

## Utilising Kenya's Marine Resources for National Development

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### Abstract

*This paper discusses how Kenya can take advantage of its rich marine resources to boost national economic development while empowering the coastal communities whose livelihoods mainly depend on these resources. The discourse goes beyond legal and institutional setup to offer practical solutions that are based on the principles of public participation, empowerment, sustainable development, inclusiveness, amongst others, for an all-inclusive approach to development. While Kenya has been known to be mainly an agricultural state relying mostly on cash crops, this paper advocates for diversification of the sources of economic activities by tapping into the blue economy sector.*

### 1.0 Introduction

This paper discusses how Kenya can maximally utilise its marine resources to spur economic growth and development for the betterment of its people's livelihood. While it has been observed that oceans provide a substantial portion of the global population with food and livelihoods and are the means of transport for 80% of global trade, arguably Kenya cannot boast of as much benefits from its related resources.<sup>1</sup> The marine and coastal environment also constitutes a key resource for the important global tourism industry; supporting all aspects of the tourism development cycle from infrastructure and the familiar "sun, sand and sea" formula to the diverse and expanding domain of nature-based tourism.<sup>2</sup> Tourism is

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<sup>1</sup> United Nations, "Blue Economy Concept Paper," available at <https://sustainabledevelopment.un.org/content/documents/2978BEconcept.pdf> [Accessed on 14/05/2016]; See also Presidential Strategic Communications Unit, "Let's expand fishing in Indian Ocean, President urges Coastal counties," September 1, 2016, available at <http://www.capitalfm.co.ke/business/2016/09/lets-expand-fishing-indian-ocean-president-urges-coastal-counties/>

<sup>2</sup> Ibid, p. 2.

one of the key economic sectors of Kenya, but the same has not fully exploited the potential that lies within Kenyan coastal region.<sup>3</sup>

It has also been documented that the seabed currently provides 32% of the global supply of hydrocarbons with exploration expanding, with advancing technologies opening new frontiers of marine resource development from bio-prospecting to the mining of seabed mineral resources. The sea offers vast potential for renewable “blue energy” production from wind, wave, tidal, thermal and biomass sources.<sup>4</sup> Kenya is yet to tap into these resources although there have been efforts towards the same. This source of energy would be key in boosting Kenya's efforts towards meeting its energy requirements for national development and realisation of Vision 2030.

The main sources of livelihood for the majority of Kenyans are agriculture, livestock, fishing and forestry. In addition, tourism is Kenya's greatest foreign exchange earner, and one of the largest employers.<sup>5</sup> The moist sub-humid to humid lands are classified as the high potential areas of Kenya, supporting rainfed agriculture while the dry sub-humid lands have medium potential mainly used for agro-pastoralism.<sup>6</sup> The rest of Kenya, which includes arid and semi-arid lands (ASAL), is suitable for pastoralism and wildlife sanctuary and supports nearly half the livestock population of the country.<sup>7</sup>

These variations in climatic conditions across the country mean that Kenya must make use of all the natural resources within its territory to promote development. This includes the marine resources lying within Kenya's territorial waters as both living and non-living resources. That is why this paper discusses the ways in which Kenya can take advantage of its location as a coastal state to fully exploit its

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<sup>3</sup> See generally, Renison K. Ruwa, ‘Coastal and Offshore Marine Fisheries of Kenya: Status And Opportunities,’ KMFRI Technical Report/2004/FP/1, June 2006. Available at <http://www.oceandocs.org/bitstream/handle/1834/7096/ktf0124.pdf?sequence=1>

<sup>4</sup> United Nations, “Blue Economy Concept Paper,” p.2.

<sup>5</sup> FAO & Republic of Kenya, *Kenya: National Integrated Natural Resources Assessment*, p.5. Available at [www.fao.org/forestry/download/16259-07d9f8a278081dbc73fa0030fc0182bce.pdf](http://www.fao.org/forestry/download/16259-07d9f8a278081dbc73fa0030fc0182bce.pdf) [Accessed on 4/05/2016].

<sup>6</sup> FAO & Republic of Kenya, *Kenya: National Integrated Natural Resources Assessment*, *op cit.*, p.4.

<sup>7</sup> *Ibid*, p.4.

marine resources for national development and achieving sustainable livelihoods for its people.

## **2.0 The Sovereign Right to Exploit Natural Resources**

The sovereign right of states to exploit natural resources lying within their territories is recognised in various international and regional legal instruments. This recognition, however, comes with responsibilities such as respecting the rights of other states to exploit their resources and the environmental obligation to take care of the various ecosystems.

The *International Covenant on Civil and Political Rights*<sup>8</sup> provides that all peoples have the right of self-determination. By virtue of that right they freely determine their political status and freely pursue their economic, social and cultural development.<sup>9</sup> Further, all peoples may, for their own ends, freely dispose of their natural wealth and resources without prejudice to any obligations arising out of international economic co-operation, based upon the principle of mutual benefit, and international law. In no case may a people be deprived of its own means of subsistence.<sup>10</sup>

The *Protocol Against the Illegal Exploitation of Natural Resources*, Nov. 30, 2006, concluded by International Conference on the Great Lakes Region, has the following objectives: To promote and strengthen, in each Member State, the development of effective mechanisms to prevent, curb and eradicate the illegal exploitation of natural resources; To intensify and revitalize cooperation among Member States with a view to achieving more efficient and sustainable measures against the illegal exploitation of natural resources; and to promote the harmonization by Member States of their national legislations, policies and procedures against the illegal exploitation of natural resources.<sup>11</sup> Under this

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<sup>8</sup> International Covenant on Civil and Political Rights, G.A. res. 2200A (XXI), 21 U.N. GAOR Supp. (No. 16) at 52, U.N. Doc. A/6316 (1966), 999 U.N.T.S. 171, entered into force Mar. 23, 1976.

<sup>9</sup> International Covenant on Civil and Political Rights, Article I (1).

<sup>10</sup> International Covenant on Civil and Political Rights, Article I (2).

<sup>11</sup> Art. 2., International Conference on the Great Lakes Region (ICGLR), Protocol on the Illegal Exploitation of Natural Resources – Protocol against the Illegal Exploitation of Natural Resources, International Conference of the Great Lakes Region, 30 November 2006.

Protocol, the illegal exploitation of natural resources is considered as a violation of the right of Member States to permanent sovereignty over their natural resources, and contrary to the spirit and principles of the United Nations Charter, the Declaration on the Right to Development adopted by the United Nations General Assembly, the Constitutive Act of the African Union and the African Charter on Human and Peoples' Rights.<sup>12</sup>

The fundamental principle of the *African Convention on the Conservation of Nature and Natural Resources* is that the Contracting States should undertake to adopt the measures necessary to ensure conservation, utilization and development of soil, water, flora and faunal resources in accordance with scientific principles and with due regard to the best interests of the people.<sup>13</sup>

It is under this principle of sovereignty and the right to exploit natural resources within a state's jurisdiction that govern the way states relate especially in relation to resources falling under the marine territories. Unless countries allow other states or foreigners through licensing to exploit such resources, the international law regime prohibits such affront to sovereignty of an independent state.

### **3.0 Rights and Duties of Coastal States in the Exclusive Economic Zone**

Article 55 of the United Nations Convention on the Law of the Sea<sup>14</sup> (UNCLOS) defines the exclusive economic zone as an area beyond and adjacent to the territorial sea, subject to the specific legal regime established in this Part, under which the rights and jurisdiction of the coastal State and the rights and freedoms of other States are governed by the relevant provisions of this Convention.

Further, Article 56 of the UNCLOS provides for the rights, jurisdiction and duties of the coastal State in the exclusive economic zone. Specifically, it provides that in the exclusive economic zone, the coastal State has: sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil, and with regard to other activities for the economic

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<sup>12</sup> Ibid, Art. 4.

<sup>13</sup> Art. 2, African Convention on the Conservation of Nature and Natural Resources, Sept. 15, 1968, 1001 UNTS 3.

<sup>14</sup> United Nations Convention on the Law of the Sea, December 10, 1982, 1988 UNTS 3

exploitation and exploration of the zone, such as the production of energy from the water, currents and winds; jurisdiction as provided for in the relevant provisions of the Convention with regard to: the establishment and use of artificial islands, installations and structures; marine scientific research; the protection and preservation of the marine environment; and other rights and duties provided for in the Convention.<sup>15</sup>

However, in exercising its rights and performing its duties under this Convention in the exclusive economic zone, the coastal State should have due regard to the rights and duties of other States and should act in a manner compatible with the provisions of this Convention.<sup>16</sup>

Further, the rights set out in this article with respect to the seabed and subsoil should be exercised in accordance with Part VI.<sup>17</sup> Article 76(1) of the UNCLOS defines the continental shelf of a coastal State as comprising the sea-bed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.

Kenya is one of the coastal states contemplated under the foregoing provisions of UNCLOS, considering its geographical location. Kenya lies on the eastern coast of the African Continent, between latitudes 5°4' north and 4°40' south and between longitudes 33°50' and 41°45' east. It has a total land surface area of 582,644 Km<sup>2</sup>.<sup>18</sup> The Republic of Kenya, has a coastline of about 640 Km extending from 1°41'S to 4°30'S latitude and forming part of the western border of the Indian Ocean marine eco-region.<sup>19</sup>

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<sup>15</sup> Art. 56(1), UNCLOS.

<sup>16</sup> Art. 56(2), UNCLOS.

<sup>17</sup> Art. 56(3), UNCLOS. Part VI has provisions dealing with the continental shelf.

<sup>18</sup> FAO, Rome (Italy). Forestry Dept., *Final Project Report on Pilot Zones in the Coastal, Eastern and Lake Victoria Regions of Kenya 2007-2008*, (Food & Agriculture Organisation, 2009), p.13. Available at <https://books.google.com/books?id=fssf3p1EinMC>

<sup>19</sup> Anam, R. & Mostarda, E., *Field identification guide to the living marine resources of Kenya, FAO Species Identification Guide for Fishery Purposes*, (Rome, FAO, 2012), x + 357 pp., p. 1. Available at <http://www.fao.org/docrep/016/i2741e/i2741e.pdf> [Accessed on 4/05/2016].

Kenya's *Maritime Zones Act*<sup>20</sup> was enacted to consolidate the law relating to the territorial waters and the continental shelf of Kenya; to provide for the establishment of the exclusive economic zone of Kenya; to provide for the exploration and exploitation and conservation and management of the resources of the maritime zones; and other connected purposes.<sup>21</sup> Section 4 of the *Maritime Zones Act*, 1989 establishes and defines Kenya's exclusive economic zone.<sup>22</sup>

It is also noteworthy that section 5 of the *Maritime Zones Act*, 1989 provides that 'Kenya shall, within the exclusive economic zone, exercise sovereign rights with respect to the exploration and exploitation and conservation and management of the natural resources of the zone and without prejudice to the generality of the foregoing, the exercise of the sovereign rights shall be in respect of (a) exploration and exploitation of the zone for the production of energy from the tides, water currents and winds; (b) regulation, control and preservation of the marine environment; (c) establishment and use of artificial islands and offshore terminals, installations, structures and other devices; and (d) authorization and control of scientific research.<sup>23</sup> The First Schedule to the *Maritime Zones Act* 1989 describes Kenya's territorial waters.<sup>24</sup>

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<sup>20</sup> *Maritime Zones Act*, Cap 371, Laws of Kenya, (Government printer, Nairobi, 1989).

<sup>21</sup> *Ibid*, Preamble.

<sup>22</sup> 4. (1) There shall be an exclusive economic zone of Kenya.

(2) Subject to subsections (3) and (4), the exclusive economic zone shall comprise those areas of the sea, seabed and subsoil that are beyond and adjacent to the territorial waters, having as their limits a line measured seaward from the baselines, low waterlines or low tide elevations described in the First Schedule, every point of which is 200 nautical miles from the point on the baselines, low water marks or low tide elevations.

(3) The southern boundary of the exclusive economic zone with Tanzania shall be on an easterly latitude north of Pemba Island obtained by the northern inter-section of two arcs one from the Kenya lighthouse at Mpunguti Ya Juu Island, and the other from Pemba Island lighthouse at Ras Kigomasha.

(4) The northern boundary of the exclusive economic zone with Somalia shall be delimited by notice in the Gazette by the Minister pursuant to an agreement between Kenya and Somalia on the basis of international law.

<sup>23</sup> *Maritime Zones Act*, 1989, s. 5.

<sup>24</sup> The territorial waters are described as follows:

The area of the territorial waters of the Republic of Kenya extends on the coastline adjacent to the High Seas to a point twelve international nautical miles

The foregoing provisions in Maritime Zones Act 1989 define the area within which Kenya should be seeking resources to spur the growth and development of its economy. However, this may not be entirely possible at the moment due to a number of challenges. The Kenyan marine habitats support a wide variety of species, most of which are harvested by artisanal fishers, mostly operating between the shoreline and the reef.<sup>25</sup> It is estimated that the annual economic value of goods and services in the marine and coastal ecosystem in Blue Economy in Western Indian Ocean today is slightly over \$22 billion with Kenya's share slightly over \$ 4.4 billion with tourism sector taking the lion share of over \$ 4.1 billion.<sup>26</sup>

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seawards from the straight baselines, low water lines or low tide elevations, hereinafter described as follows:

Commencing on the straight line joining Diua Damasciaca Island and Kiungamwina Island at the point at which this line is intersected perpendicularly by the Median straight line drawn from Boundary Pillar 29 (being the terminal pillar of the Kenya-Somalia boundary);

thence continuing south westerly by a straight base line to Kiungamwina Island;

thence south westerly by a straight base line for about 25 km. to Little Head;

thence south westerly by a straight base line for about 11 km. to Boteler Island;

thence westerly by a straight base line for about 45 km. to Ras Takwa;

thence south westerly by a straight base line for about 18 km. to Kinyika Island;

thence south westerly by a straight base line for about 9 km. to Tenewi Ya Juu Island;

thence south westerly by a straight base line for about 26 km. to Ziwaiu Island;

thence south westerly by a straight base line across Ungwana Bay for about 56 km. to the northernmost point of Ras Ngomeni;

thence continuing generally along the low water line to Ras Wasini;

thence southerly across the Wasini Channel to Ras Kisinga Mkoni;

thence by the low water line to Mpunguti Ya Chini Island;

thence westerly by a straight base line for about 18 km. to the terminal of the Kenya/Tanzania land boundary at Ras Jimbo.

<sup>25</sup> Anam, R. & Mostarda, E., *Field identification guide to the living marine resources of Kenya*, op cit, p. 1. Available at <http://www.fao.org/docrep/016/i2741e/i2741e.pdf> [Accessed on 4/05/2016].

<sup>26</sup> The Freight Logistics, 'Exploit Blue Economy to accelerate growth: Kenya's World Maritime Day message,' October 9, 2016. Available at <http://feaffa.com/magazine/2016/10/09/exploit-blue-economy-to-accelerate-growth-kenyas-world-maritime-day-message/> [Accessed on 4/05/2016].

*The Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region*<sup>27</sup> requires State Parties, including Kenya, to take all appropriate measures to prevent, reduce and combat pollution of the Convention area (art. 4), particularly pollution from ships (art. 5), dumping (art. 6), land-based sources (art. 7), exploration and exploitation of the sea bed (art. 8), and airborne pollution (art. 9) amongst other obligations.<sup>28</sup> They undertake to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other marine life in specially protected areas (art. 10) and to cooperate in dealing with pollution emergencies in the Convention area (art. 11).<sup>29</sup> Parties are also required to take all appropriate measures to prevent, reduce and combat environmental damage in the Convention area resulting from dredging, land reclamation, and other engineering activities (art. 12). Moreover, they are to develop guidelines for the planning of major development projects in the Convention area, assess the environmental effects of development projects likely to cause significant adverse changes in the Convention area, and develop procedures for dissemination of information and consultation among the parties in such assessments (art. 13). Parties are also to cooperate in scientific research and monitoring in the Convention area and exchange of data collected (art. 14) and in the development of rules and procedures to govern liability and compensation for damage caused by pollution in the Convention area (art. 15).<sup>30</sup> This Convention spells out more practical obligations for Coastal states in the East African coastal region that can go a long way in boosting the conservation and exploitation of the resources within this region.

The scope of this paper is both the living and non-living resources lying within the marine territory of the country. While this paper may highlight the other rights as provided for under Article 56(1), the main discussion dwells on the sovereign rights for the purpose of exploring and exploiting, conserving and managing the

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<sup>27</sup> June 21, 1985.

<sup>28</sup> United Nations, Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region.

<sup>29</sup> Ibid. See Ecolx, Protocol concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region, available at <https://www.ecolx.org/details/treaty/convention-for-the-protection-management-and-development-of-the-marine-and-coastal-environment-of-the-eastern-african-region-tre-000823/>

<sup>30</sup> Ibid.



natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds.

#### **4.0 The Place of the Blue Economy in the Sustainable Development Agenda**

The Blue Economy concept in the African context is generally used to cover 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.<sup>31</sup> A United Nations Blue Economy Concept Paper<sup>32</sup> captures the importance of the blue economy in national development. It acknowledges that the Coastal and Island developing countries have remained at the forefront of this Blue Economy advocacy, recognising that the oceans have a major role to play in humanity's future and that the Blue Economy offers an approach to sustainable development better suited to their circumstances, constraints and challenges.<sup>33</sup> It also highlights the fact that cutting edge technologies and rising commodity prices are opening up new realms of opportunity for submarine exploitation, the High Seas constitute the last global commons and urgent attention is required to enable the sound management of ocean resources for the realisation of sustainable development.<sup>34</sup>

Investing in the long-term health of coastal and marine resources is vital to the sustainability of the global economy. This is because ocean provides economic wealth from minerals, fisheries, transport, and numerous other uses for food security and national development.<sup>35</sup> There is therefore a need for investment in the sector in order to take advantage of the opportunities offered by the blue economy, for empowerment and national development. However, many of its habitats are deteriorating, species are threatened with extinction, and the chemical nature of oceans is changing due to pollution and ocean acidification, while much

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<sup>31</sup> United Nations Economic Commission for Africa, *Africa's Blue Economy: A Policy Handbook*, (United Nations Economic Commission for Africa, Addis Ababa, 2016), p1.

<sup>32</sup> United Nations, "Blue Economy Concept Paper," op cit.

<sup>33</sup> Ibid, p. 1.

<sup>34</sup> Ibid, p.2.

<sup>35</sup> Svensson, L.E. & Pendleton, L. (eds), *Transitioning to a New Blue Economy: Proceedings of the December 2013 Economics of the Ocean Summit*, (Nicholas Institute for Environmental Policy Solution Conference Proceedings, April 2014), p.25.

of the value of ocean and coastal ecosystems has been lost due to poor management and overuse.<sup>36</sup> Exploiting the resources therefore requires to be done while conserving the environment.

Offshore oil and gas production especially poses one of the greatest risks to sustainable development agenda due to potential pollution. It is thus one of the sectors that must be considered in the quest for realisation of sustainable development agenda. Countries that seek to explore the offshore oil and gas production need to heavily invest in the sector and develop capacity to ensure that while they benefit from the resultant product, the environmental concerns are fully addressed. This is why the next section of this paper highlights the challenges facing Kenya in managing her territorial exclusive economic zone and the exploitation of the resources lying therein.

## **5.0 Marine Resources in Kenya and the Challenges of Exploitation**

Kenya has a rich diversity of marine and coastal ecosystems which include mangrove wetlands, coastal forests, estuaries, sandy beaches and sand dunes, coral reefs, and seagrass beds that support a host of marine and coastal species.<sup>37</sup>

It has observed that with the exception of mangrove swamps, which have been studied in detail, there is currently limited taxonomical information on the marine biota of Kenya, so that species lists for coastal and pelagic environments are known to be incomplete.<sup>38</sup> There are twelve patches of mangrove forests along the Kenya coast, with a total area estimated to be between 53,000 and 61,000 ha, with 67% occurring in the Lamu district and 10% each in the Kilifi and Kwale Districts (Government of Kenya, 2009).<sup>39</sup> Mangrove forests are nutrient-rich environments which support a variety of food chains and function as a nursery and feeding ground for fish and invertebrates. Many of these species spend part of their life cycle in coral reefs, seagrasses and open waters. Mangrove trees are also important

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<sup>36</sup> Ibid, p.5.

<sup>37</sup> Tuda, A. & Omar, M., "Protection of Marine Areas in Kenya: *The Kenya Wildlife Service in the 21st Century*" op cit. at 43.

<sup>38</sup> Anam, R. & Mostarda, E., *Field identification guide to the living marine resources of Kenya, FAO Species Identification Guide for Fishery Purposes*, op cit., p.1.

<sup>39</sup> Ibid, p.1.

for shoreline stabilization, and provide resources for both rural and urban coastal populations.<sup>40</sup>

Kenya enjoys a reputation as one of the world's great big game sports fishing destinations. Kenya's marine waters contain most of the major target game species, primarily billfishes, especially sailfish, swordfishes, the marlins, sharks and some tunas. Sport fishers are registered in the several sport-fishing clubs, which coordinate the fishing activity and record data. The peak sport fishing season is in September to March. The popular sport fishing areas are Malindi, Watamu, Shimoni and Lamu. In 2005, 30 sport-fishing clubs were registered.<sup>41</sup>

The marine fisheries are classified into two subsectors: the coastal artisanal fishery, and the Exclusive Economic Zone (EEZ) fishery.<sup>42</sup> A basic feature of the coastal fishery is the largely subsistence and artisanal nature of the fishers who operate small craft propelled by wind sails and manual paddles.<sup>43</sup> The EEZ fishery, on the other hand, is characterized by distant-water fishing vessels which exploit target species mainly with purse-seines and long-lines.<sup>44</sup> It is also estimated that the maximum sustainable yield of Kenya's marine and coastal waters is between 150 000 and 300 000 metric tonnes, while the current production level is only about 9 000 metric tonnes per annum.<sup>45</sup>

It has been observed that most fishing in Kenya is artisanal, with a little industrial fishing by prawn trawlers. It is estimated that approximately 80% of the total marine products come from shallow coastal waters and reefs, while only 20% is from off-shore fishing.<sup>46</sup> The deep sea (Exclusive Economic Zone, EEZ) fishery resources are currently exploited by Distant Waters Fishing Nations (DWFN)

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<sup>40</sup> Ibid, p.1.

<sup>41</sup> Ibid, pp. 3-4.

<sup>42</sup> FAO, Fishery and Aquaculture Country Profiles: Kenya (2016). Country Profile Fact Sheets. In: FAO Fisheries and Aquaculture Department [online]. Rome. Updated 2016. <http://www.fao.org/fishery/facp/KEN/en>[Accessed on 20/05/2016].

<sup>43</sup> Ibid.

<sup>44</sup> Ibid.

<sup>45</sup> Ibid.

<sup>46</sup> Fondo, E.N., *Assessment of the Kenyan Marine Fisheries from Selected Fishing Areas*, Final Project 2004, (United Nations University Fisheries Training Programme, 2004), p.6. Available at <http://www.unuftp.is/static/fellows/document/estherprf04.pdf>

through a licensing system, and only a small quantity of catch from the EEZ is landed in Kenya, primarily tuna for export.<sup>47</sup>

The local fishers lack the capacity to exploit deeper water resources. Overfishing in inshore areas has continued to cause a decline in fish catches, while the deeper territorial waters remain underexploited due to the lack of deep sea fishing capacity by the local fishers.<sup>48</sup> As for the mineral resources within the territorial waters of the country, these remain largely untapped, due to technological challenges. However, it is noteworthy that the Kenyan territorial waters also fall under the exploration blocks allocated to foreign companies licensed to carry out oil and mineral exploration in the country. For instance, from August 2014, there has been an ongoing boundary dispute before the International Court of Justice (ICJ), between the Republic of Kenya and the Federal Republic of Somalia regarding maritime delimitation in the Indian Ocean.<sup>49</sup> Somalia contends that both States “disagree about the location of the maritime boundary in the area where their maritime entitlements overlap”, and asserts that “[d]iplomatic negotiations, in which their respective views have been fully exchanged, have failed to resolve this disagreement”.<sup>50</sup>

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<sup>47</sup> Fondo, E.N., *Assessment of the Kenyan Marine Fisheries from Selected Fishing Areas*, op cit, p.6.

<sup>48</sup> Anam, R. & Mostarda, E., *Field identification guide to the living marine resources of Kenya*, FAO Species Identification Guide for Fishery Purposes, p. 3.

<sup>49</sup> International Court of Justice, *Somalia institutes proceedings against Kenya with regard to “a dispute concerning maritime delimitation in the Indian Ocean”*, Press Release No. 2014/27, 28 August 2014, p.1. Available at <http://www.icj-cij.org/docket/files/161/18360.pdf> [ Accessed on 12/05/2017]

<sup>50</sup> International Court of Justice, *Dispute Concerning Maritime Delimitation in the Indian Ocean (Somalia v Kenya)*, para. 17.

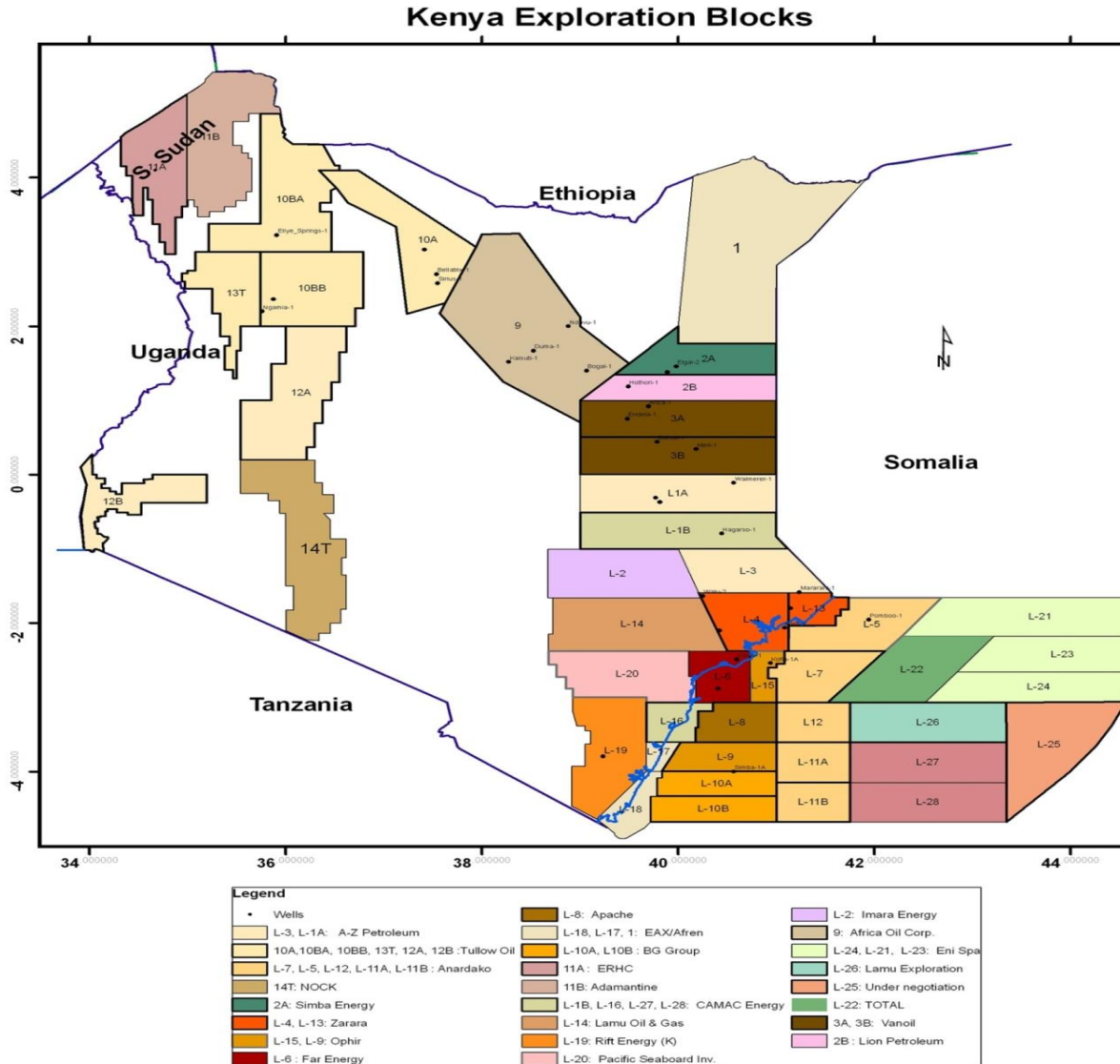


Fig. 1 © Exploration Block Map of Kenya: Government of Kenya Revised Edition 2006

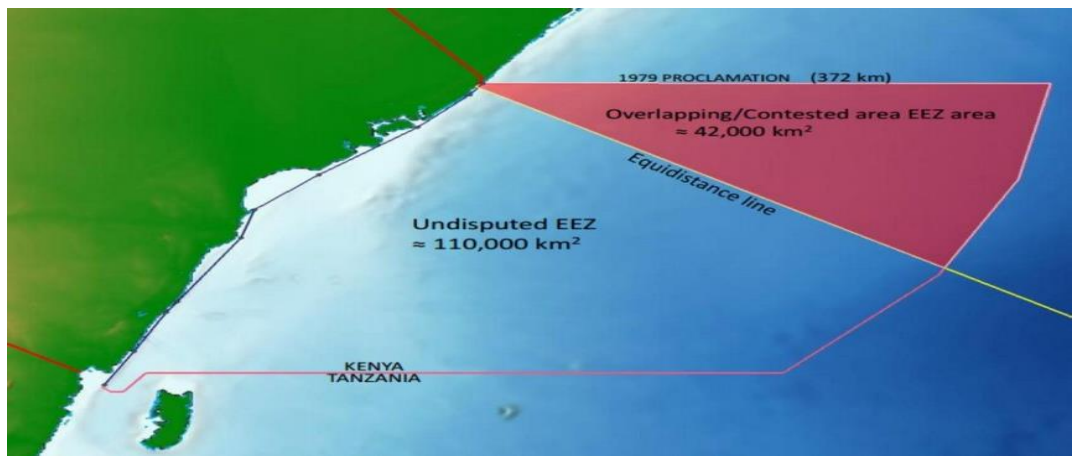


Fig. 2. © The Star Newspaper (Nairobi, 17 September 2016)<sup>51</sup>

The exploration blocks L-5, L-21, L-23, L-24 and L-25 lie within the contested area.<sup>52</sup> Somalia requests the Court “to determine, on the basis of international law, the complete course of the single maritime boundary dividing all the maritime areas appertaining to Somalia and to Kenya in the Indian Ocean, including the continental shelf beyond 200 [nautical miles]”. Somalia further asks the Court “to determine the precise geographical co-ordinates of the single maritime boundary in the Indian Ocean”.<sup>53</sup> It is arguable that the main reason for such disputes as the one between Kenya and Somalia are the vast resources that are to be found within these areas.<sup>54</sup> This may be supported by the fact that Kenya has already awarded

<sup>51</sup> Wanjala, E., ‘Kenya to defend itself before ICJ on maritime boundary dispute with Somalia,’ *The Star* (Nairobi, 17 September 2016). Available at [http://www.the-star.co.ke/news/2016/09/17/kenya-to-defend-itself-before-icj-on-maritime-boundary-dispute-with\\_c1422069](http://www.the-star.co.ke/news/2016/09/17/kenya-to-defend-itself-before-icj-on-maritime-boundary-dispute-with_c1422069) [Accessed on 12/05/2017].

<sup>52</sup> Mutambo, A. & Ongiri, I., “Oil deposits trigger boundary row between Kenya and Somalia,” *Daily Nation*, Monday September 19 2016, available at <http://www.nation.co.ke/news/Oil-deposits-trigger-boundary-row/1056-3386316-10lr5ec/index.html>

<sup>53</sup> International Court of Justice, *Dispute Concerning Maritime Delimitation in the Indian Ocean (Somalia v Kenya)*, paras 36 & 37.

<sup>54</sup> Farah, H., ‘Why Somalia has to withdraw case against Kenya at the ICJ?’ *Horseed Media*, July 31, 2015. Available at <https://horseedmedia.net/2015/07/31/why-somalia-has-to-withdraw-case-against-kenya-at-the-icj/> [Accessed on 12/05/2017].

some of its petroleum blocks in the disputed area to potential investors for oil prospecting, as demonstrated in the figures below (Figures 1 & 2). The outcome of this matter will have an impact on the exploration and exploitation of the marine resources lying within the contested areas.

Kenya is Party to the 1982 UN Convention on the Law of the Sea since March 1989<sup>55</sup> and to the 1995 UN Fish Stocks Agreement since July 2004<sup>56</sup>. Kenya signed the Port State Measures Agreement in November 2010.<sup>57</sup> It is also a Member of the Committee for Inland Fisheries of Africa (CIFA)<sup>58</sup>, a founding Member of Aquaculture Network for Africa (ANAF), a Member of the FAO Indian Ocean Tuna Commission (IOTC) and a Member of the FAO South West Indian Ocean Commission for Fisheries (SWIOFC).<sup>59</sup> These bodies generally advocate for sustainable management and exploration of marine resources for development and conservation and protection.

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<sup>55</sup> United Nations Treaty Collection, United Nations Convention on the Law of the Sea, Chapter xxi, Montego Bay, 10 December 1982. Available at [https://treaties.un.org/pages/ViewDetailsIII.aspx?src=TREATY&mtdsg\\_no=XXI-6&chapter=21&Temp=mtdsg3&clang=\\_en](https://treaties.un.org/pages/ViewDetailsIII.aspx?src=TREATY&mtdsg_no=XXI-6&chapter=21&Temp=mtdsg3&clang=_en) [Accessed on 25/06/2017].

<sup>56</sup> United Nations, "Resumed Review Conference on the Agreement Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks," *Parties to the Fish Stocks Agreement*: 77, New York, 24 – 28 May 2010. Available at

[http://www.un.org/depts/los/convention\\_agreements/reviewconf/FishStocks\\_EN\\_C.pdf](http://www.un.org/depts/los/convention_agreements/reviewconf/FishStocks_EN_C.pdf) [Accessed on 25/06/2017].

<sup>57</sup> Republic of Kenya, "Ratification of Ports State Measures Agreement, a great step for Kenya towards blueing the National Economy," available at <http://www.kilimo.go.ke/fisheries/wp-content/uploads/2016/08/PSMA-Ratification-press-release-Final.pdf> [Accessed on 25/06/2017].

<sup>58</sup> FAO, Regional Fishery Bodies summary descriptions. Committee on Inland Fisheries and Aquaculture of Africa (CIFAA). Fishery Governance Fact Sheets. In: *FAO Fisheries and Aquaculture Department* [online]. Rome. Updated 22 October 2015. Available at <http://www.fao.org/fishery/rfb/cifaa/en> [Accessed on 26/06/2017]. The main objective of the Committee for Inland Fisheries and Aquaculture of Africa (CIFAA) is to promote the development of inland fisheries and aquaculture in Africa.

<sup>59</sup> Fishery and Aquaculture Country Profiles. Kenya (2016). Country Profile Fact Sheets. In: FAO Fisheries and Aquaculture Department [online]. Rome. Updated 2016. Available at <http://www.fao.org/fishery/facp/KEN/en> [Accessed on 26/06/2017].



## **6.0 Utilising Kenya's Marine Resources for National Development**

It is estimated that the fisheries sector presently accounts for approximately 0.5 % of Kenya's GDP, where revenues from inland fisheries make up 95 % of this contribution and marine fisheries only 5 %.<sup>60</sup> Kenya can take full advantage of its diverse marine resources in order to boost the livelihoods of the coastal area's communities as well as boosting the overall national income. There is however a need to adopt or strengthen a number of approaches to management as well as investing in the area of marine resources exploration, exploitation and conservation if this is to be achieved.

### **6.1 Integrated coastal Zone Management (ICZM) Approach for Effective Co-Management**

Integrated coastal zone management (ICZM) has been described as a dynamic, multidisciplinary and iterative process to promote sustainable management of coastal zones. It is one of the integrated marine and coastal area management approaches which cover the full cycle of information collection, planning (in its broadest sense), decision making, management and monitoring of implementation. ICZM uses the informed participation and cooperation of all stakeholders to assess the societal goals in a given coastal area, and to take actions towards meeting these objectives. ICZM seeks, over the long-term, to balance environmental, economic, social, cultural and recreational objectives, all within the limits set by natural dynamics. 'Integrated' in ICZM refers to the integration of objectives and also to the integration of the many instruments needed to meet these objectives. It means integration of all relevant policy areas, sectors, and levels of administration. It means integration of the terrestrial and marine components of the target territory, in both time and space.<sup>61</sup>

Integrated management has also been described as “an approach that provides policy direction and a process for defining objectives and priorities, and planning

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<sup>60</sup> Kenya Coastal Development Project-KCDP, *Draft Monitoring, Control And Surveillance (MCS) Standard Operating Procedures (SOPs) For The Marine And Coastal Fisheries Of Kenya*, March 2013, p. 9. Available at <http://www.kcdp.co.ke/en/reports/project-documents/draft-monitoring-control-and-surveillance-mcs-standard-operating-procedures-sops> [Accessed on 12/05/2017].

<sup>61</sup> Towards a European Integrated Coastal Zone Management (ICZM) Strategy: General Principles and Policy Options. Luxembourg: Office for Official Publications of the European Communities, 1999.



development beyond sectoral activities. This is because it adopts a systems perspective and multi-sectoral approach which takes into account all sectoral interests and stakeholder interests, and deals with economic and social issues as well as environmental and ecological issues...by employing a holistic, ecosystem perspective recognizing the interconnections between coastal systems and uses, ICZM avoids traditional sectoral management approaches".<sup>62</sup>

While it is true that Kenya has already adopted the ICZM approach in management of various environmental issues<sup>63</sup>, there is need to not only fully exploit the same but also actively and meaningfully involve communities in its implementation. It has rightly been argued that the great diversity of ecosystems and species in the Kenyan Coast and the widespread dependence of communities on natural resources require that attention be paid to people's approach to natural resource use, and the need to balance between attaining sustainable development and the rapidly growing demand for environmental goods.<sup>64</sup> Proponents of the full and active implementation of an integrated coastal management approach (ICZM) would go a long way in dealing such problems as: the modification of habitats/ecosystems that results in reduced capacity to meet basic human needs (food, fuel, shelter) for the local communities, loss of cultural heritage, loss of existing income and foreign exchange, and high costs of restoring modified ecosystems; overexploitation of fisheries and other living resources that causes reduced economic returns and threatens inter- generational equity; microbiological pollution, beach erosion and siltation of the inshore lagoon waters causes increased costs of shoreline protection, increased water treatment costs, as well as problems

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<sup>62</sup> Meltzer, Evelyne, and Canada Dept. of Fisheries and Oceans, *International review of integrated coastal zone management*. Department of Fisheries and Oceans, 1998, p. 9. Available at <http://www.dfo-mpo.gc.ca/Library/253987.pdf>

<sup>63</sup> See Republic of Kenya, *Integrated Coastal Zone Management (ICZM) Policy*, December 2013 (Government Printer, Nairobi, 2013).

<sup>64</sup> Ochiewo, J., 'The Kenyan Coastal And Marine Resources Management: A Case Study Of The Socio- Economic Setting Of Mida Creek,' *Proceedings of the 12th Biennial Coastal Zone Conference Cleveland, OH July 15-19, 2001*, p. 1. Available at

[http://webapp1.dlib.indiana.edu/virtual\\_disk\\_library/index.cgi/4916229/FID3790/pdf\\_files/ochiewoj.pdf](http://webapp1.dlib.indiana.edu/virtual_disk_library/index.cgi/4916229/FID3790/pdf_files/ochiewoj.pdf)

in the tourism business; and biodiversity loss, collapse of cultural values and poverty.<sup>65</sup>

Kenya's marine protected Areas (MPAs) are considered essential components of an integrated coastal zone management (ICZM) program because they protect biodiversity and ecological processes on which human use of the coastal zone depends.<sup>66</sup> There is need for meaningful inclusion and active participation of coastal communities in the conservation and exploitation of marine resources, if there is to be realized enhanced conservation and productivity from these resources. For instance, while marine protected areas (MPAs) can benefit local communities through empowerment, improved governance, alternative livelihoods, improved fisheries, and social, educational, and cultural benefits,<sup>67</sup> it has been argued that they can also be seen as a method that denies local communities means of livelihood, where it is reported that due to the high number of MPAs already in place in the Kenyan coastal area, there has been resistance from fishers to the introduction of more protected areas.<sup>68</sup> It is suggested that good governance is promoted through legitimacy, transparency, accountability, inclusiveness or participation, fairness or equity, integration or coordination, capability, and adaptability.<sup>69</sup> As such, an effective MPA management requires adequate capacity and resources, effective communication of rules and regulations (e.g., boundaries), extensive programs of education and outreach, participatory

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<sup>65</sup> Ochiewo, J., 'The Kenyan Coastal And Marine Resources Management: A Case Study Of The Socio- Economic Setting of Mida Creek,' *Proceedings of the 12th Biennial Coastal Zone Conference Cleveland, OH July 15-19, 2001*, op cit., p. 3; See also generally, Clark, J.R., *Integrated management of coastal zones*, FAO Fisheries Technical Paper. No. 327. Rome, FAO. 1992. 167p. Available at [http://campusdomar.es/observatorio/\\_documentos/ordenacion\\_del\\_litoral/doctrina/integred\\_management\\_of\\_coastal\\_zones.pdf](http://campusdomar.es/observatorio/_documentos/ordenacion_del_litoral/doctrina/integred_management_of_coastal_zones.pdf)

<sup>66</sup> Tuda, A. & Omar, M., "Protection of Marine Areas in Kenya: *The Kenya Wildlife Service in the 21st Century*" op cit. at 45.

<sup>67</sup> Bennetta, N.J. and Dearden, P., "Why Local People Do Not Support Conservation: Community Perceptions Of Marine Protected Area Livelihood Impacts, Governance And Management In Thailand," *Marine Policy*, Volume 44, February 2014, pp. 107–116.

<sup>68</sup> Fondo, E.N., *Assessment of the Kenyan Marine Fisheries from Selected Fishing Areas*, op cit., p. 8.

<sup>69</sup> Bennetta, N.J. and Dearden, P., "Why Local People Do Not Support Conservation: Community Perceptions Of Marine Protected Area Livelihood Impacts, Governance And Management In Thailand," op cit.

processes of creation and management structures, consideration of the values of all stakeholders, relationships built on trust, coordination with other management institutions, integration of scientific and traditional knowledge, and mechanisms for conflict resolution and to ensure transparency and accountability.<sup>70</sup>

The Fisheries (Beach Management Units) Regulations 2007 establishes the Beach Management Units (BMUs) whose objectives are, among others to: Support the sustainable development of the fisheries sector; Help alleviate poverty and improve welfare and livelihoods of members through improved planning and resource management, good governance, democratic participation and self-reliance; Strengthen the management of fish-landing stations, fishery resources and the aquatic environment; Recognise the various roles played by different sections of the community including women in the fisheries sector; and Prevent or reduce conflicts in the fisheries sector.<sup>71</sup> Beach Management Units (BMUs) are also part of the efforts towards fisheries co-management in Kenya. Past research on the operation of the BMUs has indicated that they have not been operating efficiently and optimally. It has been recommended that to achieve this, there is need for: Expansion and strengthening of existing BMU financial and technical resource bases; Registration of BMUs as Fisheries co-management institutions; Conferment of fisher user rights through a co-management policy; Securing of land for BMU infrastructural development; Improvement of fish production, marketing and distribution channels; and improvement of post-harvest practices and technologies through training and provision of appropriate equipment.<sup>72</sup>

## **6.2 Investing in Science and Technology for Marine Resources Exploration and Exploitation**

As already pointed out, much of the artisanal fishing and exploitation of marine resources along the Kenyan coast happens within the shallow waters region of the Kenya's territorial waters. This means that there are still deep-sea resources within Kenya's national jurisdiction that are yet to be exploited for the benefit of the Kenyan coastal communities and the country at large.

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<sup>70</sup> Ibid.

<sup>71</sup> Fisheries (Beach Management Units) Regulations 2007, Regulation 3(3).

<sup>72</sup> Kanyange, N., Kimani, P., Onyango, P., Sweenarain, S. & Yvergnaux, Y., *Performance assessment of Beach Management Units along the coastlines of Kenya and Tanzania*, (Indian Ocean Commission, Ebene, 2014). Available at [www.fao.org/3/a-az413e.pdf](http://www.fao.org/3/a-az413e.pdf)

It has been observed that the offshore fisheries zone is mainly exploited by licensed fishing vessels from Distant Water Fishing (DWF) Nations targeting highly migratory tuna species which migrate through the Kenyan EEZ, with no obligations to land, trans-ship or declare catches in the country.<sup>73</sup> This arrangement, it is argued, limits the country's benefits from its EEZ fisheries especially from value addition activities associated with trans-shipment, landing for processing or even from trade in by-catch. This is mainly attributed to the fact that there are no local fishing fleets and or locally based foreign fishing fleets targeting these offshore resources.<sup>74</sup>

There is need to invest in science and technology as a means of enhancing management of marine resources in Kenya as well as enabling local communities in general to access marine resources currently unavailable to them due to technological challenges.

It is also suggested that in the context of blue economy, higher fish production with lower environmental damage is possible through polyculture, specie diversification, optimal feeds and feeding, prevention of diseases and countries embracing blue economy focusing more on developing sophisticated technologies for farming, conservation and processing of species.<sup>75</sup>

The role of small-scale aquaculture by the native fishing communities is also considered paramount from the perspective of food security and boosting their livelihood by selling surplus fish in the urban markets.<sup>76</sup> Further, it is suggested that by having enabling policies on pricing, certification, labelling and marketing, the fishing sector in the context of blue economy can be more organised and regulated.<sup>77</sup>

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<sup>73</sup> Kenya Coastal Development Project-KCDP, *Draft Monitoring, Control And Surveillance (MCS) Standard Operating Procedures (SOPs) For The Marine And Coastal Fisheries Of Kenya*, March 2013, op cit. p. 9.

<sup>74</sup> Ibid, p.9.

<sup>75</sup> S.K. Mohanty, Priyadarshi Dash, Aastha Gupta and Pankhuri Gaur, "Prospects of Blue Economy in the Indian Ocean," (Research and Information System for Developing Countries, New Delhi, 2015), p. 11. Available at [http://ris.org.in/sites/default/files/pdf/Final\\_Blue\\_Economy\\_Report\\_2015-Website.pdf](http://ris.org.in/sites/default/files/pdf/Final_Blue_Economy_Report_2015-Website.pdf)

<sup>76</sup> Ibid, p.11.

<sup>77</sup> Ibid, p.11.

There is also a need for the state to equip artisanal fishermen with more advanced fishing vessels through such measures as setting aside sufficient funds for grants and loans for purchase or hiring of these advanced vessels. They should also be equipped with knowledge on sustainable fishing practices and environmental conservation to ensure sustained exploitation of the marine resources.

Investing in science and technology in the area of preservation of harvested marine resources for longer and safer storage for marketing will also help the fishermen and all other related persons to minimise losses thus increasing their profit margin and enhancing food security in the country.

### **6.3 Regulation of Foreign Vessels in Kenya's Deep seas and High Seas Territories**

It has been observed that due to the nature of the high seas activities, supervision of the fishing area is a big problem and it is likely that unlicensed fishing vessels could easily poach in Kenyan territorial waters. It is also difficult to get accurate information about the fish caught by foreign-owned vessels.<sup>78</sup> There is need to enforce the fishing regulations governing such activities in order to ensure that the country does not lose the due foreign exchange and their fair share of these resources.

Illegal, unregulated and unreported (IUU) fishing is identified as one of the major challenges facing developing world countries due to inadequate or lack of the relevant technological capacity. The fight against illegal, unreported and unregulated (IUU) fishing activities has even gained international attention in the international fisheries management agenda.<sup>79</sup>

### **6.4 Ecosystem-based approach to Marine Resources Management**

The ecosystem approach in the context of marine resources management has been defined as "the comprehensive integrated management of human activities based on the best available scientific knowledge about the ecosystem and its dynamics, in order to identify and take action on influences which are critical to the health of

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<sup>78</sup> Fondo, E.N., *Assessment of the Kenyan Marine Fisheries from Selected Fishing Areas*, op cit., p.6.

<sup>79</sup> Le Gallic, Bertrand, and Anthony Cox. "An economic analysis of illegal, unreported and unregulated (IUU) fishing: Key drivers and possible solutions," *Marine Policy*, Vol. 30, No. 6, 2006, pp. 689-695; See also generally, Agnew, David J., John Pearce, Ganapathiraju Pramod, Tom Peatman, Reg Watson, John R. Beddington, and Tony J. Pitcher, "Estimating the worldwide extent of illegal fishing," *PloS one* Vol.4, no. 2, 2009, e4570.

marine ecosystems, thereby achieving sustainable use of goods and services and maintenance of ecosystem integrity”.<sup>80</sup>

The ecosystem approach has been heralded as a key framework for delivering sustainable development in both the terrestrial and the coastal and marine environment, as it provides an important framework for assessing biodiversity and ecosystem services and evaluating and implementing potential responses.<sup>81</sup> The ecosystem-based management is seen as place- or area-based in focusing on a specific ecosystem and the range of activities affecting it, where, the management of areas implies that, after a certain area has been defined, sustainable development and use will be established for all activities in the whole area.<sup>82</sup> In addition, its application involves a focus on the functional relationships and processes within ecosystems, attention to the distribution of benefits that flow from ecosystem services, the use of adaptive management practices, the need to carry out management actions at multiple scales, and inter-sectoral cooperation.<sup>83</sup>

There is a need to make the approach fully operational in order to attain the goals of sustainability while ensuring that all stakeholders get to participate and benefit from the marine resources.

## **6.5 Capacity-building for the Stakeholders**

It is noteworthy the efficiency of the fisheries and marine sector in Kenya can only be as good as that of the institutions and the stakeholders behind it. While there are a number of state controlled management institutions driving the sector, there is need to ensure that the same are led by persons who are competent and knowledgeable as far as implementation of the existing framework is concerned. The capacity of such institutions as Kenya Marine and Fisheries Research Institute

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<sup>80</sup> Douvere, Fanny, and Charles N. Ehler, "New Perspectives on Sea Use Management: Initial Findings from European Experience with Marine Spatial Planning," *Journal of Environmental Management*, Vol.90, 2009, pp. 77-88, p.78.

<sup>81</sup> Douvere, Fanny, "The Importance Of Marine Spatial Planning In Advancing Ecosystem-Based Sea Use Management," *Marine policy*, Vol.32, No. 5, 2008, pp. 762-771 at p.764.

<sup>82</sup> Ibid, p.764.

<sup>83</sup> Ibid, p.764; see also Louis, Port, and Indian Ocean Commission, "Integrated coastal area management: the role of the regional environment programme of the Indian Ocean Commission." (1997). Available at <http://ec.europa.eu/development/body/publications/fish/pe039715.pdf> [Accessed on 10/06/2017].

(KMFRI)<sup>84</sup> and State Department for Fisheries and the Blue Economy<sup>85</sup> should be enhanced and well equipped not only to enable them carry out their mandates more efficiently but also reach out and cooperate more effectively with all the other stakeholders in the sector.

One of the recognised principles of ecosystem approach to management is it should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices.<sup>86</sup> It is therefore imperative for capacity building for the stakeholders to effectively participate in the implementation of the ecosystem approach.

#### **6.5.1 Human Resource Capacity Development**

There is need to ensure that there is synergy between the various institutions, especially if the management responsibilities are decentralized. One of the ways that cooperation can be achieved is through development and adoption of mechanisms for integrated planning. There is also a need for human resource development through training administrative staff, observers on board fishing vessels, enforcement officers, scientists and advisers, and fishers, to optimize their interaction in the participatory processes.

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<sup>84</sup> Kenya Marine and Fisheries Research Institute (KMFRI), a State Corporation under the Ministry of Agriculture, Livestock and Fisheries has a mandate to undertake research in marine and freshwater fisheries, aquaculture, environmental and ecological studies, in order to provide scientific data and information for sustainable exploitation, management and conservation of Kenya's fisheries resources, and contribute to National strategies of food security, poverty alleviation, clean environment and creation of employment as provided for under vision 2030. <http://www.kmfri.co.ke/index.php/careers/vacancies>

<sup>85</sup> The State Department for Fisheries and the Blue Economy was created vide Executive Order No. 1/2016 under the Ministry of Agriculture Livestock and Fisheries. It is mandated to facilitate the exploration, exploitation, utilization, management, development and conservation of fisheries resources as well as aquaculture development and to undertake research in marine and fresh water fisheries. <http://www.kilimo.go.ke/fisheries/index.php/about-us/mandate/>

<sup>86</sup> AIDEnvironment, National Institute for Coastal and Marine Management/Rijksinstituut voor Kust en Zee (RIKZ), Coastal Zone Management Centre, the Netherlands, "Integrated Marine and Coastal Area Management (IMCAM) approaches for implementing the Convention on Biological Diversity," Montreal, Canada: Secretariat of the Convention on Biological Diversity. (CBD Technical Series no. 14, 2004), p.5. Available at <https://www.cbd.int/doc/publications/cbd-ts-14.pdf>

Sustainable development also requires establishing functional interconnections between administrations dealing with fisheries and environment within the ecosystem boundaries.

#### **6.5.2 Effective Framework for Negotiations of Multiple Stakeholders**

As a way of achieving sustainable management of resources, equitable benefit sharing and the effective management of potential conflicts, there is a need to establish an effective framework for negotiations of multiple stakeholders in the sector. This will not only be useful in achieving the principles of participation and transparency but will also ensure that all the relevant stakeholders are collectively in the management of marine and fisheries resources along the Kenyan coastal region. Ultimately, this will promote social and economic development within the confines of the principles of sustainable development.

#### **6.5.3 Scientific Research Capacity Development**

It has been suggested that one of the ways of improving efficiency and productivity in the marine and fisheries sector is through strengthening research, improving data collection, integrated analysis and communication, developing a better understanding of the ecosystem's functioning, evaluating policy and management options, and identifying trade-offs, ensuring the use of appropriate assessment methodologies (including management performance and risk assessment), and identifying relevant indicators and reference points.<sup>87</sup> In addition, well-functioning information systems are important for supporting systems of indicators for different fisheries and ecosystems, including large-scale multi-criteria descriptions of ecosystems such as GIS.<sup>88</sup>

### **7.0 Conclusion**

It is apparent that Coastal areas throughout the world are under stress, where various anthropogenic factors such as population growth, pollution, habitat degradation, multiple resource use conflicts, and over-exploitation of resources are causing marine environmental degradation and depletion of coastal resources.<sup>89</sup>

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<sup>87</sup> Garcia, Serge M., and Kevern L. Cochrane, "Ecosystem approach to fisheries: a review of implementation guidelines." *ICES Journal of Marine Science: Journal du Conseil*, Vol.62, no. 3 (2005), pp.311-318 at p. 315.

<sup>88</sup> Ibid, p.315.

<sup>89</sup> Meltzer, Evelyne, and Canada Dept. of Fisheries and Oceans, *International review of integrated coastal zone management*. Department of Fisheries and Oceans, 1998, p. 8.



Marine resources especially along the Kenyan coast however hold great potential to contribute to national development. However, for this to be a reality, the foregoing anthropogenic factors ought to be addressed. Notably, some of these factors such as population growth, multiple resource use conflicts and over-exploitation of the resources can most effectively be addressed through adoption of more efficient management approaches. Some of the approaches suggested in this paper can go a long way in achieving this since they bring all stakeholders on board in their mode of operation. They are also likely to gain the acceptance and credibility that can only come with addressing the interests and concerns of all, while at the same time achieving sustainability. Kenya's economic blueprint, Vision 2030, requires mobilization of all national resources for national development that is sustainable. It is therefore important that measures are put in place to maximize the benefits accruing from the marine and fisheries sector at the coastal area of Kenya to boost social and economic development. As part of its efforts to realize Vision 2030, Kenya should fully utilise its marine resources to improve the livelihoods of its people and generally boost the national development.

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