Sector Report on Oil and Gas including Renewable Energy

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Introduction

Background information

- The growing energy demand has led to increased exploration for oil and gas in Kenya
- The exploration for oil and gas in Kenya dates back to 1950s, and four potential sedimentary basins have been established namely Lamu basin (252,297.65 square kilometres), Mandera basin (51,441.98 sq. km), Anza basin (76,107.63 sq. km) & Tertiary Rift (including Lokichar) basin (116,619.13 sq. km).
- Offshore blocks that have been identified for oil and gas exploration are largely in Lamu basin
- Total electricity demand in the country has increased by 3.9% from 11,182 GWh in 2018 to 11,620.7 GWh in 2019
- Electricity generation from wind power in Kenya increased from 375 GWh in 2018 to 1562.7 GWh in 2019

Potential for development

- Offshore oil and gas potential can yield several billion barrels of oil and trillions cubic feet of gas prospective resources on a gross, un-risked, best-estimate basis.
- The offshore potential has attracted considerable investment from companies looking to survey and explore the Lamu basin for oil and gas (NOCK 2012).

Coastal and Offshore Exploration

- A study of Lamu basin was initiated by National Oil Corporation in 1991 and completed in 1995 with its results being used to sub-divide Lamu basin into smaller exploration blocks with unique characteristics.
- Enhanced exploration efforts later generated fresh interests in the offshore Lamu basin and resulted in signing of 7 production sharing agreements between 2000 and 2002.
- Based on initial studies, the Government of Kenya in May 2016, constituted 63 petroleum exploration blocks.
- The Lamu basin is the largest basin and extends offshore.
- Offshore oil and gas exploration has been on-going with mixed results.

Onshore Oil and Gas Exploration

- The onshore oil and gas exploration has attracted significant investment. It has been estimated that the Turkana basin has great potential which has caught the attention of major oil exploration and production companies
- Successful drilling and findings on land have been made in the Turkana Basin
- In the year 2020, the Early Oil Pilot Scheme (EOPS) successfully completed two years of reservoir & production data gathering.
- EOPS produced more than 350,000 barrels of oil from the Ngamia and Amosing fields which has provided six months' sustained rate and pressure data
- The data confirms reservoir quality and continuity in both fields, enabling the Group to optimise plans to focus on the most productive wells.

Onshore Oil and Gas Exploration cont'd

- Over 86 wells have been drilled with a majority located within Tertiary Rift & it is estimated that over 4 billion barrels of crude oil reserves have been encountered in the Lokichar sub-basin by Tullow Plc and its partners, with recovery oil estimated to be 750 million barrels (NOCK 2012).
- The Ngamia-1 exploration well in Kenya marked the start of a significant programme of drilling activities.
- In 2012, the Ngamia-1 well successfully encountered over 200 metres of net oil pay in the East Africa onshore tertiary rift basin that was opened by Tullow.
- This has since been followed by further exploration success in the South Lokichar Basin.

Impact of Coastal and Offshore Oil and Gas

Positive impacts:

- Increased employment opportunities that are associated with oil and gas exploration.
- If economically viable quantities of oil and gas are found and commercial exploitation begins, the local communities are likely to benefit from the Corporate Social Responsibility initiatives.
- The Government will gain from increased tax revenue and foreign exchange earnings.

Negative impacts:

- Modification of the marine environment and pollution
- The main oil and gas production structures that may have some environmental impacts include seismic survey and drill ships, floating liquefied natural gas plants, offshore oil and gas production platforms and seabed feed pipelines.
- The initial seismic surveys which use compressed air to generate explosive sound waves that are reflected back as echoes from each geological layer may affect sea life in close proximity and can affect marine mammals over a distance of up to 20 km.
- Marine mammal observers (MMO) should also be taken on board to address any encounters with the mammals and guide mitigation procedures following the Joint Nature Conservation Committee guidelines.

Impact of Coastal and Offshore Oil and Gas exploration cont'd

- Disposal of waste drilling mud in the deep sea or open water may have widespread impacts, affecting marine mammals, sea turtles, sea birds and fish, though toxicity is typically rapidly diluted by the receiving environment.
- Transportation of petroleum is vulnerable to poor maintenance, weak infrastructure and accidents, resulting in potential threats to the coastal and marine environment.
- Offshore oil exploration is prone to oil spillage.
- Mangrove forests & other coastal critical habitats are particularly sensitive to oil pollution, and accidental oil spills or blow outs during exploration drilling pose the most significant threats.
- Wave energy apparatus located close to shore are likely to affect sediment transport and distribution and could result in erosion in some areas of the coastline and accretion in other areas.
- Tidal barrages are also likely to cause changes to sediment transportation, water circulation and biological communities.

Proposed Mitigation

- Impact of initial seismic survey on whales can be mitigated by avoiding whale migratory seasons and known whale and dolphin breeding and feeding areas.
- Waste chemicals, surplus cement and some oils are usually collected, stored and properly disposed of or recycled ashore.
- Oil and gas exploration is preceded by Environmental and Social Impact Assessment (ESIA) to identify the likely impacts of activities, affected areas, & stakeholders and design mitigation measures, monitoring plans and oil spill contingency plans.
- Therefore, it is important to ensure that as offshore oil and gas exploration increases in scale and intensity, the level of preparedness should be enhanced by the Government and other stakeholders through capacity building to respond to potential accidental oil spills.

Impacts of onshore oil and gas exploration

Positive impacts:

- Improved infrastructure, water supply, health care, education, and sewage and waste management
- Oil and gas exploration also results in availability of market for locally produced goods.

Potential negative impacts

- Changes in land use patterns due to development of access roads and informal settlements to support exploration activities.
- Population changes would trigger transformation in socioeconomic set up as benefits from the exploration activities may not be evenly distributed to people.
- Prices of goods and services are likely to increase due to increased demand.
- Oil and gas exploration may cause physical disturbance from construction as well as indirect effects associated with opening access.
- The atmospheric emissions that are associated with oil and gas exploration operations are likely to impact on ozone layer and induce climate change.

Proposed Mitigation

- The negative impacts are only potential impacts and can be avoided, minimized or mitigated if proper care and attention is taken during oil and gas exploration or production.
- Globally, the oil and gas industry has been at the forefront in the development of appropriate management systems operational practices and engineering technology that aim at minimizing environmental impacts, resulting in significant reduction in environmental incidents.

Governance Framework for coastal and offshore oil, gas and renewable energy sector

Institutional Framework

Ministry of Petroleum and Mining (now energy?)

- At the apex of the oil and gas sector regulation in Kenya is the Ministry of Petroleum and Mining.
- Specifically, the State Department for Petroleum and Mining created in 2015 from the then Petroleum Directorate has the mandate of spearheading all petroleum operation programmes in the country including policy formulation, review of fiscal, legal and regulatory framework, monitoring and supervision of oil and gas exploration, development and production activities.

The National Oil Corporation of Kenya (NOCK)

- NOCK is involved in all aspects of the petroleum supply chain covering the upstream oil and gas exploration, midstream petroleum infrastructure development and downstream marketing of petroleum products.
- It facilitates and directly participates in oil and gas exploration activities in Kenya in the upstream.

Institutional Framework

Ministry of Energy

- At the top of the governance framework for renewable energy is the Ministry of Energy.
- The State Department of Energy under the Ministry of Energy is mandated to undertake National Energy and Policy management; Hydro-power Development; Geothermal Exploration and Development; Rural Electrification Programme; Promotion of Renewable Energy; and Energy Regulation, Security, and Conservation.

Energy and Petroleum Regulatory Authority

- The Energy and Petroleum Regulatory Authority (EPRA) is established under section 9(1) of the Energy Act. Section 10(b) of the Act provides that the EPRA is responsible to regulate, monitor and supervise upstream petroleum operations in Kenya in accordance with the law relating to petroleum, the regulations made there under and the relevant petroleum agreement.

Energy and Petroleum Tribunal

- The Energy and Petroleum Tribunal is established under section 25 of the Energy Act for the purpose of hearing and determining disputes and appeals in accordance with the Energy Act or any other written law.

Institutional Framework

National Land Commission

- The National Land Commission (NLC) is not exactly an oil and gas institution in Kenya. However, since oil and gas exploration is mostly done on public land, the NLC plays an extremely important role in regulating the oil and gas sector to this extent.

National Environmental Management Authority

- National Environmental Management Authority (NEMA) is not directly involved in oil and gas sector but it is nevertheless a key regulatory institution. NEMA is established under section 7 of the Environmental Management and Co-ordination Act No 8 of 1999 (EMCA).
- In relation to oil and gas exploration, section 9(2)(b) of EMCA provides that NEMA should take stock of the natural resources in Kenya and their utilisation and conservation. Section 68(1) of the EMCA also requires that NEMA be responsible for carrying out environmental audit of all activities (including oil and gas exploration) that are likely to have significant effect on the environment.

Regulatory framework

Petroleum (Exploration and Production) Act Chapter 308

- This is the main legislation regulating petroleum exploration and production in Kenya.
- It regulates the negotiation and conclusion by the Government of petroleum agreements relating to the exploration for, development, production and transportation of petroleum and for connected purposes.
- Section 2 of the legislation defines "petroleum" to mean mineral oil and includes crude oil, natural gas and hydrocarbons produced or capable of being produced from oil shales or tar sands; Similarly, "petroleum operations" means all or any of the operations related to the exploration for, development, extraction, production, separation and treatment, storage, transportation and sale or disposal of, petroleum up to the point of export, or the agreed delivery point in Kenya or the point of entry into a refinery, and includes natural gas processing operations but does not include petroleum refining operations.
- The salient features of the legislation are as follows.
  - First, under section 3 of the Act, the property in petroleum existing in its natural condition in strata lying within Kenya and the continental shelf is vested in the Government.
  - Second, section 4(1) of the Act also provides that '[n]o person shall engage in any petroleum operations in Kenya without having previously obtained the permission of the Minister in such manner, in such form and on such terms as are prescribed by this Act and by regulations made thereunder.'
  - Third, under subsection (2), the legislation provides that all petroleum operations shall be conducted in accordance with the provisions of this Act, the regulations made thereunder and the terms and conditions of a petroleum agreement.
  - Lastly, section 4(3) provides that the Government may conduct petroleum operations either— (a) through an oil company established by the Government to conduct those operations; or (b) through contractors in accordance with petroleum agreements; or (c) in such other manner as may be necessary or appropriate.

Regulatory framework cont'd

The Petroleum (Exploration and Production) Regulations

- Petroleum (Exploration and Production) Regulations, 1984 under regulation 2(1) provides that a petroleum agreement shall be negotiated on the basis of the model production sharing contract substantially in the form set out in the Schedule, and that no person other than a company incorporated or registered in Kenya under the Companies Act may enter into a petroleum agreement with the Government.
- The Republic of Kenya has in place a Model Production Sharing Contract. Clause 12(2) of the contract dealing with offshore operations provides that the contractor shall pay compensation as determined by expert for any damage to and/or any interference with, including but not limited to fishing rights caused by the upstream petroleum operations.'

The Petroleum Act No.2 of 2019

- The Petroleum Act, 2019 is an Act of Parliament to provide a framework for the contracting, exploration, development and production of petroleum; cessation of upstream petroleum operations; to give effect to relevant articles of the Constitution in so far as they apply to upstream petroleum operations, regulation of midstream and downstream petroleum operations; and for connected purposes.
- Section 59(1) of the legislation provides for environment, health and safety provisions and requires the contractor to carry out upstream petroleum environmental operations in the contract area in accordance with all the applicable environment, health, safety and maritime laws and best petroleum industry practices.

Regulatory framework cont'd

Energy Act No. 1 of 2019

- The Energy Act is the main law in the energy sector including the renewable energy sector. Section 4(1) of the Energy Act provides for the national energy policy to be developed by the Cabinet Secretary in consultation with the relevant stakeholders. Under section 8(1), the Cabinet Secretary shall develop a conducive environment for the promotion of investments in energy infrastructure development, including formulation of guidelines in collaboration with relevant county agencies on the development of energy projects and to disseminate the guidelines among potential investors.

Maritime Zones Act (Cap 371)

- The Maritime Zones Act is an Act of Parliament to consolidate the law relating to the territorial waters and the continental shelf of Kenya; to provide for the establishment and delimitation 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 for connected purposes.' Under its section 5, the legislation provides for Kenya's exercise of sovereignty by providing 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 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) authorisation and control of scientific research.'

Kenya Maritime Authority Act (Cap 370)

- This law is important because it establishes the Kenya Maritime Authority. Section 4 of the Act provides for the object of the Authority as to regulate, co-ordinate and oversee maritime affairs. Section 5(f) is particularly important because it provides that one of the functions of the Authority is to 'develop, co-ordinate and manage a national oil spill contingency plan for both coastal and inland waters and shall in the discharge of this responsibility be designated as the "competent oil spill authority"'.

Policy Framework

Kenya Vision 2030

- The economic and macro pillar of Vision 2030 focuses on oil and other mineral resources sector. Indeed, some of the flagship projects to be implemented fall under the sector.

Sessional Paper 4 on Energy 2004

- The Sessional Paper No. 4 stated vision is to promote equitable access to quality energy services at least cost while protecting the environment. The Sessional Paper deals with both petroleum and renewable energy.
- Under the petroleum sub-sector, the focus is on Divestiture of Government interests in oil refining and marketing, and eventually in the Kenya Pipeline Company (KPC); Promoting investments in oil refining including supply and distribution of petroleum products throughout the country; Enhancing exploration for fossil fuels particularly hydrocarbons through sub-division of exploration acreage into smaller blocks and collection of additional geological data to attract more oil prospecting companies; Strengthening regional and international cooperation to promote data and information exchange on oil exploration. The Sessional Paper emphasises oil exploration including through regional and international cooperation.

Draft National Energy Policy, 2014

- According to the draft policy, Kenya had no known commercial reserves of petroleum until March 2012 when oil was discovered in Northern Kenya which generated more interest in the sector.
- The policy itself was developed in 2014 just two years after the major discovery. In order to take care of the increasing demand for petroleum products locally and regionally, the Government planned to set up a new refinery at Lamu which is strategically located.

Capacity gaps and further development on Coastal, Offshore and Onshore Oil and Gas

- The Government does not have adequate financial resources and technical capacity to undertake coastal and offshore oil and gas exploration on its own.
- The inadequacy in technical capacity is mainly in the areas of marine geology, petro-chemical fields, technological sphere.
- There are limited capabilities in engineering, construction, logistics, and supplies, health and safety.
- Engaging in capacity building is therefore fundamental for buy-in and participation, which is crucial to confidence building, transparency, and maintaining long term sustainability.

Renewable Energy development in Kenya

Background and context

- The Government of Kenya commissioned Olkaria V geothermal power plant with an installed capacity of 165 MW in Nov. 2019 & has planned to deliver an additional 1729 MW by 2025.
- Most of the planned capacity is expected to be obtained from renewable energy sources mainly from geothermal, hydro and wind resources. The geothermal, hydro and wind energy resources are already being exploited while the tidal energy and wave energy potential have not been tapped yet.
- The Government established an energy technologies development programme to facilitate diversification of the country's non-renewable and renewable energy mix to meet the energy demand for industrialization and development.
- Solar power is increasingly becoming important along the coast of Kenya. Kenya has an average of 5-7 peak sunshine hours, part of which is convertible into electricity.
- As part of the medium to long term plan to tap on this potential, the Government aims to install 500 MW and 300,000 domestic solar systems by the year 2030. Already, the use of solar power has been taken up by many households and it is also increasingly becoming important in the commercial and industrial establishments.
- There are some excellent wind regime areas particularly in the northwest of the country in Marsabit and Turkana Counties and the edges of the Rift Valley, which are having the highest wind speeds of 9m/s at 50 metres.

Sources of Renewable Energy

Wind power:

- Wind energy remains largely under-developed and under-exploited.
- Wind energy applications, especially those related to mechanical functions, have a long history in Kenya. In 1986, there were over 200 working windmills, of which about 100 were in Lamu and Mombasa districts. Local expertise for building windmills, especially for water pumping, is still available in the private sector.
- The Ministry of Energy developed a National Wind Energy Resources Atlas for Kenya in 2003 to provide useful information to facilitate investment in energy sub-sector.

Hydropower

- Hydro-power constitutes around 60 per cent of the total electricity generated in Kenya and is the leading source of electrical energy, with an installed capacity of 761MW.
- It is obtained from the major rivers whose water volume is dependent on rainfall which is sensitive to climate variability.

Sources of Renewable Energy

Solar energy

- About 1.6% of Kenyan households use solar energy
- It is estimated that Kenya receives 4-6 kW/m2 /day of solar energy, on average, which translates into 1.5 billion tonnes of oil equivalent, making it a major alternative for energy.
- To date, it is being exploited in Kenya for lighting (photovoltaic)-solar home systems, water pumping (mechanical), refrigeration, and solar water heating.

Biomass

- Biomass energy is the principal source of energy for most Kenyans in the rural areas.
- Firewood remains the predominant fuel for cooking in rural areas thereby exerting enormous pressure on the environment.
- Bio-diesel can be used as a fuel for vehicles in its pure form, but it is normally used as a diesel additive to reduce levels of particulates, carbon monoxide, and hydrocarbons from diesel-powered vehicles.

Geothermal Power

- Kenya has registered significant progress in exploring geothermal energy for power generation.
- A capacity of 198 MW has been installed, equivalent to about 13% of the country's installed electricity generation capacity which is fed into the national grid from three plants at Olkaria.
- Kenya is one of the leading producers of geothermal energy in Africa although the current production at approximately 198 MW is still fairly small. The full potential is said to be 3000-5000 MW.

Impact of Renewable Energy

Positive impacts

- Creation of employment for the local communities in areas where renewable energy are installed.

Negative impacts

- Wave energy apparatus located close to the shore are likely to affect sediment transport and distribution and could result in erosion in some areas of the coastline and accretion in other areas. This could have negative effects on the inshore reefs and impact negatively on other uses of the coastal zone. They could also be a hazard to shipping.
- Tidal barrages are likely to cause changes to sediment transportation, water circulation and biological communities.

Mitigation

- Major renewable energy installations should be preceded by Environmental and Social Impact Assessment (ESIA). ESIAs should identify the likely impacts of activities, the affected areas, and stakeholders and design mitigation measures, monitoring plans and contingency plan where necessary.

Challenges

- Development of renewable energy alternatives are weighed down by the following constraints:
  - inadequate long-term hydrological and meteorological data
  - inadequate transport infrastructure
  - the need to include local participation in order to develop acceptance
  - lack of locally available spare parts
  - insufficient electricity grid coverage
  - high dependence of rural communities on ecosystem services.

Governance frameworks and gaps

Institutional Framework

Ministry of Energy

- At the apex of the governance framework for renewable energy is the Ministry of Energy. The State Department of Energy under the Ministry of Energy is mandated to undertake the following six functions: National Energy and Policy management; Hydro-power Development; Geothermal Exploration and Development; Rural Electrification Programme; Promotion of Renewable Energy; and Energy Regulation, Security, and Conservation. The main legislation under the Ministry is the Energy Act, 2019, which also establishes various institutions as outlined below.

The Rural Electrification and Renewable Energy Corporation

- The Rural Electrification and Renewable Energy Corporation (REREC) is established under section 43(1) of the Energy Act. Under section 44(1), the functions of the REREC have been elaborated. Most notable in relation to the present study is that under section 44 (1)(j) REREC performs among other things the function to develop, promote and manage in collaboration with other agencies, the use of renewable energy and technologies, including but not limited to biomass (biodiesel, bio-ethanol, charcoal, fuel-wood, biogas) municipal waste, solar, wind, tidal waves, small hydropower and co-generation but excluding geothermal.

Nuclear Power and Energy Agency:

- The Nuclear Power and Energy Agency is established under section 54(1) of the Energy Act. Under section 56(2)(f), the Agency is responsible for identifying appropriate sites in Kenya for the construction of nuclear power plants and their related amenities.

Institutional Framework

Renewable Energy Resource Advisory Committee

- Section 76(1) of the Energy Act establishes the inter-ministerial Committee known as the Renewable Energy Resource Advisory Committee (RERAC), which advises the Cabinet Secretary on, among other things, management and development of renewable energy resources. Under subsection (5) RERAC may upon request advise the County Governments on matters relating to renewable energy resources.

Geothermal Development Company

- Section 77 of the Energy Act provides that all un-extracted geothermal resources under or in any land shall vest in the National Government. The Geothermal Development Company (GDC) is tasked with developing steam fields and selling geothermal steam for electricity generation to KenGen and private investors.

National Land Commission

- The National Land Commission (NLC) is not exactly renewable energy institution in Kenya. However, its inclusion in this section is mainly because it performs a crucial function pursuant to Article 67(2) of the Constitution, which is to manage public land on behalf of the national and county governments. As part of its obligations under the National Land Commission Act, NLC shall on behalf of, and with the consent of the national and county governments, alienate public land. Since major renewable energy projects are often undertaken on public land, the NLC therefore plays an extremely important role in regulating the renewable energy sub-sector to this extent.

National Environmental Management Authority

- National Environmental Management Authority (NEMA) is not directly involved in oil and gas sector but it is nevertheless a key regulatory institution. NEMA is established under section 7 of the Environmental Management and Co-ordination Act No 8 of 1999 (EMCA). Section 9 of the EMCA provides for the objects and functions of the authority and in this regard Section 9(1) notes that NEMA is established to exercise general supervision and co-ordination over all matters relating to the environment and to be the principal instrument of Government in the implementation of all policies relating to the environment. In relation to renewable energy exploration and development, section 9(2)(b) provides that NEMA should take stock of the natural resources in Kenya and their utilisation and conservation. Section 68(1) of the EMCA also requires that NEMA be responsible for carrying out environmental audit of all activities that are likely to have significant effect on the environment.

Regulatory framework

Energy Act No. 1 of 2019

- The Energy Act is the main law in the energy sector including the renewable energy sector. Section 4(1) of the Energy Act provides for the national energy policy to be developed by the Cabinet Secretary in consultation with the relevant stakeholders. The section envisages that the energy policy shall be reviewed every five years.
- In addition to the energy policy, section 5(1) envisages that the Cabinet Secretary shall develop, publish, and review energy plans in respect of coal, renewable energy and electricity so as to ensure delivery of reliable energy services at least cost.
- Under section 8(1), the Cabinet Secretary shall develop a conducive environment for the promotion of investments in energy infrastructure development, including formulation of guidelines in collaboration with relevant county agencies on the development of energy projects and to disseminate the guidelines among potential investors.

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- Under its section 5, the legislation provides for Kenya's exercise of sovereignty by providing 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 & exploitation of the zone for the production of energy from 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 & other devices;
  - (d) authorisation and control of scientific research.'

Way forward and Recommendations

- Offshore oil and gas exploration has been on-going with mixed results. If found, Kenya will gain from foreign exchange earnings and savings on fuel imports, which can significantly change the national economy and contribute to economic empowerment among the local communities.
- It is also critical to put in place an effective regulatory framework for oil and gas exploration to avoid occupational hazards that may occur if the exploration of the newly discovered oil and gas reserves is carried out with inadequate regulation.
- Offshore oil and gas exploration and renewable energy are governed by a robust legal, policy and institutional frameworks that support sound environmental management procedures to ensure that exploration for oil and gas, and development of renewable energy is optimally done for sustainable development in the country. These frameworks provide for mitigation of likely pollution from offshore oil exploration or eventual drilling.
- It is important for the country to ensure oil pollution preparedness and insurance for compensation of any eventual loss of livelihoods that could be associated with eventual drilling.
- It is critical to enhance awareness raising and capacity building covering environmental regulators and negotiators in the energy sector, promote effective management and governance of the oil and gas resources and promote participation of the civil society organizations. The government should also ensure that bilateral agreements made with prospecting companies are designed to provide direct and indirect benefits to the local people and the country at as a whole.
- There is need to embrace nature based solutions by developing and promoting renewable energy alternatives which have not been optimally exploited yet.
- There is need to map and prepare a digital atlas of Blue Economy resources to guide decision making

Thank you!