

Republic of Kenya



**MINISTRY OF AGRICULTURE, LIVESTOCK & FISHERIES
STATE DEPARTMENT OF FISHERIES AND BLUE ECONOMY**

**KENYA MARINE FISHERIES AND SOCIO-ECONOMIC
DEVELOPMENT PROJECT (KEMFSED)**

TERMS OF REFERENCE

For a consultancy firm or organisation

**TO UNDERTAKE A MARICULTURE SCOPING STUDY
WITH RESPECT TO KENYAN MARINE WATERS**

December 2017

1. BACKGROUND

1.1. Commitment to Blue Economy

On May 2, 2016, in the Executive Order No. 1/2016, the Government of Kenya made a clear commitment towards a new approach, the blue economy, and taking into cognizance the importance of the sector to fuel the country's economic growth, created the State Department for Fisheries and the Blue Economy. The coastal and marine space on which a blue economy is potentially founded contains a myriad of different uses, some currently destructive or unsustainable, while others are renewable, some mutually exclusive and others compatible. More broadly, a blue economy approach is understood as encompassing a better integrated approach to these sometimes-conflicting uses of marine resources, living and non-living (including shipping, fossil energy and mining), and renewable or exhaustive. Too often, priority tends to be given to activities that generate short-term benefits but also have destructive and counter-productive longer-term consequences. In contrast, a blue economy approach is more proactive and embodies the need to focus on longer term sustainability.

The Presidential Blue Economy Committee established in September 2016, while recognizing the many sectors in blue economy prioritized fisheries and aquaculture; and maritime shipping and logistic services as priority sectors that would deliver fast socio-economic benefits to the communities in the coastal areas. To strengthen fisheries governance for sustainable utilization and enhanced revenues for the government and employment creation, the government enacted the Fisheries Management and Development Act 2016 in September, 2016. The Act established institutions that would strengthen the governance of the fishing industry and aquaculture, and enable investments along the fishery value chains for socio-economic benefits. The institutions established include the Kenya Fisheries Service, Kenya Fish Marketing Authority and the Fish Levy Trust Fund.

1.2. KEMFSED project

In order to attain economic benefits from the coastal and marine resources, the Government of Kenya (GoK) through the State Department for Fisheries and the Blue Economy (SDF&BE) has requested the World Bank to support the proposed Kenya Marine Fisheries And Socio-Economic Development Project (KEMFSED). The Government of Kenya has received Project Preparation Advance from the World Bank towards the Kenya Marine Fisheries and Socioeconomic Development Project (KEMFSED). The KEMFSED project covers a period of 5 years.

The development project overall goal of KEMFSED is to enhance economic benefits and coastal livelihoods from marine fisheries and coastal aquaculture while safeguarding associated ecosystems' integrity. The implementing agencies will be the State Department for Fisheries & the Blue Economy (SDF-BE) on behalf of the Government of Kenya. In Kenya, 5 counties along the Coast have been selected to be beneficiaries for the project namely Kwale, Mombasa, Kilifi, Lamu, and Tana River Counties.

The KEMFSED project comprises of the following four components:

Component 1: Governance and management of marine fisheries and aquatic resources which aims to strengthen marine fisheries and coastal aquaculture governance so as to control over-fishing, maintain or improve stock productivity and enhance associated ecosystem integrity.

Sub-component 1 will focus on coordination and institutional strengthening to ensure fisheries and aquaculture resources are safeguarded in the context of implementing the blue economy framework. Sub-component 2 will be on strengthening existing Fisheries Information System (FIS) to ensure availability of integrated sectoral information to communicate the importance of fisheries and aquaculture sector in broader coastal developments. Sub-component 3 will aim at improving management of inshore/small scale fisheries. Sub-component 4 will aim at improving management of offshore fisheries.

Component 2: Promote investment in marine fisheries and coastal aquaculture which aims to promote efficient utilization and value-addition of the resources by increasing investment in the marine fisheries and aquaculture sector.

Sub-component 1 will focus on improving the business environment and private sector investment in the fishery and aquaculture sector whereas sub-component 2 will focus on modernizing fisheries infrastructure to enhance value addition.

Component 3: Strengthening Coastal Livelihoods which aims to enhance social and economic benefits that coastal communities derive from marine fisheries.

Sub-component 3.1 will focus on increasing community benefits from priority fisheries & aquaculture. It will include facilitating community-level engagement in initiatives to increase value from, and improve marketing of, priority fishery value chains and mariculture. Increased value could come from improved post-harvest handling, storage and transportation of fish, as well as improved marketing (both improved product development and identifying new markets). Sub-component 3.2 will aim at broader strengthening of coastal livelihood security as a platform for more successful community engagement in fisheries co-management under component 1;

Component 4: This will be on project management which covers establishment and operationalization of a project coordination unit, fiduciary, environmental and social safeguards, and monitoring and evaluation functions.

The project is implemented by the State Department of Fisheries and Blue Economy of the Government of Kenya (GoK).

1.3. Fisheries sector context

In Kenya, fisheries are mainly composed of freshwater (lakes, rivers and dams), coastal and marine (Indian Ocean) and aquaculture. The fisheries sub-sector is an important economic activity that generates a variety of benefits. The benefits include nutrition, food security, employment and trade development including exports and foreign currency. The sub-sector also contributes about 0.5% to the country's Gross Domestic Product (GDP) and towards conservation of fisheries resources. The sub sector is categorized into capture and aquaculture fisheries. The freshwater resources in Kenya include; lakes, dams and rivers. Further to these freshwater resources, Kenya enjoys a vast coastline of approximately 640 Km on the Western Indian Ocean and 200 nautical miles of Exclusive Economic Zone (EEZ) under its jurisdiction (12 nm) and sovereign rights. The Country's Exclusive Economic Zone (EEZ) of 230,000 Km² creates a huge opportunity for investors.

During the implementation of a previous IDA and GEF funded project, the Kenya Coastal Development Project (KCDP), it became clear that mariculture development in Kenya is largely under-developed. Mariculture, being a food production sub-sector, can positively contribute towards food security, income generation and create the much-needed gainful employment in Kenya.

However, mariculture has remained largely under-developed despite its potential and still faces many challenges such as; lack of strategic mariculture development planning including identification of sites with potential for semi-industrial scale production; lack of commercialization and market or business-led approaches; low investment by private sector; low adoption of innovative technologies for production and value-addition; limited species diversification; lack of adequate quality seed; and lack of adequate quality and affordable feeds. In particular, to date, mariculture initiatives have tended to be community-level with NGO and/or donor support. Experience has tended to show that community groups lack the business and technical skills to manage the complexity of mariculture production and marketing, and lack the financial resources to mitigate risk. Broadly therefore there is a need to promote a more investment and business-oriented approach to the mariculture sub-sector whilst at the same time offering opportunities for coastal communities to engage and benefit. Seaweed farming potentially offers one model for that with its combination of private sector buyers supporting community-level outgrowers.

This calls for interventions to unlock the potential and foster dynamic, enterprise-led development of the sub-sector. Given the global trends and if properly exploited, the sub-sector could contribute more than 50% of Kenya's fish and fishery products. Kenya must strive to increase production from mariculture in a sustainable manner that is cognisant of other users of the sea and other water bodies.

There is therefore need to undertake a mariculture scoping study to establish the status quo and generate recommendations that will inform the KEMFSED project design as it endeavours to implement Component 3 and improve coastal livelihoods.

2. OBJECTIVES OF THE ASSIGNMENT

The overall objective of the consultancy is to develop a roadmap for developing and unlocking coastal aquaculture (especially mariculture) potential in Kenya with particular emphasis on promoting a private sector investment and business-oriented approach, whilst also creating opportunities for coastal residents and producers to engage and share benefits.

The consultant will be expected to characterize a baseline of ongoing and planned mariculture activities and identify opportunities for, and constraints to, future mariculture development along the above lines, with a particular focus on generating detailed recommendations for interventions that can be funded and implemented under the KEMFSED project.

3. SCOPE OF WORK

The study will focus on the mariculture sub-sector in Kenyan Coast. Note that for the purposes of this ToRs, mariculture can be taken to include freshwater aquaculture provided that it is conducted in the target areas defined below. That said, the focus is expected to be mariculture.

The assignment will be carried out in KEMFSED project intervention areas namely coastal communities in Kwale, Mombasa, Kilifi, Lamu, and Tana River Counties in which marine fisheries or aquaculture is a significant part of livelihoods.

The Consultant will undertake the following work:

3.1 Governance framework & investment environment

- (i) ¹Review and assess existing relevant national and sectoral policies, legislation, regulations, strategies, sub-sector reviews and related documents. These include fisheries and ICZM policies and legislation; environmental management legislation and EIA requirements and regulations; relevant investment guidelines; ongoing FAO support to the mariculture sub-sector etc.
- (ii) Consult public officials, private sector and civil society as to their opinions on the adequacy of the governance and regulatory framework for mariculture development in coastal Kenya;
- (iii) Based on [i] and [ii] above, consider whether there are significant gaps in governance documentation in the context of providing a framework for mariculture development in Kenya that is both environment and investment-friendly; whether relevant policies and legislation are sufficiently harmonized; whether they address the key issues; whether they encourage private enterprise and investment, and any other relevant criteria;
- (iv) Provide an assessment that informs on the usefulness or otherwise of developing a Mariculture Sector Development Plan. Include specific recommendations on the structure of such a

¹ See Attachment 1 for Mariculture-related reference documents that will be provided to the Consultant for review

development plan (including the structural and procedural processes necessary, and the likely costs and timeframe involved);

- (v) Consider the bio-security risks in relation to mariculture development, both national and regional, and consider what regulatory measures, practitioner guidelines or other actions that would help to mitigate the risks.

3.2 Review past and current experience and summarise factors for success and constraints

- (i) Review past, current and planned practice in the mariculture sector in Kenya and in relevant regional neighbours in the western Indian Ocean, including:
- ²review existing literature and information and consult selected public officials, private sector and civil society representatives relevant to past and ongoing mariculture production projects, both private and public/community sector, including those supported under KCDP;
 - tabulate past and ongoing initiatives against production type (i.e. species cultured and techniques used); production model (i.e. industrial, semi-industrial, community, public/private sector etc.); location; participation etc.; review successes, constraints, risk factors and sustainability specific to each documented mariculture initiative and summarise common issues, factors relevant to success or failure, main conclusions and lessons arising;
 - include in the above an assessment of issues relating to environmental impact and environmental and financial sustainability.
- (ii) Review current demand and sources of supply of seeds for existing mariculture practices by type and geographic distribution along the coast; provide demand projections for the short and medium-term against minimum and maximum mariculture development scenarios. Based on that, assess the scope of need (both geographic and production scale) for mariculture hatchery facilities, in the context of sustainable mariculture development;
- (iii) Review current demand and sources of supply of feeds for existing mariculture practices by type; provide demand projections for the short and medium-term against minimum and maximum mariculture development scenarios; and make recommendations on how supply of required feeds could best be improved with consideration given to the respective role of the public and private sector, operational effectiveness and financial sustainability.
- (iv) Identify constraints specifically facing seaweed development in Kenya; identify what is needed to increase benefits to farmers either by increasing production or by enhancing value addition, and provide recommendations on specific, costed measures by which to achieve that.

² Same as comment #1 above

3.3 Business environment

- (i) Leading on from section 3.2 above, review and characterise current mariculture production in Kenya in terms of scale, profitability and value chain.
- (ii) Examine prices of mariculture products obtained by producers in Kenya vis-à-vis global export prices (both current levels and recent trends).
- (iii) Undertake rapid assessment of mariculture production potential (sale/export volumes) and financials (revenues and costs) as well as sea and land based infra-structure requirements along with approximate cost of capital investments.
- (iv) Review relevant economic incentives and barriers relevant to investment in the mariculture sector in Kenya, including:
 - reviewing any investment proposals previously submitted to relevant investment or regulatory authorities in Kenya with the view to understanding constraints encountered,
 - consulting relevant fisheries and mariculture sector investors in the WIO region to understand their perceptions and/or experience of the investment climate and potential in Kenya.
- (v) Regarding examples elsewhere in Africa or the Indo-Pacific³, assess the utility of establishing a mariculture enterprise challenge fund, innovation hub, enterprise/investment information centres, cluster formations or similar for mariculture investors (including farmers and producers) to incentivise and catalyse innovative action and to assist potential investors in obtaining information, linking investors, entrepreneurs, producers and small scale farmers etc. Through review of similar initiatives regionally or globally and by consulting public officials, private sector and civil society, evaluate the potential benefit of any interventions along these lines to the development of mariculture along the Kenyan coast.
- (vi) Provide recommendations, and where appropriate, specific costed interventions, on how to promote entrepreneurship, private sector engagement and investment in the mariculture sector in Kenya.

3.4 Potential for future mariculture development

- (i) scope out target species, production techniques and localities for which there is potential for mariculture development in Kenya, and assess environmental, economic and social feasibility for each, including:
 - reviewing mariculture initiatives that have (or promise to have) successful, significant production elsewhere in Africa and/or Indo-Pacific that might be relevant to Kenya;
 - consultation with relevant technical experts in private sector, specialist institutions, civil society and government on suitable species for mariculture development in Kenya and

³ Including the Australian Govt-funded Blue Economy Challenge <https://theblueeconomychallenge.com/>

the wider Africa/Indo-Pacific region with an emphasis on both production and marketing potential;

- adding value where possible to existing recent analyses done in Kenya under KCDP and FAO, assess potential land and sea sites for mariculture development along the Kenya coast against appropriate, criteria, following any existing guidelines for site selection, using appropriate spatial mapping tools, including assessment of physical and biological oceanography for offshore sites, infrastructure, access and environmental and social sensitivity at land sites etc. including all relevant social, economic, and environmental considerations;
 - producing maps for above assessment;
 - liaise, as appropriate with separate KEMFSED planning consultants conducting an assignment on marine spatial planning to share information and materials developed above
- (ii) based on (i) above, prepare a tabulated assessment of potential mariculture production types, characterising their feasibility against a set of biological, geographic, environmental, economic and social factors, highlighting those that have significant potential for commercial investment and coastal employment/benefit-sharing;
- (iii) based on the assessment in 3.2[ii] above, consider how supply of required seeds could best be improved by development of additional hatchery facilities, with consideration given to the respective role of the public and private sector, operational effectiveness and financial sustainability:
- review regional experience with marine hatcheries in the western Indian Ocean/ Eastern Africa;
 - through consultation with relevant technical experts, investors and users in both the public and private sectors, evaluate the pros and cons of different management and ownership models for hatchery facilities, including public sector, larger-scale private sector, small-scale private sector and public-private partnerships. In particular, give consideration to servicing demand from potential users and financial & operational sustainability and risks associated with that;
 - consult the fisheries private sector in Kenya to gauge specific interest in engaging in partnering on marine hatchery development either as an independent business enterprise or in the context of a public-private partnership, in the latter case exploring in detail what might be the relative contributions of each sector;
 - based on the above, make recommendations as to priorities for the development of mariculture hatchery facilities in Kenya including consideration of focal species; geographic locations; scale, ownership and management arrangement; and financial sustainability;
 - if, based on the above, marine hatchery operations are considered viable, prepare a detailed business case for develop of one or more marine hatcheries in Kenya, detailing all the above considerations and identifying specific potential sources of financing for development and operation phases including any proposed support from KEMFSED;

- (iv) based on the assessment in 3.2[iii] above, consider how supply of required mariculture feeds could best be improved, with a focus on addressing constraints to local production within Kenya;
- (v) consider what the key capacity-building needs across public, private, community and civil society sectors to provide a foundation for sustainable, private sector-led mariculture development in Kenya;
- (vi) consider needs related to infrastructure development in relation to supporting sustainable private sector-led mariculture development in Kenya and communicate any recommendations as early as possible to the Acting Director-General of Kenya Fisheries Service so they can be reviewed under a separate consultancy assignment on fisheries infrastructure development.

3.5 Priority interventions

Based on the findings from 3.1. to 3.4 above:

- (i) undertake and present a SWOT analysis that summarises the strengths, weaknesses, opportunities and threats to mariculture production, in Kenya.
- (ii) present a prioritised range of intervention options that can be considered for funding and implementation under KEMFSED project. The focus should be on:
 - interventions that will directly promote or facilitate private sector investment in the mariculture sector in Kenya, including fiscal, policy or planning-related measures that would improve the climate for private sector investment, whilst ensuring that significant benefits accrue to coastal communities and the national economy
 - interventions that provide the public sector component of a public-private sector partnership (PPP),
 - interventions that directly address lack of seed or feed supplies including business case for marine hatchery development as outlined in 3.4(iii) above;
 - interventions that directly address other identified constraints to existing mariculture practice in Kenya such as or research interventions that address urgent information needs identified by the private sector or community mariculture practitioners;
 - interventions that address community-level training and capacity needs in context of coastal residents engaging out-grower type approaches to private sector-led mariculture development;
 - interventions related to establishment of a mariculture enterprise challenge fund, innovation hub, enterprise/investment information centres, cluster formations or similar, based on findings from 3.3[v].

Each proposed intervention should be described and justified in appropriate detail that will allow it to be considered for implementation, with an indicative cost and timeframe.

4. EXPECTED DELIVERABLES

The assignment is expected to be completed within a **total of 10 weeks**. Key deliverables and expected timeframe for delivery are:

- 4.1. **Inception Report:** Specifying the approach and work plan for undertaking the consultancy and the proposed structure for the final report. To be submitted within one week of contract signing;
- 4.2. **Weekly email progress update:** a brief update of progress emailed to the Client;
- 4.3. **Draft final report:** This report should be submitted within 8 weeks of contract signing, and should be close to final report in terms of content (structured as per scope of work). The consultant will present the draft final report to the Project Preparation Team and other key stakeholders for comment and input.
- 4.4. **Final report:** The final report should be submitted within two week of receiving comments on the draft report. The format of the final report should reflect the structure of the scope of work (section 3 above).

Output	Week	1	2	3	4	5	6	7	8	9	10
1. Inception Report											
2. Weekly progress update											
3. Draft final report											
4. Final report											

5. QUALIFICATIONS AND EXPERIENCE OF THE CONSULTANT

The work will be carried out by a qualified firm or institution that has been in business for at least 3 years in similar areas as outlined in the TOR, and with significant demonstrated experience in:

- (i) strategic planning and development of aquaculture or mariculture sub-sectors at national level within sub-saharan Africa or the Indo-Pacific;
- (ii) working with commercial, semi-industrial and/or industrial scale aquaculture;
- (iii) delivering high quality outputs to multilateral or other international agencies;
- (iv) governance and policy related issues
- (v) working with a variety of stakeholders including public, private, civil society and communities; and
- (vi) the entire mariculture business including by not limited to production types, production models, environmental impact, seed related, hatcheries, financial and business profitability and sustainability.

The consultancy firm will propose a team including, at minimum, four key experts with qualifications as outlined below: (i) a Senior Mariculture Development Specialist/Team Leader; (ii) a Mariculture Technical Expert; (iii) Business & Investment Expert; and (iv) a Marine Hatchery Specialist. The consultancy firm may include other team members as necessary to fulfill the terms of reference herein. The qualifications, experience, roles and responsibilities of all team members should be detailed in the firm's technical proposal.

Minimum required qualifications of key experts:

(i) Senior Mariculture Development Specialist/ Team Leader

- postgraduate degree in aquatic sciences, fisheries science, environmental planning and management, or a related field from a recognised, reputable institution;
- at least 15 years work experience in mariculture in Africa and/or the Indo-Pacific, multi-country experience will be preferred;
- significant, demonstrated experience in commercial semi-industrial or industrial-scale mariculture production and management systems regionally or globally;
- demonstrated knowledge of mariculture marketing networks and systems globally;
- demonstrated knowledge of global mariculture investment networks and mechanisms preferred;
- experience in national-level strategic policy, planning and development in the fisheries sector and/or aquaculture sub-sector;
- significant experience interacting with regional and international projects with good contacts with global & regional networks in mariculture development, management and trade;
- experience leading a technical team on similar consultancy assignments;
- significant demonstrated experience in preparing high quality technical reports of international standard;
- ability to communicate effectively in English orally and in writing, able to communicate complex, technical information to both technical and general audience;
- demonstrable, strong analytical skills are required
- strong IT literacy and competency

(ii) Mariculture Technical Expert

- postgraduate degree in aquatic, fisheries or environmental science or management or a related field from a recognised, reputable institution;
- bachelor degree in biological or marine sciences, fisheries or similar;
- at least 10 years working experience in fisheries or marine resources research or management in Kenya; of which preferably at least 5 years on the technical side of mariculture production in Kenya;

- demonstrated knowledge and familiarity with coastal resources and coastal community livelihoods and culture in Kenya
- significant demonstrated experience in contributing to preparation of high quality technical reports of international standard;
- ability to communicate effectively in English orally and in writing;
- ability to use national language to effectively communicate and elicit information
- demonstrated analytical and writing/reporting skills
- demonstrated IT literacy and competency

(iii) Business & Investment Expert

- advanced degree in business and enterprise development or a related field from a recognized and reputable institution.
- at least 15 years work experience in business development, investment promotion and/or private sector business environment analysis;
- demonstrated experience undertaking assignments involving sub-sector analysis within the business sector;
- demonstrated knowledge of the private sector environment and economy of Kenya preferred;
- experience working with a wide range of stakeholders, including senior government officials, donors, development partners, county officials as well as regional organizations.
- significant demonstrated experience in contributing to preparation of high quality technical reports of international standard;
- ability to work fluently in English, orally and in writing;
- demonstrated analytical and writing/reporting skills
- demonstrated IT literacy and competency

(iv) Marine Hatchery Specialist

- postgraduate degree in aquaculture, aquatic sciences, fisheries science, environmental planning and management, or a related field from a recognised, reputable institution;
- at least 15 years work experience with marine hatchery operations in Africa and/or the Indo-Pacific, multi-country experience will be preferred;
- at least 5 years' experience in in marine hatchery operations at a management level;
- experience interacting with regional and/or international aquaculture projects
- significant demonstrated experience in contributing to preparation of high quality technical reports of international standard;
- ability to communicate effectively in English orally and in writing, able to communicate complex, technical information to both technical and general audience;
- demonstrable, strong analytical skills are required
- strong IT literacy and competency

6. DURATION OF ASSIGNMENT

The assignment is expected to take not more than 10 weeks. It should start immediately upon signing of the agreement.

Expected input by the identified key experts is as follows:

Key Expert	Estimated time input (days)
1. Senior Mariculture Development Specialist/Team Leader	40 days
2. Mariculture Technical Expert	25 days
3. Business & Investment Expert	25 days
4. Marine Hatchery Specialist	15 days

7. PAYMENT STRUCTURE AND TIMEFRAME

Payment terms will be based on completion of agreed milestones as per contract agreement and shall be made according to the following schedule:

- 10% - Upon submission & acceptance of the Inception Report
- 50% - Upon submission & acceptance of a draft Final Report
- 40% - Upon submission & acceptance of the Final report

8. REPORTING, SUPERVISION AND WORKING RELATIONS

The consultant will report to the Acting Interim Director General of the KeFS on all matters pertaining to the assignment. The consultant will provide an update on a weekly basis with regards to progress.

MARICULTURE SCOPING STUDY
WITH RESPECT TO KENYAN MARINE WATERS

List of reference documents

1. The Kenya Vision 2030
2. National Oceans and Fisheries Policy 2008
3. The Kenya Fisheries Management and Development Act, 2016
4. National Aquaculture Policy, 2011 (SDF)
5. National Aquaculture Strategy and Development Plan 2010-2015
6. Agriculture Sector Development Strategy 2010-2020
7. Fisheries Strategic Plan 2013-2017 (National)
8. Aquaculture Communication Strategy 2012 (National)
9. Medium Term Plan II, 2013-2017 (SDF&BE)
10. Medium Term Plan III, 2017-2021 (SDF&BE/KeFS)
11. Aquarium Development Plan 2015 (SDF&BE)
12. Status of Mariculture in Kenya: KCDP Survey Report 2015
13. Business opportunities for aquaculture in Kenya; With special reference to food security. LEI report 2011-067/IMARES report C131/11, Wageningen UR, Wageningen, 2011
14. Development of a Seaweed Industry in Kenya; Implementation Strategy for KCDP BY Aquaculture Subcomponent, June 2013
15. FAO Fisheries and Aquaculture Technical Paper 529: Integrated Mariculture; a global review
16. Fisheries and Aquaculture in the Context of Blue Economy: Background Paper – Feeding Africa: 21-23 October 2015
17. FAO 2015: Scoping Study on Climate Smart Agriculture in Kenya-Mitigation of Climate Change in Agriculture (MICCA) Programme Background Report 8
18. Smart Fish Report: SF/2012/28. Programme for the Implementation of a Regional Fisheries Strategy for the Eastern and Southern Africa and Indian Ocean Region
The Farming of Seaweeds March 2012
19. Africa's Blue Economy: A Policy Handbook
20. Mariculture development in Kenya: alternatives to siting ponds in the mangrove ecosystem.
Joseph Rasowo, Moi University, Zoology Department, Box 3900, Eldoret, Kenya
21. RecoMap Coastal Mariculture Final Report
22. Mission Report Kenya: Scoping Mission Marine Fisheries Kenya; *Report No. CO38/17 DOI: 10.18174/4132271*
23. FAO 2015: Blue Growth Initiative in Kenya; Ecosystems Services and Biodiversity for Food and nutrition Security through Fisheries and Aquaculture: A baseline report by TCDC Expert in hatchery and grow out design, construction, management and seed production
24. FAO 2016: Atlas of Mariculture potential areas in Kenya
25. FAO 2016: Spatial Mapping of Conflict for the potential expansion of aquaculture

26. FAO 2017: National Consultancy on Mariculture Best Practices for Kilifi County
27. FAO 2017: National Consultancy on Mariculture Best Practices for Tana River County
28. FAO 2016: Mida Creek Report FMM/GLO/112/MUL BABY04: Valuation of Ecosystems for Food Security and Improved Livelihoods: Lessons and interventions for Tana Delta and Mida Creek Kenya.
29. KCDP 2015: Aquaculture Suitability Mapping for the Kenyan Coast
30. Mariculture in the WIO Region “Challenges and Prospects”. Proceedings from Workshop on Mariculture, December 2009.