions, thereby enabling them to make the plan and policy.



Source: JICA Survey Team

Figure 8.8.1 Relation between Challenges and Countermeasures

8.8.2 Estimation of Implementation Effect

The economic effects of the countermeasures aforementioned are deduced by combining and implementing them together. The economic effects of individual projects cannot be clarified. Instead, this section calculates the future economic potential of the beach area and the Lake Victoria Region vis-à-vis the whole tourism sector of Kenya.

According to the Tourism Sector Plan 2018-2022 for MTP III (draft), the national tourism earnings was KES 99.7 billion in 2016, and the target in 2022 is KES 175 billion, an increase of KES 75 billion. Assuming that this regional breakdown simply matches the number of bed nights, the future increase in the beach area and the Lake Victoria Region with 44% in total[26] can be roughly calculated as KES 33 billion.

[26] Source is Statistical Abstract 2017 (KNBS). “Coast Beach”, “Mombasa Island” and “Nyanza Basin” are included.

Chapter 9: Environment

9.1 Law and Regulation on Environment

9.1.1 National Environment Policy, 2013

(1) Summary

The National Environment Policy, 2013 presents various policy statements that are meant to help in the management and safeguard of forests in Kenya. The goals and objectives of the policy are listed as follows:

a) Provide a framework for an integrated approach to planning and sustainable management of Kenya's environment and natural resources
b) Strengthen the legal and institutional framework for good governance, effective coordination, and management of the environment and natural resources
c) Ensure sustainable management of the environment and natural resources, such as unique terrestrial and aquatic ecosystems, for national economic growth and improved livelihoods
d) Promote and support research and capacity development as well as use of innovative environmental management tools, such as incentives, disincentives, total economic valuation, indicators of sustainable development, Strategic Environmental Assessments (SEAs), Environmental Impact Assessments (EIAs), Environmental Audits (EA), and Payment for Environmental Services (PES)
e) Promote and enhance cooperation, collaboration, synergy, partnerships, and participation in the protection, conservation, and sustainable management of the environment and natural resources
f) Ensure inclusion of cross-cutting and emerging issues, such as poverty reduction, gender, disability, HIV and AIDS, and other diseases in the management of the environment and natural resources
g) Promote domestication, coordination, and maximization of benefits from strategic Multilateral Environmental Agreements (MEAs)

(2) Covered Sector and the Policy

The following policy statements are presented in the National Environment Policy, 2013 to help in the development and management of forests:

Table 9.1.1: Policy Statements of National Environment Policy, 2013

1.	Policy Statements on Forest Ecosystems
2.	Policy Statements on Freshwater and Wetland Ecosystems
3.	Policy Statements on Coastal and Marine Ecosystems
4.	Policy Statements on Mountain Ecosystems
5.	Policy Statements on Arid and Semi-Arid Lands Ecosystems (ASALs)
6.	Policy Statements on Land
7.	Policy Statements on Soil
8.	Policy Statements on Minerals
9.	Policy Statements on Biodiversity
10.	Policy Statements on Wildlife Resources
11.	Policy Statements on Livestock
12.	Policy Statements on Fisheries
13.	Policy Statements on Natural Capital and Valuation
14.	Policy Statements on Trade and Environment
15.	Policy Statements on Tourism
16.	Policy Statements on Consumption and Production Patterns

17. Policy Statements on Industrialisation and Environment
18. Policy Statements on Infrastructural Development and Environment
19. Policy Statements on Management of Chemicals
20. Policy Statements on Human Settlements
21. Policy Statements on Energy Use, Efficiency and Conservation
22. Policy Statements on Climate Change
23. Policy Statements on Emergency Preparedness and Disaster Management
24. Policy Statements on Gender, Vulnerability and Environment
25. Policy Statements on Invasive Alien Species (IAS)
26. Policy Statements on Air Quality
27. Policy Statements on Water and Sanitation
28. Policy Statements on Waste Management
29. Policy Statements on Radiation
30. Policy Statements on Toxic and Hazardous Substances
31. Policy Statements on Noise
32. Policy Statements on HIV and AIDS and the Environment
33. Policy Statements on Environmental Diseases
34. Policy Statements on Scientific Research and Information Management
35. Policy Statements on Education, Communication and Awareness
36. Policy Statements on Environmental Monitoring and Assessment
37. Policy Statements on Environmental Legal Reforms
38. Policy Statements on Institutional Arrangements
39. Policy Statements on Human Resources Development and Capacity Building
40. Policy Statements on Partnerships and Stakeholder Involvement
41. Policy Statements on Funding Mechanisms
42. Policy Statements on Regional and International Cooperation
43. Policy Statements on Integration of Environmental Concerns in all Policy, Planning, and Development Processes
44. Policy Statements on Clarifying Roles and Responsibilities
45. Policy Statements on Environmental Compliance

Source: National Environment Policy, 2013

9.1.2 National Ocean and Fisheries Policy, 2008

(1) Summary

The National Ocean and Fisheries Policy, 2008 gives a history of fishing in Kenya from the colonial era. It also reviews fisheries resources in the oceans, coastal waters, lakes, and riverine to enhance the fisheries sector's contribution to wealth creation, increased employment for youth and women, food security, and revenue generation through effective private, public, and community partnerships. An overview of the policy is listed below:

Table 9.1.2: Overview of National Ocean and Fisheries Policy, 2008

Item	Description
Fisheries resources	・ Kenya fisheries mainly constituted of freshwater (e.g., lakes, rivers, and dams), coastal and marine (e.g., Indian Ocean), and aquaculture. There are about 80,000 people working as fishers and fish farmers. ・ The annual fish production is estimated at 150,000 metric tons. ・ This translates to earning of 0.5% of the GDP.
Challenges and opportunities	・ Unsustainable utilization of fisheries resources ・ Fisheries management ・ Conflicts on resource use, gender rights issues, and equity ・ Stagnated aquaculture management ・ Inadequate capacity for quality assurance ・ Inadequate infrastructure

Item	Description
	・ Ineffective participation at international levels ・ Lack of a comprehensive legal and institutional framework ・ Crosscutting issues ・ Lack of safety at sea ・ Low ocean development
Specific objectives	・ To promote management and conservation of fisheries resources ・ To generate the maximum amount of employment ・ To maximize revenue from fisheries and other related activities ・ To promote an integrated economy ・ To enhance food supply and food security ・ To promote safety at sea ・ To develop aquaculture ・ To develop recreational and ornamental fisheries ・ To develop ocean fisheries
Strategies to improve employment	・ Research and development ・ Resource management ・ Aquaculture development ・ Fish quality assurance and value addition ・ Monitoring control and surveillance (MCS) ・ Regional and international agreements and cooperation ・ Legislative framework ・ Institutional framework ・ Investment ・ Trade and commerce ・ Infrastructure development ・ Human resource development ・ Public awareness and participation ・ Cross-cutting issues

Source: National Ocean and Fisheries Policy, 2008

(2) Covered Sector and the Policy

The National Ocean and Fisheries Policy, 2008 covers the fisheries resources in the oceans, coastal waters, lakes, and riverine. The development of aquaculture is also addressed. The following are the policy statements for the development of the fisheries sector as presented in the report:

Table 9.1.3: Policy Statements of National Ocean and Fisheries Policy, 2008

1. Policy Statements on Research and Development
2. Policy Statements on Resource Management
3. Policy Statements on Aquaculture Development
4. Policy Statements on Fish Quality Assurance and Value Addition
5. Policy Statements on Monitoring Control and Surveillance (MCS)
6. Policy Statements on Regional and International Agreements and Cooperation
7. Policy Statements on Legislative Framework
8. Policy Statements on Institutional Framework
9. Policy Statements on Investments
10. Policy Statements on Trade and Commerce
11. Policy Statements on Infrastructure Development
12. Policy Statements on Human Resources Development
13. Policy Statements on Public Awareness and Participation
14. Policy Statements on Cross-cutting Issues

Source: National Ocean and Fisheries Policy, 2008

9.1.3 Forestry Policy, 2014

(1) Summary

The main aim of the Forest Policy, 2014 is to do the following:

a) Sustainably conserve and manage all reserved forests for multiple use in accordance to approved management plans
b) Promote the rehabilitation and management of water catchment areas
c) Promote participatory management of indigenous forests with communities and other stakeholders
d) Monitor, assess, and prepare periodic reports on the integrity of forests including water towers
e) Promote ex-situ and in-situ conservation of forest genetic resources
f) Encourage and support land owners to sustainably manage natural and riverine forests
g) Rehabilitate, restore, and protect degraded forest ecosystems, water towers, catchment areas, and other ecologically fragile areas

(2) Covered Sector and the Policy

The Forest Policy, 2014 focuses on the forestry sector and outlines various policy statements that are critical in its management and development. The following policy statements cover different areas of forestry management:

Table 9.1.4 Policy Statements of National Forestry Policy, 2014

1. Policy Statements on Indigenous Forests
2. Policy Statements on Plantation Forests
3. Policy Statements on Dryland Forests
4. Policy Statements on Urban Forests and Roadside Tree Planting
5. Policy Statements on Farm Forestry
6. Policy Statements on Wood Products and Industries
7. Policy Statements on Non-Wood Forest Products
8. Policy Statements on Forestry Education and Training
9. Policy Statements on Forestry Research and Development
10. Policy Statements on Forest Sector Legal Reforms
11. Policy Statements on Institutional Arrangements
12. Policy Statements on Funding Mechanisms
13. Policy Statements on Mainstreaming Forestry into Sectoral Policies
14. Policy Statements on Partnership and Stakeholder Involvement
15. Policy Statements on Regional and International Obligations

Source: National Forestry Policy, 2014

9.1.4 Wildlife Policy, 2007

(1) Summary

The Wildlife Policy, 2007 provides a framework for conserving Kenya's rich diversity of species, habitats, and ecosystems for the benefit of its people and the global community. The following factors necessitated the Wildlife Policy, 2007 in Kenya:

a) Lack of a comprehensive wildlife policy and law in light of changed circumstances
b) Rapid change of tenure and land use in wildlife rangelands from communal to private ownership, associated land subdivision, fencing, and conversion for other uses particularly agriculture and infrastructure and urban development
c) Perverse economic incentives, especially in the agricultural sector, which have adverse effects on wildlife conservation and management initiatives

d) Institutional governance that has not integrated various stakeholders in wildlife conservation and management
e) Increased human-wildlife conflicts and inadequate compensation
f) The need to harmonize the wildlife policy and law with the framework environmental law, i.e., the Environment Management and Coordination Act (1999)
g) The need to domesticate relevant international and regional wildlife-related conventions and treaties wherein Kenya is a party
h) The need for decentralization and devolution of wildlife management to the lowest level possible and for the enlistment and participation of private sectors, non-governmental organizations (NGOs), community based organizations (CBOs), and other non-state actors
i) Marked decline in wildlife numbers and loss of biodiversity
j) Inadequate research capacity and absence of reliable and up-to-date data on wildlife
k) The need to define wildlife
l) The need to harmonize the wildlife policy with Kenya Vision 2030

(2) Covered Sector and the Policy

The following policy statements address various areas of wildlife and tourism sectors:

Table 9.1.5: Policy Statements of Wildlife Policy, 2007

1. Policy Statements on Ecosystems and Habitat Management
2. Policy Statements on Terrestrial Protected Areas
3. Policy Statements on Marine Protected Areas and Ecosystems
4. Policy Statements on Community Wildlife Conservation Areas and Sanctuaries
5. Policy Statements on Scientific Research, Information Management and Monitoring
6. Policy Statements on Wildlife Diseases and Veterinary Service
7. Policy Statements on Wildlife Disaster Preparedness, Response and Rescue
8. Policy Statements on Species
9. Policy Statements on Wetlands, Rivers and Lakes Ecosystems
10. Policy Statements on Wildlife User Rights
11. Policy Statements on Bioprospecting and Access to Genetic Resources
12. Policy Statements on Wildlife Security
13. Policy Statements on Human Wildlife Conflict and Compensation
14. Policy Statements on Wildlife Sector Legal Reforms
15. Policy Statements on Institutional Arrangements
16. Policy Statements on Human Resources Development and Capacity Building
17. Policy Statements on Funding Mechanisms
18. Policy Statements on Incorporation of Wildlife Considerations into Sectoral Policies
19. Policy Statements on Wildlife Conservation Education, Communication, and Public Awareness
20. Policy Statements on Gender
21. Policy Statements on Youth
22. Policy Statements on Non-State Actors
23. Policy Statements on HIV/AIDS
24. Policy Statements on Regional and International Obligations

Source: Wildlife Policy, 2007

9.2 Responsible Organizations

The organization in-charge is the Ministry of Environment and Forestry (MOEF), and under the MOEF, five semi-autonomous government agencies have been established to treat specific sectors:

- National Environment Management Authority (NEMA)
  - Established in 2002

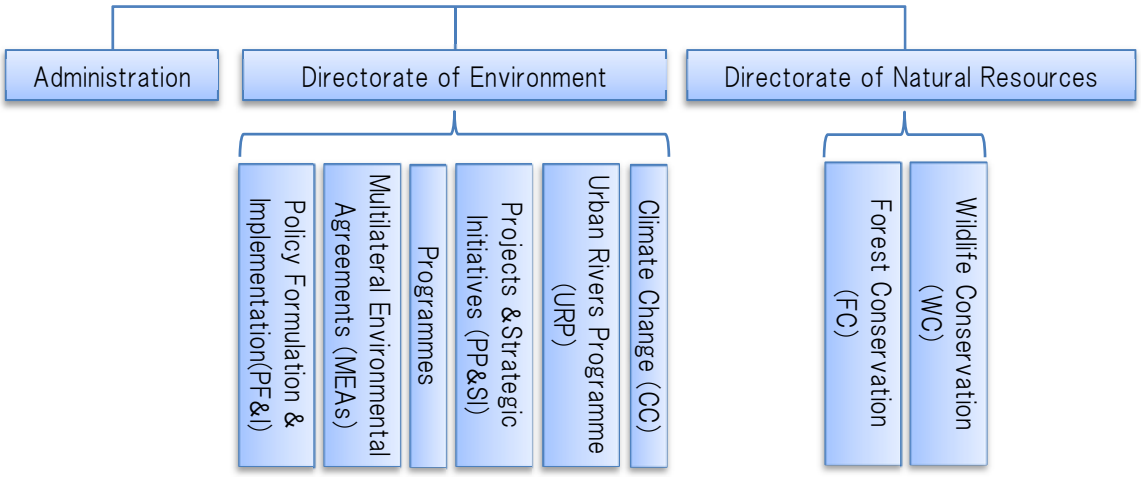
- Exercises general supervision and coordination over all matters relating to the environment and is the principal instrument of government in the implementation of all policies relating to the environment
- Promotes the integration of environmental considerations into development policies, plans, and projects with a view to ensure the proper management and rational utilization of environment resources

- Kenya Wildlife Service (KWS)
  - Established in 1990
  - Conserves and manages wildlife in Kenya and enforces related laws and regulations
- Kenya Forest Service (KFS)
  - Established in 2005
  - Owns, manages, and protects all state forests; promotes forestry education and training; and operates the Kenya Forestry College
- Kenya Water Towers Agency (KWTA)
  - Established in 2012
  - Coordinates and oversees the protection, rehabilitation, conservation, and sustainable management of water towers
- Kenya Forest Research Institute (KEFRI)
  - Established in 1986
  - Conducts research in forestry and allied natural resources
  - Disseminates research findings, establishes partnerships, and cooperates with other research organizations and institutions of higher learning

9.2.1 Ministry of Environment and Forestry (MOEF)

(1) Organization Chart

MOEF has two specialized departments and an administration department. Environmental issues are treated by the Directorate of Environment which is made up of six divisions. The organization chart is shown below:



Source: Ministry of Environment and Forestry

Figure 9.2.1 Institutional Framework of MOEF

(2) Departments In-charge and Their Roles

The Directorate of Environment was established in July 2008. It is responsible for the overall coordination of the environment sector. It is structured as follows:

a) Environmental Secretary (ES)

ES is in-charge of the overall supervision and coordination of environment directorate, implementation of performance contract under this directorate, climate change issues, international forestry issues, communication, information and communication technology (ICT), ministry profiling, and the Government of Kenya (GoK)-Donor coordination meetings in the environment sector.

b) Director of Multi-Lateral Environmental Agreements (DMEAS)

DMEAS is in-charge of the overall coordination of MEAs and domestication desk officers MEAs strategy, tracking MEAs on national obligations and commitments, implementation and funding, domestication of MEAs and trading international discourse, awareness on MEAs, and coordination of actors/national implementers of MEAs.

c) Director of Policy Formulation, Interpretation, and Implementation (DPFII)

DPFII is in-charge of the overall coordination of environment policy issues and mainstreaming environment policy formulation and/or reviews, environment mainstreaming, ecosystem issues (forests, wetlands, marine, protected areas, etc.), and coordination of partners/actors in the environment sector who are in the National Environment Council (NEC), National Environment Tribunal (NET), National Environment Trust Fund (NETFUND), and Public Complaints Committee (PCC).

d) Director of Programs, Projects, and Strategic Initiatives (DPPSI)

DPPSI is in-charge of the overall coordination of programs, project implementation in the ministry, project design and proposal writing, monitoring of project implementation and reporting, project impacts and outcomes, program/project databases (project documents, financing agreements, reports etc.), and dissemination/research on issues.

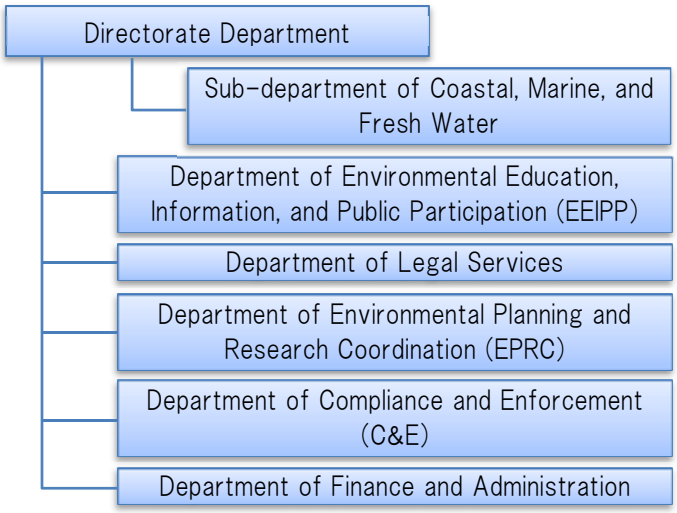
e) Urban Rivers Program

This program is implemented through the Director of Urban Rivers Restoration Program and in collaboration with the Water Resources Authority (WRA), the Ministry of Water and Irrigation, and other stakeholders. The program has identified various urban rivers and Nairobi rivers which are choked with pollution. The rivers provide a lifeline to many communities and a number of national parks downstream. This is a collaborative program because it involves many stakeholders.

9.2.2 National Environment Management Authority (NEMA)

(1) Organization Chart

NEMA has five departments and a sub-department under the Directorate Department. The Directorate Department oversees and facilitates programs and activities of all departments fostering internal harmony and policy guidance.



Source: NEMA

Figure 9.2.2 Institutional Framework of NEMA

(2) Departments in Charge and Their Roles

The Directorate Department oversees and facilitates programs and activities of all departments of the authority fostering internal harmony and policy guidance. In addition, five more departments and one sub-department were established to implement core functions of NEMA.

a) Department of Environment Education, Information, and Public Participation (EEIPP)

This department provides strategies for education and awareness creation activities, as well as services for the authority. The department addresses provisions of Environmental Management and Coordination Act, 1999 (EMCA, 1999), as contained in Part 3 Section 9 (m), which mandates NEMA to undertake cooperation with lead agencies, programs intended to enhance environmental education, and public awareness on the need for sound environmental management, as well as for enlisting public support and encouraging the efforts made by other entities regarding the same. The department is divided into three sections, namely: environmental education, information and awareness, and public participation.

b) Department of Legal Services

This department provides legal advice to the authority on legislation and other measures for the management of the environment and for the implementation of other relevant international conventions, treaties, and agreements.

c) Department of Environmental Planning and Research Coordination (EPRC)

This department undertakes and coordinates research, investigation, and surveys for environmental management. NEMA is currently preparing the second National Environment Action Plan Framework. It proposes a strategy for achieving sustainable development in line with Kenya's quest to meet the Millennium Development Goals (MDGs) and Kenya Vision 2030 through a participatory process.

d) Department of Compliance and Enforcement (C&E)

The main regulatory functions of this department are: formulation of regulations and setting up standards, issuance of licenses or permits to operators, and monitoring and inspecting activities to ensure regulatory compliance and adherence to license or permit conditions. Also, it promotes

programs and projects for effective and efficient management and use of cleaner production technologies.

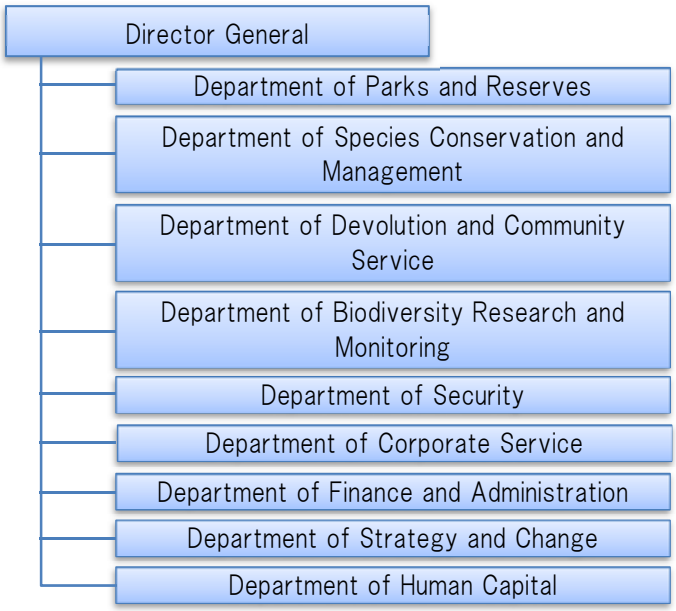
e) Department of Finance and Administration

This department supports the operations of other departments of the authority. It has the following sections: human resources and administration, ICT, accounts, and procurement sections.

9.2.3 Kenya Wildlife Service (KWS)

(1) Organization Chart

KWS has nine departments. One of these is the Department of Parks and Reserves which is in charge of conservation area management, including marine protected areas.



Source: Kenya Wildlife Service

Figure 9.2.3 Institutional Framework of KWS

(2) Departments In-charge and Their Roles

The tasks of each department are summarized as follows:

a) Department of Parks and Reserves

i) regulatory, enforcement, and compliance affairs; ii) wetlands and marine conservation; iii) wildlife industry, governance, and external linkage; and iv) conservation area management

b) Department of Species Conservation and Management

i) species management; ii) implementation of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITIES); iii) veterinary, capture, forensic, and molecular lab services; and iv) captive wildlife management

c) Department of Devolution and Community Service

i) community relation and outreach, ii) community enterprise development, iii) community education and extension, and iv) devolution and liaison

d) Department of Biodiversity Research and Monitoring

i) ecological monitoring, bio-prospecting, and biodiversity information management; ii) ecosystem and landscape research; iii) multilateral environmental agreements and research authorization; and iv) EIA, planning, and GIS

e) Department of Security

i) wildlife protection, ii) investigation, iii) service quartermaster, iv) law enforcement academy, and v) intelligence

f) Department of Corporate Service

i) building and fences management, ii) lands management, iii) roads and fleet management, iv) projects management, and v) ICT

g) Department of Finance and Administration

i) finance, ii) budget control, and iii) assets, insurance, and administration

h) Department of Strategy and Change

i) marketing and business development, ii) customer service, iii) Product Improvement and Quality Assurance (PIQA), iv) resource mobilization, and v) Kenya Vision 2030 delivery

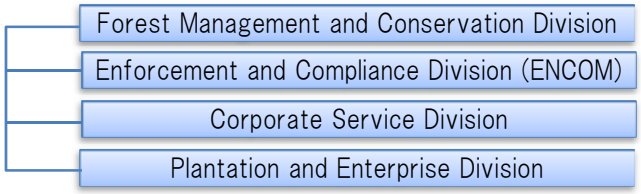
i) Department of Human Capital

i) recruitment and planning, ii) training and development, iii) employee pay and benefit, iv) employee wellness, and v) pension management

9.2.4 Kenya Forest Service (KFS)

(1) Organization chart

KFS comprises of four divisions and the core division is Forest Management.



Source: Kenya Forest Service

Figure 9.2.4 Institutional Framework of KFS

(2) Departments in Charge and Their Roles

The following five core divisions are mandated as departments in-charge of implementing forest management in Kenya:

a) Forest Management and Conservation

This division, which is the core program, is in-charge of the management and conservation of natural forests in Kenya. The objective is to intensify conservation and sustainable management of natural resources for environmental protection and socio-economic growth. With an area of more than 1.2 million hectares, natural forests in Kenya form the bulk of gazetted forests. In

addition, there are other natural forests falling under county councils, private ranches, and private farms which require technical backstopping from the division.

b) Enforcement and Compliance Division (ENCOM)

This broad division is comprised of operation and fire disaster preparedness, intelligence, administration, training, and investigation departments. The mission of the ENCOM is to always protect all gazetted forests and provisional forests, and enforce the Forest Conservation and Management Act, 2016.

c) Forest Farm and Dry Land Forestry Program

The main functions of this program include technical support to the counties, advisory services for forest management, promotion of biomass energy development and utilization, forestry technology development and transfer, promotion of private and farm forestry, promotion of dry land forest conservation, and promotion of farmer field schools and other participatory forest management.

d) Corporate Services Division

This division is in-charge of developing and implementing the ICT policy and related infrastructure within the organization, among other functions. It is also responsible for the development, management, and support of the ICT infrastructure at the service, including the internal and external electronic communication networks.

e) Plantation and Enterprise Division

This division is responsible for the management of all plantations in the country and the organization for planting of trees through the Plantation Establishment and Livelihood Improvement Scheme (PELIS) program. It consists of the following departments: economics, inventory, roads and infrastructure, and sawmill.

9.3 Related Plans

9.3.1 Integrated Coastal Zone Management National Plan (ICZMNP)

(1) Scope of Plan

The ICZMNP was formulated for the purpose of management of Kenya's coastal zone. This was at the backdrop of the need for sustainable use of Kenya's important coastal and marine resources, which are very important to the country's economy.

The plan's spatial extent spans both the terrestrial areas marked by administrative districts bordering the Indian Ocean, as well as Kenya's Exclusive Economic Zone (EEZ) which marks the seaward extent. The interface between the terrestrial zone and the EEZ is marked by a 600-km coastline running from Kenya-Somalia to Kenya-Tanzania borders. Although the terrestrial extent of the coastal zone is delimited by the administrative boundaries of districts bordering the Indian Ocean, the fact that the coastal ecosystem is influenced by areas away from the administrative area, especially through the water catchment system provided by Tana River and Athi River, which draw their waters from as far as central Kenya, means that the ecosystem of the coast transcends beyond the administrative boundary. The same also applies for the exclusive economic boundary.

In terms of resources, the ICZMNP covers both terrestrial and marine resources, including those found at the interface between the two environments, like mangroves and estuaries. These resources range from physical and biological to socio-cultural and economic. The physical and biological resources

include land, sand dunes, and wildlife resources both on land and marine environment, while the socio-economic resources include the people, together with their cultures and economic activities.

The ICZMNP has been modeled around six thematic areas, each with its own strategic objectives. The thematic areas include: Integrated Planning and Coordination; Promotion of Sustainable Economic Development; Conservation of Coastal and Marine Environment; Environmental Management and Risks; Capacity Building, Education, Awareness, and Research; and Institutional Arrangements and Legal Frameworks.

(2) Targeted area

The target area for the ICZM Plan is marked by both terrestrial and marine extents, together with the interface in between. The land area is marked by the administrative districts bordering the Indian Ocean including Kwale, Mombasa, Kilifi, Tana River, and Lamu. The districts have since been transformed to counties with the advent of a new constitution promulgated in 2010. The sea extent is marked by Kenya's EEZ. The ICZMNP targets both land and sea areas, together with all the resources found within them.

9.3.2 Marine Management Plan

(1) Scope of Plan

The Kenya Marine Management Plan is disaggregated into three plans based on the marine protected areas (MPAs) found along the Kenyan Coast. The three disaggregated plans include the Kisite-Mpunguti Marine Protected Area (KMMPA) Management Plan, which runs from 2015-2025, and the Malindi Marine Protected Area Management Plan and Watamu Marine Protected Area Management Plan, which both run from 2016-2026. All three MPA management plans cover Kenya's territorial waters.

The core area for the KMMPA Management Plan covers both the Kisite Marine National Park and the Mpunguti Marine National Reserve, together with the islands of Kisite, Upper Mpunguti, and Lower Mpunguti. The plan also covers an influence area comprising of Wasini Channel, Wasini Island, Shimoni Forest, the Slave Caves, the Museum, Ramisi Estuary, Nyuli Reef, Sii Island, and Funzi Island. In terms of resources, the plan's scope includes biodiversity and ecosystems, cultural and historical sites, as well as the land and connected benefits.

The Malindi and the Watamu MPA Management Plans cover the Malindi Marine National Park and the Malindi National Reserve, as well as the Watamu Marine National Park and the Watamu Marine National Reserve. The Watamu and Malindi MPAs overlap at the Malindi National Marine Reserve.

Together, the three MPA management plans aim at the conservation of both terrestrial and marine resources within and connected to the protected areas to ensure sustainable use so that benefits accrue to the surrounding populations. The resources include, among others, coral reefs, sea grass, mangroves, and marine fish and mammals together with their natural habitats.

(2) Targeted Area

The target areas for the three MPA management plans are the Kenyan marine national parks and marine national reserves, including islands, biodiversity reserves and their connected areas, and cultural and historical sites. For instance, the target area of KMMPA Management Plan includes both the core area of the Kisite Marine National Park and the Mpunguti Marine National Reserve, together with the islands of Kisite, Upper Mpunguti, and Lower Mpunguti, as well as an area of influence which constitutes Wasini Channel and Wasini Island, Shimoni Forest, Shimoni Caves and Museum, Ramisi Estuary, Nyuli Reef, Sii Island, and Funzi Island. All of which largely fall in the administrative boundary of Kwale County.

On the other hand, the Malindi and the Watamu Marine Protected Area Management Plans are largely confined to the north coast, mainly within the administrative jurisdiction of Kilifi County. Specific areas

for the two MPAs include the Malindi Marine National Park, the Malindi Marine National Reserve, the Watamu Marine National Park, and the Watamu Marine National Reserve, together with their respective areas of influence which include the Sabaki Estuary. The Watamu and the Malindi MPAs overlap along the Malindi National Reserve.

9.3.3 Forest Management Plan

(1) Scope of Plan

The Forest Management Plan is mainly geared towards sustainable management of mangrove forests and ensuring benefits to the surrounding communities. There are two forest management plans for the two forest ecosystems along the Kenyan coast. These are the Kilifi Zone Mangrove Area Participatory Management Plan and the Vanga, Jimbo, and Kiwengu Mangrove Forest Reserve Participatory Forest Management Plan. These plans address forest conservation issues in mangrove forest ecosystems in Kilifi and Kwale counties, respectively.

9.4 Social and Environmental Management Tools on Blue Economy

9.4.1 Environmental Impact Assessment (EIA)

EIA is a tool not only used in the management of the Blue Economy, but also in other sectors of development. EIA, as a tool, draws its legal backing initially from the Constitution of Kenya, 2010 and EMCA, 1999 (Cap. 387) together with the Environmental (Impact Assessment and Audit) Regulations, 2003. The Constitution, which is the supreme law of the land, specifically in Article 69 (1) (f), mandates the State to "establish systems of environmental impact assessment, environmental audit, and monitoring of the environment".

The EMCA, 1999 (Cap. 387) stipulates that all development projects, out of character with their natural environment, must be subjected to the EIA process. Among the projects enlisted in the second schedule of the act that fit under the Blue Economy and for which an EIA has to be conducted include: water transportation projects including establishment of piers and barrages; timber harvesting and forest clearance; establishment of national, game reserves, and any project within wetlands, oceans, seas, lakes, rivers, dams, streams, springs, or any other water body; and any mineral exploitation within marine environments and reclamation of marine areas.

The EIA and the EA regulations stipulate that only persons registered and licensed by the NEMA shall carry out EIA and EA. Such persons shall be experts who have the requisite training and experience. The regulations also stipulate that there must be public participation in any EIA and EA projects. The public participation exercise must be preceded with adequate notices comprising of posters at the proposed site with clear description of the project, including anticipated impacts and benefits. Other means of publicizing consultation exercises include notices in a newspaper distributed nationwide and nationwide radio announcements in both the official and local languages. Public meetings with the affected people must be held at least thrice to explain the project and to receive their oral and written submissions, which are part of the final report that is forwarded to NEMA. The project proponent must put appropriate measures to address all concerns of the public.

All EIA reports are submitted to NEMA which is the approving authority. According to the regulations, upon receipt, NEMA invites comments from affected persons and the general public concerning any proposed project. Such invitation will be sent to sites where a proposed project is to be implemented through a newspaper distributed nationwide, as well as radio announcements in both the official and local languages.

9.4.2 Environmental Audit (EA)

According to EMCA, 1999 and EIA and EA regulations, EA and monitoring is a tool applied for ongoing projects to assess their impacts on the environment. Regulation 31 (2) stipulates that all EA be carried out by a qualified person who shall be either a lead EIA expert or a firm of experts registered by NEMA. A proponent of any project may also carry out self-auditing to determine the level of compliance with the approved environmental management plan. NEMA may also order for control audits from time to time in order to ensure compliance to set environmental parameters and standards in the Environmental Management Plan and to verify how adequate this plan is in addressing the negative impacts of an ongoing project.

9.4.3 Marine Protected Areas (MPAs)

MPAs are areas within and around the oceans that have been delineated and gazetted as either marine national parks or marine national reserves. They are areas of complex ecosystems together with their areas of influence that are considered for the sole purpose of conservation of biodiversity and physical environment and to ensure harmonious coexistence with the surrounding populations. An MPA is an idea informed by the principle of sustainability in the use of marine and connected resources.

There are five designated MPAs in Kenya. These are:

a) Kisite-Mpunguti Marine Protected Area,
b) Malindi Marine National Park and Reserve,
c) Watamu Marine National Park and Reserve,
d) Kiunga Marine Protected Area, and
e) Mombasa Marine National Park and Reserve.

These are areas delineated for the purposes of conservation and sustainable management of marine and terrestrial ecosystems within them. Apart from the biodiversity and ecosystems, MPAs also include some important cultural and historical sites like the Shimoni Slave Caves and Museum.

9.5 Priority Area to be Covered in the Blue Economy

(1) Capacity development to implement ICZMNP

Although the Marine Management Plan and the Forestry Management Plan are planned and implemented by KWS and KFS, the implementation organization for the ICZMNP is not mandated clearly. However, since the ICZMNP is a national-level Environmental Management Plan, a NEMA-led implementation is required. In addition, the action plan for the ICZMNP suggests a necessity for capacity development in both national and local institutions. Specific action to train officers in the related institutions is required. The following six principles are critical management tools for the action plan, which should be covered by national and local level institutions:

a) Informing the development of project concepts and project proposals
b) Mobilizing, allocating, and utilizing resources during plan implementation
c) Management and coordination of plan implementation efficiently and effectively
d) Soliciting collaboration and support from partners and all other stakeholders in the coastal zone
e) Monitoring progress, evaluating results/outputs, and assessing outcome/impact, documentation, and dissemination of results of impact
f) Facilitating mid-term and end-of-plan reviews/evaluations

(2) Development of National Maritime Spatial Plan

Although Kenya has several Marine Management Plans in the coastal area, they are only utilized for environmental management purposes. However, in order to develop a policy for sustainable usage of

maritime resources such as energy, industry, government, conservation, and recreation, the development of the National Maritime Spatial Plan is required. Purposes of development of this plan are listed as follows:

a) Create greater certainty to private sectors when planning new areas of investments
b) Identify compatible uses within the same area of development
c) Reduce conflicts among incompatible users and nature
d) Streamline licensing processes
e) Promote overall efficient use of the resources and space thereto

Chapter 10: Implementation of the Blue Economy

10.1 Challenges and Potential for Implementation of the Blue Economy

10.1.1 Challenges for Implementation of the Blue Economy

The Blue Economy is mainly composed of fisheries, shipping and maritime affairs, port infrastructure, tourism, and environment. Individual efforts have been made by responsible organizations. The idea of the Blue Economy is to combine and secure synergy among related sectors for economic development and job creation.

Since the Blue Economy was identified as a priority sector and a new concept in Kenya, it has to be implemented in a sound manner in order to maximize the synergy effect among the Blue Economy sectors thereby promoting economic activity and creating employment. In addition, previous efforts from sectors related to the Blue Economy have to be fully utilized. Challenges for the implementation of the Blue Economy are identified as follows:

- **Implementation framework of programs/projects in MTP III (draft) is not clear**: More than 30 programs/projects are proposed in the MTP III (draft), but the implementation framework (time frame, priority) is not clear. The implementation framework has to be clearly defined.
- **Comprehensive plan and database on the Blue Economy is not available**: Since the Blue Economy is a new concept, there is still no comprehensive plan and database, which are both required for its implementation.
- **Organizations for implementation is not established**: New organizations are proposed for the Blue Economy implementation, but details are to be developed under the Fisheries Management and Development Act, 2016. Particularly, the coordination mechanism for the Blue Economy implementation is not clear. After the election in 2017, a new executive order is expected to be issued under the new government. The Blue Economy implementation mechanism should be examined under the new government organization.
- **Regulation and guidance on sector development is not prepared**: New regulation, standards, and guidance have to be developed particularly for fisheries management under the Fisheries Management and Development Act, 2016. The policy on shipping and maritime affairs is also outdated (i.e., existing policy is issued in 2009) and does not reflect the current situation.
- **Human resources on implementation of the Blue Economy is weak**: Human resources in the public sector and in the private sector are weak. The role of the public sector is to govern implementation and technology transfer to those who are engaging in the Blue Economy. The private sector plays an important role in the Blue Economy, including fisheries, shipping and maritime affairs, and tourism. Capacity development has to be conducted to both public and private sectors.

10.1.2 Potential for Implementation of the Blue Economy

The potential for implementation of the Blue Economy is summarized below:

- **Kenya already has sector-wise experiences and assets**: Even though the Blue Economy is a new concept, Kenya already has sector-wise experiences. Kenya Marine and Fisheries Research Institute (KMFRI) is trying to promote the fisheries sector, while Kenya Port Authority (KPA) is actively developing ports, particularly in Mombasa. Previous efforts by

the Kenyan government have to continue and must be utilized for the Blue Economy implementation.

- **Current government is committed**: Food security and manufacturing is identified in the political agenda. The Blue Economy has become a subsector of the economic pillars of Kenya Vision 2030. The Blue Economy Implementation Committee was established, and a platform for implementation was developed.

10.2 Evaluation of Programs/Projects in MTP III Blue Economy (Draft)

In order to overcome the challenges mentioned in the previous section and also to maximize the synergy effect of the Blue Economy, the implementation of programs and projects proposed in MTP III Blue Economy (draft) is classified in terms of time frame, which is examined based on following assumptions:

- Urgency of implementation: If any of the projects is considered as a foundation of the Blue Economy implementation, it is considered to be implemented in the short-term. Projects involved in planning, database, and policy shall be implemented in the short-term. In addition, any project that requires a certain period of time to realize outcomes needs to start from the early stage.
- Condition of implementation: Some projects require preparatory work (e.g., data collection and analysis, market survey, and capacity development). The projects that require additional work is categorized in the medium-term or long-term, and preparatory work is implemented in the short term. In addition, any project that is involved in multiple stakeholders and requires coordination among them shall be implemented in the medium to short-term to establish a coordination mechanism. Any project that can be implemented with less preparatory work can be implemented in the short-term.

In addition to classification into time frames, comments are compiled for implementation. The following Table 10.2.1 shows the comments and time frame of proposed programs/projects:

Table 10.2.1 Evaluation of Programs/Projects for the Blue Economy in MTP III (Draft)

No.	Time Frame	Flagship Program/Projects	Contents	Comments/Conditions	Responsible Agency
Blue Economy in General					
1	Short-term	Development of the Blue Economy Master Plan	An integrated and holistic Master Plan for the Blue Economy sector will be developed to enhance full exploitation of maritime resources.	**[Comments]** • The Master Plan is a base for the Blue Economy implementation and needs to be prepared as soon as possible. • Previous efforts of the related sectors of the Blue Economy have to be reviewed. • Coordination with stakeholders (i.e., ministries and government agencies) have to be secured. • The Blue Economy Implementation Committee shall be utilized for plan formulation.	Presidential Taskforce on Blue Economy (2016)
2	Short-term	Development/review of policy, legal, regulatory, and institutional	The appropriate overarching policy, legal, regulatory, and institutional frameworks will be	**[Comments]** • Since the Blue Economy is a new concept, this action	Kenya Fisheries Advisory Council

No.	Time Frame	Flagship Program/Projects	Contents	Comments/Conditions	Responsible Agency
		frameworks for Kenya's Blue Economy	developed to guide the management, development, and coordination of the Blue Economy sector.	should be taken immediately. • It takes time to prepare a legal base so it should be started immediately. • Coordination among stakeholders has to be secured.	
3	Short-term	Development of National Maritime Spatial Plan	The aim of the plan is to document sound planning and efficient use of resources and spaces in the maritime subsector.	**[Comments]** • The Maritime Spatial Plan can contribute to fisheries and maritime affairs. • Finding and compiling the data is challenging. • A survey needs to be conducted. **[Condition]** • No. 1 of Other Projects "Development and management of Blue Economy database" should be prior to the implementation of this program.	EOIs were advertised in January 2018 for a scoping study on the status of Marine Spatial Planning in Kenyan Waters by SDF-BE
1	Short-term	Development and management of the Blue Economy database	A data center will be established as a repository of data and information for the entire shipping and maritime affairs and fisheries and aquaculture sub-sectors.	**[Comments]** • A database is necessary for the implementation of the Blue Economy since data is not well-developed. • A variety of data has to be compiled (e.g., sea, inland water, and fish resources). **[Condition]** No. 3 of Other Projects "Research and development of the Blue Economy" should be prior to implementation of this program.	Presidential Taskforce on Blue Economy (2016)
2	Short-term	Kenya Marine Fisheries and Socio-Economic Development Project (KEMFSED) World Bank	The development goal is to enhance economic benefits and coastal livelihoods from marine fisheries and coastal aquaculture while safeguarding the associated ecosystems' integrity.	**[Comments]** • This project will be implemented under the World Bank. Securing sustainability is challenging since this is considered Phase 2 of the project.	Technical personnel from Kenya Coastal Development Project (KCDP) and Kenya Fisheries Service (KFS)
4	Medium-term	Development of human resources to manage the Blue Economy	Develop capacities on governance, justice, law, order, and security; human resource and labor; research and sciences; maritime and shipping; offshore energy and extractives; and living marine resources. Capacity needs assessment at both the national and county	**[Comments]** • Human resources development (capacity development) is identified as one of the important fields for the implementation of the Blue Economy. • The types of skills that need to be developed have to be identified.	All stakeholders

No.	Time Frame	Flagship Program/Projects	Contents	Comments/Conditions	Responsible Agency
			governments will be undertaken and will build the capacities identified. Traders and investors will be empowered to participate in the Blue Economy, and Bandari College will be transformed to a National Maritime Center of Excellence,	**[Condition]** • This program should collaborate closer with No. 13 of Priority Project "Vijana Baharia Program". • No. 5 of Other Projects "Implementation of Human Resource Planning and Succession Management Strategy" should be prior to the implementation of this program.	
5	Medium-term	Cooperation and implementation of regional/international frameworks and standards	During the MTP period, the government will cooperate within regional and international frameworks in developing the Blue Economy.	**[Comments]** • One of the important elements of the Blue Economy implementation • The Blue Economy Implementation Committee has to be strengthened to accelerate coordination. **[Condition]** No. 1 of Priority Projects "Development of Blue Economy Master Plan" should be prior to implementation of this program.	The Office of the Registrar of Treaties established under the Treaty Making and Ratification Act, and the state department concerned
3	Medium-term	Research and development of the Blue Economy	This will entail research on promotion of investments in the Blue Economy; diversification and commercialization of aquaculture species; economic valuation of marine and coastal resources; development of innovative technologies for value-addition and reduction of post-harvest losses; and maritime and shipping affairs research.	**[Comments]** • Research and development shall be implemented after the policy and plan is clarified. The Blue Economy is composed of a variety of fields. The priority among the sectors in the Blue Economy has to be identified.	State Department for Fisheries and Blue Economy, MOAI
4	Medium-term	Sensitization and awareness creation of the young population on the Blue Economy	Reach out to the young population through print and electronic media programs, school visits and competitions, development of Blue Economy science clubs, and introduction of Blue Economy components into the curriculums of learning institutions among others.	**[Comments]** • The policy and strategy has to be clarified prior to sending messages to the young population. • It takes time for the young generation to understand the philosophy of the Blue Economy. **[Condition]** No. 5 of Other Projects "Implementation of Human Resource	State Department for Fisheries and Blue Economy, MOAI

No.	Time Frame	Flagship Program/Projects	Contents	Comments/Conditions	Responsible Agency
				Planning and Succession Management Strategy" should be prior to implementation of this program.	
5	Medium-term	Implementation of Human Resource Planning and Succession Management Strategy	Develop and implement a Human Resource Master Plan and Annual Human Plans; introduce management trainee program; design, review, and implement leadership and management capacity programs; design and implement young professional and emeritus programs, with a High Achievers Scheme; and review/develop carrier progression guideline/schemes of service for all cadres among others.	**[Comments]** • The policy and strategy has to be clarified prior to sending messages to the young population. It takes time for the young generation to understand the philosophy of the Blue Economy.	All stakeholders
6	Medium-term to Long-term	Supply the Blue Economy with skilled labor for the international market	Supply a competent, highly skilled Blue Economy labor to the international market through provision of reliable, accurate, and timely information of labor demand and supply, plus development of skilled Blue Economy labor inventory.	**[Comments]** • The types of skills that need to be developed have to be identified. • The industry or economy that can receive labor have to be identified. • New jobs have to be created for those who receive training.	All stakeholders
Fisheries					
7	Short-term	Implementation of Fisheries Management and Development Act, 2016	The government will operationalize the Fisheries Management and Development Act, 2016 through Kenya Fisheries Service, (KFS), Kenya Fish Marketing Authority (KeFMA), Kenya Fisheries Advisory Council (KFAC), Fish Levy Trust Fund (FLTF), Kenya Fisheries Research and Development Fund, Monitoring, Control and Surveillance (MCS) Unit, and Inter-Agency MCS Unit.	**[Comments]** • Details of the Act is crucial for implementation, including organization, standards, and guidelines that stakeholders can execute. • This should be implemented urgently. • Coordination with stakeholders (i.e., ministries and government agencies) has to be secured.	KFS
8	Short term	Organize and support Beach Management Unit (BMUs)	The role of the artisan fishermen will be enhanced by organizing the BMUs into strong associations for resource use management and for those who can participate in viable commercial entities, such as cooperatives, and can support the same with both	**[Comments]** • This is considered one of the important measures for promoting fisheries for conserving and increasing water resources.	KFS, County Government, Fish Marketing Authority

No.	Time Frame	Flagship Program/Projects	Contents	Comments/Conditions	Responsible Agency
			capacity building and fleet modernization.	• The impact to environment is expected. • So many numbers of BMUs exist. • Hierarchy has to be strengthened (national level and county level).	
6	Short-term	Fish stocks enhancement in inland water resources	Stocking and restocking of lakes, rivers, and dams, as well as identification, mapping, delineation, and protection of critical habitats will be prioritized during the MTP period to enhance stocks in water bodies.	**[Comments]** • Understanding resources is important, but the methodology of the survey has to be clarified. **[Condition]** No. 9 of Priority Projects "Aquaculture technology development" should be collaborated closer with this program.	KFS
7	Short-term	Fish stocks monitoring	Frame and catch assessment surveys will be conducted in Lake Victoria, Lake Turkana, and marine waters.	**[Comments]** • It is important to understand the resources in order to implement the Blue Economy to contribute to economy and employment. The methodology of stock monitoring has to be secured.	KFS
8	Short-term	Certification of fish processing establishments and landing beaches	Monthly inspections of fish processing establishments and bi-monthly inspections for fishing vessels and landing beaches will be carried out. Audit inspections will be done at least on a quarterly basis in licensed fish processing establishments and fish landing sites.	**[Comments]** • Monitoring is important to secure sustainability. • The methodology of stock monitoring has to be secured. Human resources have to be secured for execution and monitoring.	KFS
9	Short-term to long-term	Aquaculture technology development	The priority interventions to be implemented include: aquaculture technology development and innovations transfers; youth aquaculture program; national fish breeding program in Sagana, Kiganjo, Ngomeni, and Kabonyo; development of International Nile Perch Research Center at Kabonyo in Kisumu; development of aqua-parks; promotion and development of ornamental fisheries; and development and promotion of recreational fisheries.	**[Comments]** • This may have a direct impact to food security and employment. • Aquaculture technology and skills have to be developed which require time. • It takes at least five years to develop the practical aquaculture technology which can be disseminated for commercial scale businesses. • Facilities and equipment have to be renovated urgently.	KFS in collaboration with KMFRI

No.	Time Frame	Flagship Program/Projects	Contents	Comments/Conditions	Responsible Agency
				• Capacity building of KMFRI has to be carried out.	
9	Short-term to long-term	Marine aquaculture development	The focus will be on seaweed farming and development of finfish, crustaceans, prawn, and mollusks farming at the coast. In addition, a Marine Aquaculture Research Center and a Marine Aquaculture Hatchery will be established to facilitate diversification of aquaculture species and boost aquaculture development across the country.	**[Comments]** • Demand has to be confirmed prior to implementation of seaweed production. • There is a question regarding market. • It takes at least five years to develop the practical aquaculture technology which can be disseminated for commercial scale business. • Facilities and equipment have to be renovated urgently. • Capacity building of KMFRI has to be carried out. **[Condition]** No. 9 of Priority Projects "Aquaculture technology development" should be collaborated closer with this program.	KMFRI, county government for the seaweed extension officers at the county
10	Medium-term	Raise fish production	Fish production will be raised from 128,649 metric tons in 2016 to 304,000 metric tons per year through the regulated landing of fish.	**[Comments]** • Fish production cannot meet demand. • This will have direct impact on food security. • Consumption also has to increase. • Tools and means to increase production have to be clarified. • This will contribute to solving trade balance. **[Condition]** No. 9 of Priority Projects "Aquaculture technology development" should be prior to implementation of this program.	KFS
11	Medium-term	Raise per capita consumption of fish	The per capita consumption of fish will be raised, through incentive program, from the current 4.6 kg/person/year to the average in Africa of 10 kg/person/year in order to reap the benefits of a fish diet, as well as establish a string of domestic markets.	**[Comments]** • This will have a direct impact on food security. • Consumption also has to increase. • Tools and means to increase production have to be clarified. • At this moment, supply cannot meet demand.	KFS

No.	Time Frame	Flagship Program/Projects	Contents	Comments/Conditions	Responsible Agency
10	Medium-term	Implementation of Residue Monitoring Plan for farmed fish	The plan requires collection and analysis of samples from fish farms in every calendar year on a quarterly basis.	**[Comments]** • The monitoring of fisheries resources is important in the long run. The methodology of stock monitoring has to be secured.	KFS
11	Medium-term	Diversification of fish export markets	This entails the development of a fish export strategy and the diversification of export markets through promotions and fisheries product development.	**[Comments]** • Fish supply has to be secured. Fish resources have to be secured prior to exporting.	KFS in collaboration with county government and the Fish Marketing Authority
12	Medium-term	Aquaculture business development	The project aims at promoting cluster agro–processing enterprises in aquaculture.	**[Comments]** • Promotion of processing enterprises is important for economic development and job creation. • In order for the business to be sustainable, supply has to be secured. **[Condition]** No. 9 of Priority Projects "Aquaculture technology development" should be prior to implementation of this program.	KFS, county government, Fish Marketing Authority
Shipping/Maritime Affairs					
12	Short-term	Integrated National Maritime Policy (INMP)	This will entail the development of INMP to contribute to long-term social economic development and environmental well-being of the country.	**[Comments]** • A clear policy is necessary to show the direction in maritime affairs. • The maritime policy has to consider international competition. • The goal of the policy has to be clarified.	A taskforce which would assist in developing INMP was launched in 3 March 2018.
13	Medium-term	Vijana Baharia Program	The project aims to harness the potential of the huge number of youths who do not qualify or are unable to join universities and other tertiary institutions by providing them with proficiency-based training to access jobs in the maritime sector.	**[Comments]** • It is important to educate and train young people. • The target is not clear. • The industry or economy that can receive labor has to be identified. • New jobs have to be created.	KMA, Bandari College, KFS, county government
14	Medium-term	Enforcement of the Insurance Act	The enforcement will make it unlawful for any person to place an insurance offshore without prior written approval of the Commissioner of Insurance.	**[Comments]** • It is ideal to have an insurance, but monitoring may be difficult.	Insurance Regulatory Authority

No.	Time Frame	Flagship Program/Projects	Contents	Comments/Conditions	Responsible Agency
				• Mandating an insurance may be difficult.	
13	Medium-term	Maritime cluster enterprises development	This will entail establishment of Seafarers Training Fund, Women in Maritime Fund, Cluster Development Fund, and Shipping and Maritime Training Fund to benefit organized clusters in the maritime and shipping affairs sub-sector, including the youth and women.	**[Comments]** • Human resources is important, but specific skills to be developed have to be identified. • The industry or economy that can receive labor has to be identified. **[Condition]** No. 9 of Priority Projects "Integrated National Maritime Policy" should be prior to implementation of this program.	KMA, State Department for Shipping and Maritime Affairs, MOTID
15	Medium-term/Long-term	Revival of Kenya National Shipping Line (KNSL)	The KNSL will be revived to firmly establish the Kenyan coastline as the pre-eminent logistics and transportation hub on the eastern seaboard of the African continent. The KNSL will also leverage on Container Terminal 2 and engage a global strategic partner to drive cargo volumes to 2 million Twenty-Foot Equivalent Units (TEUs) transshipped at the Port of Mombasa from other regional ports for redistribution.	**[Comments]** • The impact may not be large since the supporting activity is weak, particularly economy and job. • There is a need to consider competition among international shipping lines. • A supporting activity has to be implemented for job creation. • Demand is not clear.	KMA
16	Long-term	Development of national fleet	The national fleet will include merchant and fishing fleet. The national fishing fleet will be developed initially through reflagging of foreign fishing vessels with a Kenyan flag, where local investors enter into joint partnership or lease agreements with foreign fishing establishments. The reflagging and lease agreements would increase fish production and agro-processing.	**[Comments]** • Demand has to be clarified in order to secure the purpose of utilization. • A survey needs to be conducted to investigate the demand of fleet which determines the size and quantity. **[Condition]** No. 12 of Priority Projects "Integrated National Maritime Policy" should be prior to implementation of this program.	State Department for Shipping and Maritime Affairs, MOTID, KMA
14	Long-term	Inland water maritime development	The program in Lake Turkana will focus on implementation of the Fisheries Management Plan and sensitizations of communities and other stakeholders on the benefits of water transport for both commercial and leisure	**[Comments]** • Justification of development has to be investigated. • Demand is not clear. • Impact of development has to be investigated. **[Condition]**	KMA, State Department for Shipping and Maritime Affairs, MOTID

No.	Time Frame	Flagship Program/Projects	Contents	Comments/Conditions	Responsible Agency
			purposes. In Lake Victoria, efforts will be made to revamp the current dilapidated port terminals, oil jetties, passenger and wheeled cargo ramps, link span, and shallow piers.	No. 9 of Priority Projects "Integrated National Maritime Policy" should be prior to implementation of this program.	
15	Long-term	Maritime transport services	The program will have two components, namely: shipbuilding and repairs, and container manufacture and repair industry.	**[Comments]** • This component will contribute to job creation, but other factors such as international competition has to be fully understood. Human resources development has to be implemented intensively.	KMA, State Department for Shipping and Maritime Affairs, MOTID
16	Long-term	Marine risk and disaster management	The program will involve carrying out thorough investigations into marine disasters that take place in Kenyan waters or involve Kenyan registered vessels, and will implement key interventions measures including promotion of safety and use of aids to navigation and marine pollution control.	**[Comments]** • Priority is considered low because impact to economy and job creation may be low. In order to implement this project, other factors such as guidelines and human resources have to be secured.	KMA, State Department for Shipping and Maritime Affairs, MOTID
17	Long-term	Coastal shipping development	Specialized ports will be developed in Takaungu, Shimoni, Kilifi Bay, and Malindi to promote domestic shipping activities at the coastal strip. To promote the participation of Kenyans in coastal shipping activities, a strategy will be developed to improve governance, safety of navigation, security, protection of marine environment, and shipping operations in the small ports.	**[Comments]** • Prior to development, port demand has to be examined. • Impact of port development is not clear. Supporting infrastructure (access, market) has to be developed to maximize the impact of infrastructure.	State Department for Shipping and Maritime Affairs, MOTID, Private sector
Port Infrastructure					
17	Medium-term to Long-term	Development of fisheries and maritime infrastructure	This will entail establishment of maritime infrastructures including: small commercial port in Takaungu; fish markets in Kisumu, Lamu, Mombasa, and Nairobi; upgrading of Bandari College into National Maritime Centre of Excellence; fishing ports in Mombasa, Lamu, Kilifi, and Shimoni that is expected to create 12,000 jobs and add KES 20	**[Comments]** • Prior to development, infrastructure demand needs to be analyzed. • Priority among the infrastructures has to be identified. • Supporting infrastructure may be needed (e.g., transport, utility). • Coordination with stakeholders (e.g., ministries and	State Department for Shipping and Maritime Affairs, MOTI, KPA, KMA, KFS

No.	Time Frame	Flagship Program/Projects	Contents	Comments/Conditions	Responsible Agency
			billion to the GDP; jetties; fish processing, cold storage facilities, and ice plants; accreditation of International Fish Quality Control laboratories in Nairobi, Mombasa, and Kisumu; and provision of inspection facilities at border inspection posts. Recovery of encroached public land reserved for jetties, landing sites, fishing ports, and access roads to beaches and lakes.	government agencies) has to be secured, particularly among transport and fisheries and the Blue Economy.	
Tourism					
18	Medium-term	Diversification of tourist packages	Tourist packages will be diversified to include cruises, sport fishing, game safaris, marina, and dolphin and whale watching.	**[Comments]** • Tourism contributes to GDP, so diversification in the Blue Economy context is important. • Responsibilities of the national government and the county government is not clear.	Tourism Product Development Division in the Ministry of Tourism and Wildlife (MOTW)

Note: The project with "*" mark is considered as urgent project to be implemented immediately.
Source: JICA Survey Team

The following Table 10.2.2 shows the comments and time frame of proposed port infrastructure-related programs/projects compiled from MTP III Infrastructure (draft).

Table 10.2.2 Programs/Projects for Port Related Activities (Shipping and Maritime) in MTP III (Draft)

	Time Frame	Flagship Program/Projects	Contents	Comments	Responsible Agency
1	Short-term	Expansion of the Second Container Terminal Phase II and III	This will increase the container handling capacity. It will entail expansion of the yard and berth capacity.	**[Comments]** • The Japanese government has been supporting port development. • The expansion of the container terminal of Mombasa Port is considered as one of urgent projects in port development.	KPA
2	Short-term	Development of the Dongo Kundu Free Trade Port	It will involve construction of two berths to serve the Dongo Kundu Special Economic Zone.	**[Comments]** The development of the Dongo Kundu Free Trade Port is considered as one of the urgent projects in port development.	KPA, MOTID
3	Long-term	Kisumu Port	It will involve revamping of the Kisumu Port with better handling facilities.	**[Comments]** The Kisumu Port can contribute to fisheries development, tourism development, and logistics strengthening. **[Condition]**	KPA

	Time Frame	Flagship Program/Projects	Contents	Comments	Responsible Agency
				Demand and supply has to be considered carefully.	
10	Long term	Construction of Shimoni Port	By the end of the MTP III period, the feasibility study will be completed and the development of the Shimoni Port will commence.	**[Comments]** The development of the Shimoni Port is important for fisheries development, particularly marine capture fisheries. **[Condition]** Demand and supply has to be considered carefully.	KPA
4	Long term	Relocation of the Kipevu Oil Terminal (KOT)	The government plans to expand and modernize oil terminal facilities in Mombasa. The project entails development of four berths that are able to handle bigger vessels of up to 200,000 DWT at a cost of USD 391,000.	**[Comments]** Relocation of the KOT contributes to efficient land use in Mombasa.	KPA
5	Long term	Development of the Lamu Port Southern Sudan Ethiopia Transport (LAPSSET) Corridor	The project aims at providing an alternative and strategic port to serve the regional landlocked countries of Ethiopia, South Sudan, and beyond. During the period, there will be sourcing of the operator and equipment for the first three berths and the development of the next three berths.	**[Comments]** LAPSSET Corridor is considered as a strategic development, but the Northern Economic Corridor shall be considered as one of the high priorities among corridor development.	KPA, MOTID

Source: Infrastructure Development Plan 2018-2022 Final Draft, MOTI & HUD, JICA Survey Team

10.3 Blue Economy Implementation Strategy

10.3.1 Implementation Scenario

A variety of programs/projects have been identified by the Government of Kenya. In order to secure effective and efficient implementation, short-term, medium-term, and long-term stages are proposed. Short-term is considered as the "Preparatory Stage" in which foundation for implementation is developed. Medium-term is considered as the "Launching of Implementation". Long-term is considered as the "Sustainable Implementation". The three stages of implementation are shown below:

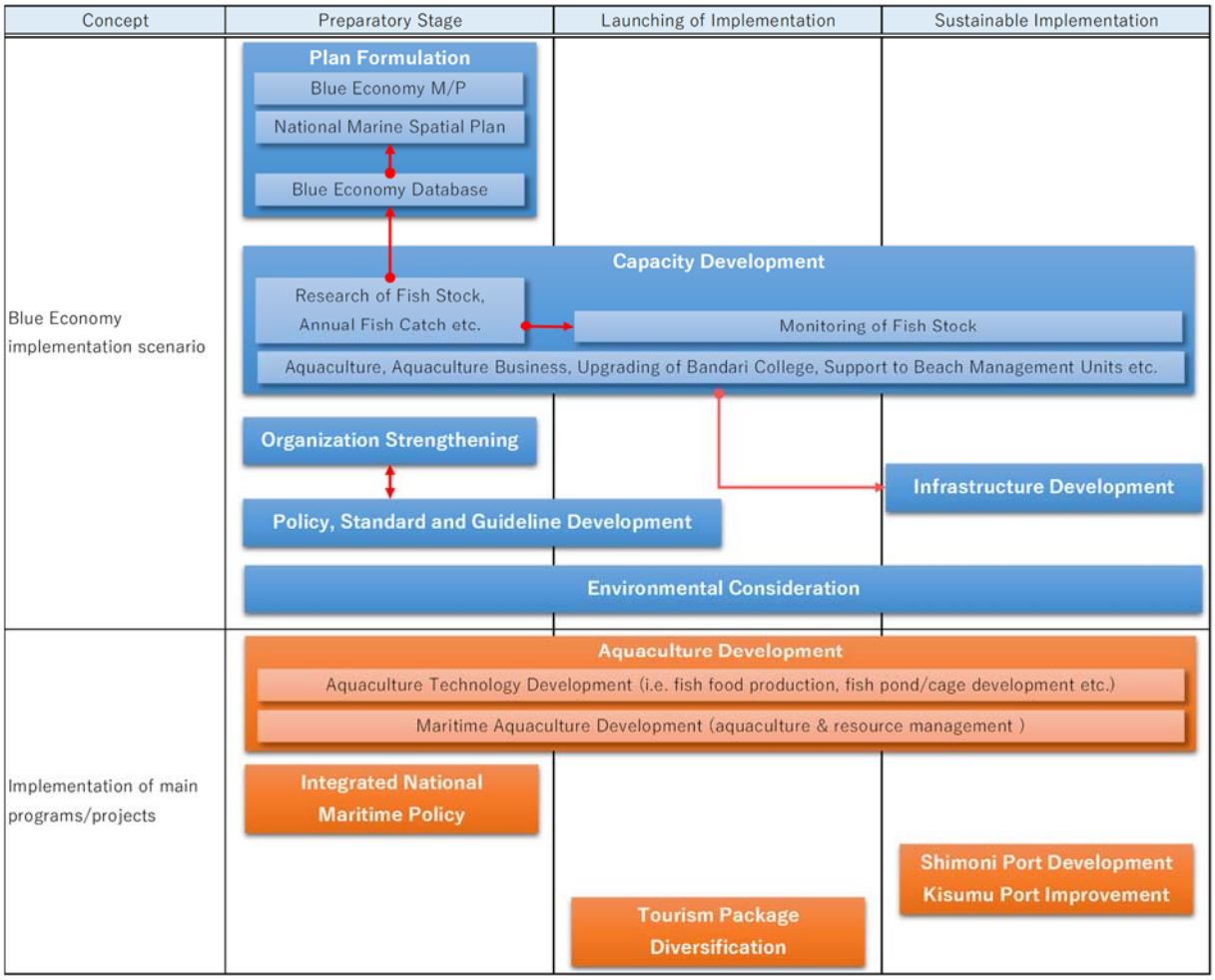
Table 10.3.1 Implementation Scenario

	Short-term (2018-2020) (within MTP III period)	Medium-term (2021-2022) (within MTP III period)	Long-term (2023-) (next MTP III period)
Concept	Preparatory Stage	Launching of Implementation	Sustainable Implementation
Objective	• The objective of the short-term is to establish and strengthen the implementation foundation. • Programs/projects that are expected to contribute to the promotion of economic activity and creation of employment and to the achievement of the	• The medium term is considered as the implementation of programs/projects based on the plan and database prepared in the short term. Some data may need to be collected further for the project impact to be more practical.	• After 2023, sustainable implementation of the Blue Economy has to be secured. • Large scale infrastructure will be developed.

	Short-term (2018-2020) (within MTP III period)	Medium-term (2021-2022) (within MTP III period)	Long-term (2023-) (next MTP III period)
	goals of Kenya Vision 2030 and MTP III should be implemented in the short-term. The sector that requires long-term commitment should also start in the short-term. • Maximize previous activities related to the Blue Economy for economic development and job creation.	• In addition, human resources development has to be accelerated through technical cooperation.	
Strategy	• Preparation of policy and plans • Preparation of standards and guidelines • Compilation of database • Implementation of projects that can utilize previous efforts related to Blue Economy	• Intensive implementation of capacity development • Start of implementation of programs/projects • Preparation for a large scale of infrastructure	• Continue capacity development • Infrastructure development

Source: JICA Survey Team

As mentioned in Table 10.3.1, the first three years of implementation is considered as the "Preparatory Stage" through which the plan is formulated, the database is developed, and the organization is strengthened. In addition, urgent (priority) projects will be implemented. Capacity development should also be conducted. Based on the implementation scenario, the implementation schedule is proposed as shown in Figure 10.3.1.



Source: JICA Survey Team

Figure 10.3.1 Blue Economy Implementation Scenario

10.3.2 Sector Focus

In addition to the time frame of implementation, the sector focus in the Blue Economy has to be examined. Through the analysis of policies and strategies of Kenya and discussion with stakeholders, the sector focus is compiled as shown below:

Table 10.3.2 Sector Focus for Implementation

Sector	Description
Blue Economy	• The foundation of the Blue Economy, including plans, database, organization, standards, guidance, and capacity development has to be developed and strengthened for the Blue Economy implementation.
Fisheries	• Data collection on resources (e.g., marine resources and inland water resources) has to be conducted to understand current situation in fisheries. • Aquaculture has to be strengthened which is expected to contribute to resources conservation, increase in resources, and increase in fish capture. • Ports have to be improved for marine capture fisheries promotion. The Simoni Port and the ports in Lake Victoria are proposed by the Kenyan government, but details have to be carefully examined, including supply and demand, based on market and location.
Shipping and Maritime Affairs	• Training is one of the main aspects in shipping and maritime affairs. • Competition among international shipping lines has to be considered. • The policy has to be updated to meet the current situation.
Port Infrastructure	• Most major ports are under development as planned and the development has to be continued.
Tourism	• Tourism product diversification, together with fisheries and port infrastructure, has to be considered. Strengthening of beach tourism is directly related to the Blue Economy. • Tourism has to be coordinated with other sectors in the Blue Economy.
Environment	• The environmental aspect has to be integrated in all Blue Economy activities.

Source: JICA Survey Team

10.3.3 Development of Foundation for the Blue Economy Implementation

The foundation for implementation is summarized below:

a) Plan formulation

- The Blue Economy Master Plan shall be formulated, which will be a base for the Blue Economy implementation. Database development shall be included in the master plan. In addition, the management plan for concerned sectors have to be developed including the National Maritime Spatial Plan, which shall be developed together with database management and monitoring.

b) Capacity development

- Capacity development is needed for both public and private sectors. The role of the government is to regulate, monitor, and provide technical assistance to stakeholders. The skills necessary for the public sector have to be strengthened. Capacity development on database development, including data collection and monitoring methodology, is considered as one of the important management skills.

- The private sector plays an important role in the execution of Blue Economy-related activities. Capacity development for maritime/shipping affairs and for the fisheries sector is expected to contribute to job creation.

c) Organization strengthening

- Strengthening of coordination mechanism: The State Department of Fisheries and Blue Economy is responsible for the Blue Economy. However, implementation requires coordination among concerned agencies. The coordination mechanism has to be strengthened either by strengthening the Blue Economy Implementation Committee or by establishing new organizations.

- The strengthening of new government agencies in fisheries (i.e., Kenya Fishery Service, Kenya Fish Marketing Authority, and Kenya Fisheries Advisory Council) is considered a priority for organizational strengthening.
- The strengthening of training institutes, such as the Bandari College, for shipping affairs, maritime affairs, and port management is important as well.

d) Policy, standards, and guideline preparation

The policy, standards, and guideline shall cover the following sectors:

- Fisheries conservation and management: fisheries management measures, limitation of fishing and fishing related activities, prohibited fishing gear and methods, and protected areas, environment, and fish landing stations
- Fish quality and safety: fish safety and quality standards, sales, export adulterated or contaminated fish, and prohibited fish products
- Aquaculture: prohibited to deprive community of traditional access to fisheries, and use of restricted drugs, chemicals, etc.
- Shipping and maritime affairs: port issues, natural resources of seas and ocean, maritime education and training, and marine environmental protection among others

Infrastructures shall be developed in the long-term because the condition and scale of infrastructures has to be examined prior to development.

10.3.4 Prioritized Project in Each Sector

Among the programs/projects proposed in MTP III (draft), the projects to be implemented for each sector are identified as follows:

(1) Aquaculture Technology Development/Marine/Inland Aquaculture Development

- Sector: Fisheries
- Responsible Organization: KFS in Collaboration with KMFRI
- Time Frame: Short-term to Long-term
- Project Overview:

Resource management is an indispensable countermeasure to challenges of both inland and marine fisheries development and environment of the hydrosphere in Kenya. It takes five to ten years to fully develop aquaculture. Capacity development of KMFRI is essential for aquaculture technology development. Aquaculture contributes to strengthen resources management, including resources conservation and increase in fish capture, as well as improvement of well-being of fishermen. Thus, there is a need for it to be implemented in the short-term to long-term.

(2) Integrated National Maritime Policy

- Sector: Shipping/Maritime Affairs
- Responsible Organization: A taskforce which would assist in developing an INMP was launched in 3 March 2018.
- Time Frame: Short-term
- Project Overview:

The existing policy was issued in 2009. The policy includes maritime transport, inland transport, and human resources development in maritime transport. In order for shipping/maritime affairs to be more competitive, the policy has to be updated to meet the existing conditions. The development of Shimoni Port should be included in the policy.

(3) Expansion of the Second Container Terminal Phase II and III

- Sector: Port Infrastructure
- Responsible Organization: KPA and
  State Department for Fisheries and Blue Economy of
  Ministry of Agriculture and Irrigation
- Time Frame: Short-term
- Project Overview:

Mombasa Port expansion is proposed in MTP III infrastructure (draft). The Government of Japan has been supporting the Mombasa Port development, which has contributed to accelerate the Kenyan economy as well as economies along the Northern Corridor. The expansion of the container terminal together with the Dongo Kundu Free Trade Port development has to be secured.

(4) Tourism Package Diversification

- Sector: Tourism
- Responsible Organization: MOTW and Private Sector
- Time Frame: Medium-term
- Project Overview:

Tourism products include water sports, sea cruises, sport fishing including riverine sports and angling, marine game safari, marina, yachting, dolphin parades, and whale watching. Coast tourism management and facility improvement should be included in the tourism development. Tourism development shall be implemented in the medium-term.

Chapter 11: Conclusion and Recommendation

11.1 Conclusion

In order to implement the Blue Economy development, there is a need to solve the following challenges as identified in the survey:

a) Lack of Comprehensive Plan on the Blue Economy
Kenya does not have a comprehensive development plan on the Blue Economy, such as the Blue Economy Development Master Plan and the National Marine Spatial Plan, to manage Blue Economy related developments and to coordinate implementation of cross-cutting projects.

b) Lack of Organization to Implement the Blue Economy Development
Although the Blue Economy Implementation Committee was gazetted in 2017 by the Government of Kenya, this committee is not the actual project implementation organization. Since the project implementation scheme has not been announced by the committee, an organization/scheme to implement Blue Economy development projects has to be formed.

c) Lack of Regulation and Guidance on Sector Development
For instance, the Shipping/Maritime Affairs sector does not have an Integrated National Maritime Policy as of now, and the development is identified as National Flagship Projects in Kenya Vision 2030. Due to sustainable and efficient development for each sector, the formation of a legal framework is essential, and prompt actions on this matter are needed.

d) Weakness of Human Resources on Implementation of the Blue Economy Development
Human resources in both private and public sectors are weak. Capacity development is recommended, such as upgrading of Banburi College to train sailors, effective utilization of the Vijana Baharia Program, capacity development/revival of inefficient organizations, and aquaculture training for private fish farmers through KMFRI.

At the same time, Kenya has the potential of implementing the Blue Economy. Kenya already has sector-wise experiences and assets. Previous efforts by the Kenyan government have to continue and must be utilized for the Blue Economy implementation. In addition, the Kenyan government has a committee for the implementation of the Blue Economy. The Blue Economy has become a sub-sector of the economic pillars of Kenya Vision 2030, and the Blue Economy Implementation Committee was established purposefully for its implementation. These assets have to be fully utilized for the Blue Economy implementation.

11.2 Recommendation

For the smooth and prompt implementation of the Blue Economy development, short-term programs/projects, shown in Table 10.2.1 and Table 10.2.2, are recommended to be implemented preferentially. The short-term programs/projects are listed as follows:

a) Blue Economy in General

- Development of the Blue Economy Master Plan
- Development/review of policy, legal, regulatory, and institutional frameworks for Kenya's Blue Economy
- Development of the National Maritime Spatial Plan
- Development and management of the Blue Economy database

- Kenya Marine Fisheries and Socio-Economic Development Project (KEMFSED) World Bank

b) Fisheries

- Implementation of Fisheries Management and Development Act, 2016
- Organization and support of Beach Management Units (BMUs)
- Aquaculture technology development
- Fish stocks enhancement in inland water resources
- Fish stocks monitoring
- Certification of fish processing establishments and landing beaches
- Marine aquaculture development

c) Shipping/Maritime Affairs

- Integrated National Maritime Policy

d) Port Infrastructure

- Expansion of the Second Container Terminal Phase II and III
- Development of the Dongo Kundu Free Trade Port

In order for the Blue Economy to contribute to Kenyan economy and employment, public and private sectors have to be involved in its implementation. The public sector should be responsible for providing regulations and guidelines, which should trigger private sector participation, particularly investors.