



KENYA MARINE AND FISHERIES RESEARCH INSTITUTE



THE PAST, PRESENT AND FUTURE

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**SENIOR RESEARCH OFFICER/RESEARCH COORDINATOR
KENYA MARINE AND FISHERIES RESEARCH INSTITUTE
MOMBASA**

KENYA MARINE AND FISHERIES RESEARCH INSTITUTE

- Established in 1980
- Initially defined by Article No. 4 of the Science and Technology Act of 1979, Cap 250.
- Currently enshrined in the Science, Technology And Innovation Act No. 28 of 2013, Article 53 and the Fourth Schedule.
- The Institute has grown from staff strength of two Research Scientists at inception to the current 122 scientists.
- Conduct aquatic research
- HQs in Mombasa
- Management Board





KENYA MARINE AND FISHERIES RESEARCH INSTITUTE



Our mandate: What we do?

Undertake research on marine and freshwater/inland:

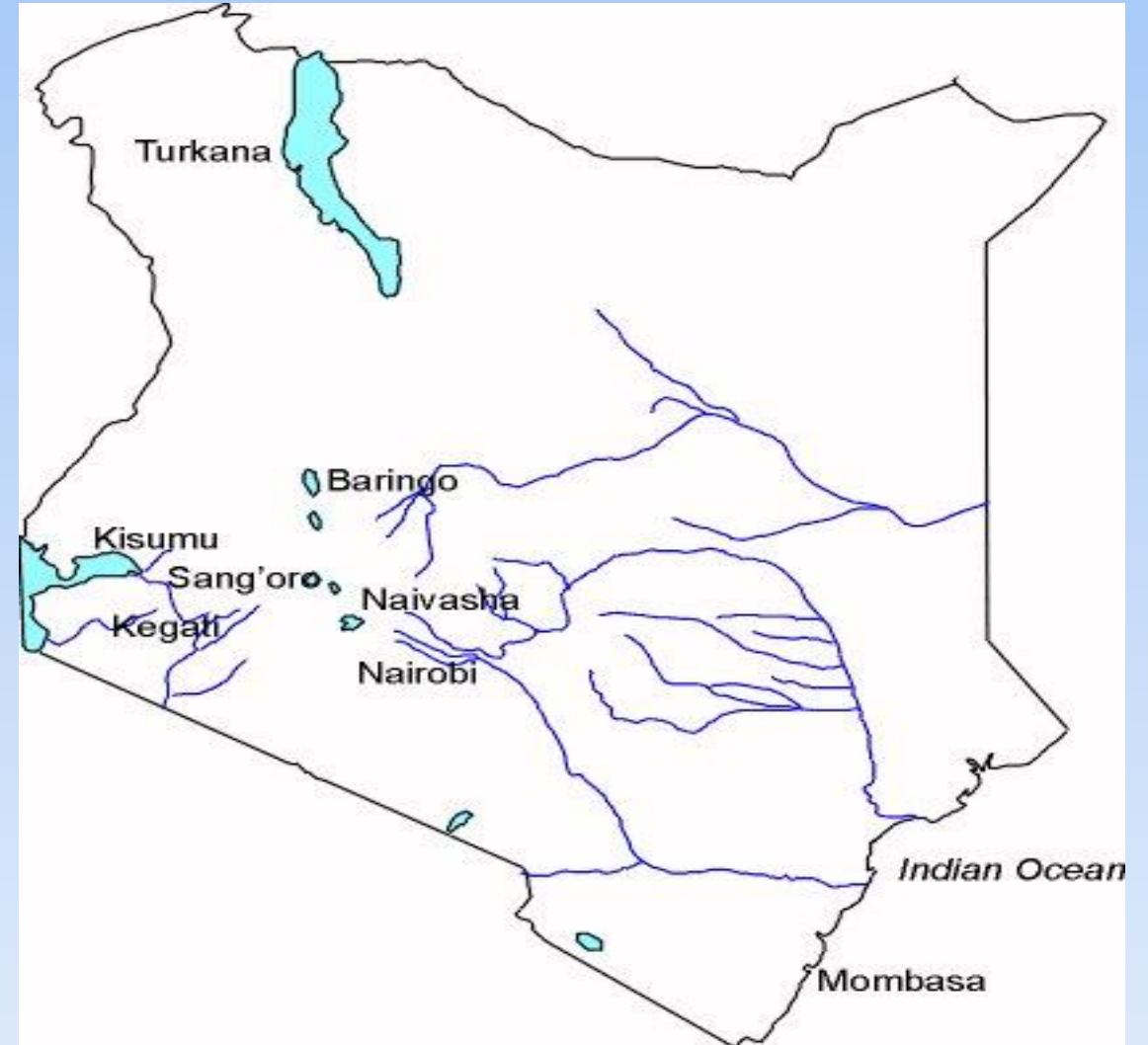
- i. Fisheries,
- ii. Aquaculture,
- iii. Environment (including chemical, biological, geological and physical oceanography)

Why we do it?

1. To provide scientific data and information for sustainable exploitation, management and conservation of Kenya's fisheries and other aquatic resources;
2. To contribute to National Strategies of food security, poverty alleviation, clean environment and creation of employment.

KMFRI'S CENTERS AND STATIONS

- **Mombasa HQ & Shimoni/Gazi**
- **Kisumu**
- **Sagana**
- **Naivasha**
- **Baringo**
- **Kegati**
- **Turkana**
- **Sang'oro**
- **Nairobi liaison office**



KMFRI'S RESEARCH PROGRAMS

- ◆ Oceanography and Hydrography
- ◆ Fisheries
- ◆ Aquaculture
- ◆ Information, Communication and Technology (ICT)
- ◆ Socio-economics



MARINE ECOSYSTEMS

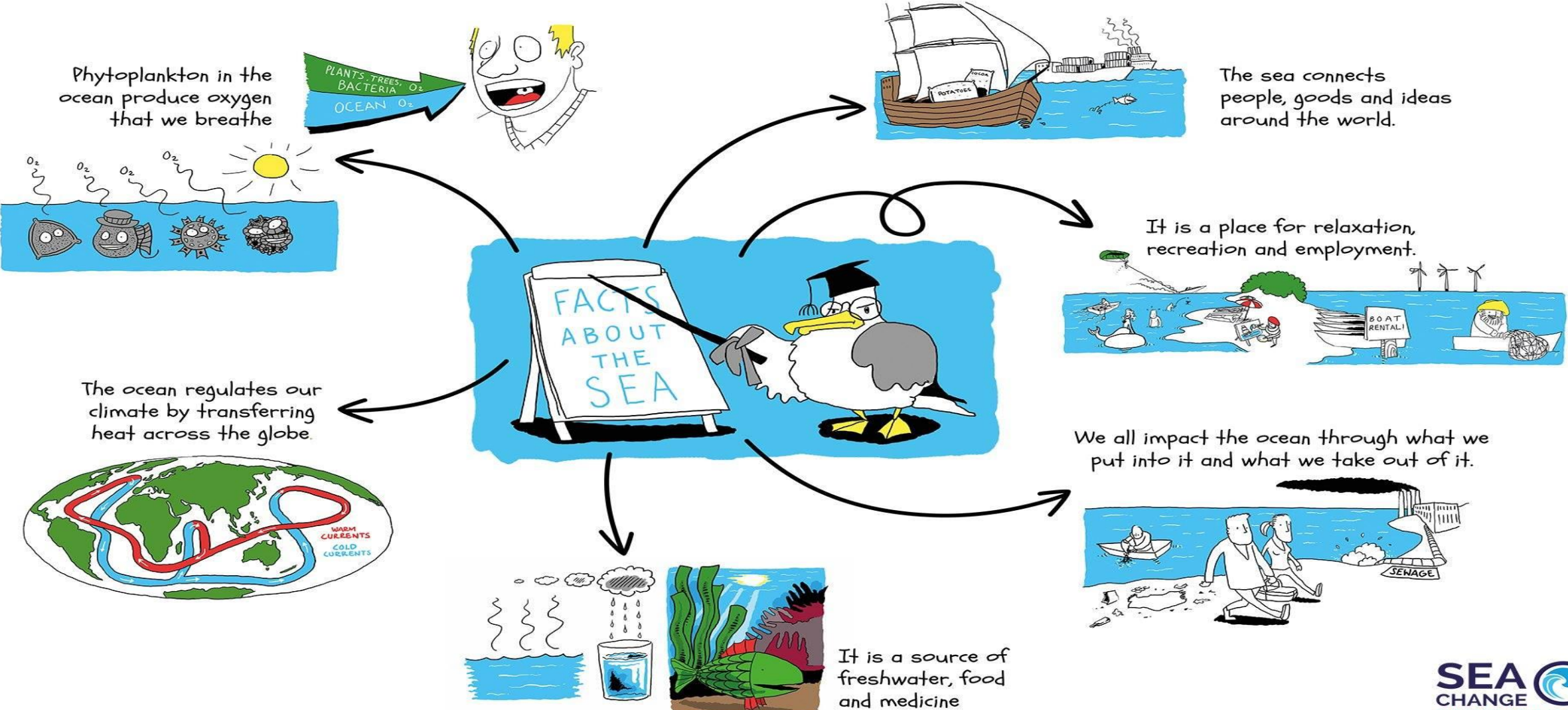
- ◆ **>70% of Earth's surface) & include:-**
 - ◆ **Open Oceans**
 - ◆ **Estuaries and lagoons**
 - ◆ **Mangroves**
 - ◆ **Coral reefs and sea grass meadows**
 - ◆ **Deep sea and the sea floor**



**Key in achieving SDG's
(1-17)**

MARINE ECOSYSTEMS

UNDERSTANDING OUR OCEAN



. OCEANOGRAPHY AND HYDROGRAPHY DEPARTMENT

LAMU BIODIVERSITY AND ECOSYSTEM HEALTH, LAMU COUNTY, KENYA

2014 ASSESSMENT REPORT

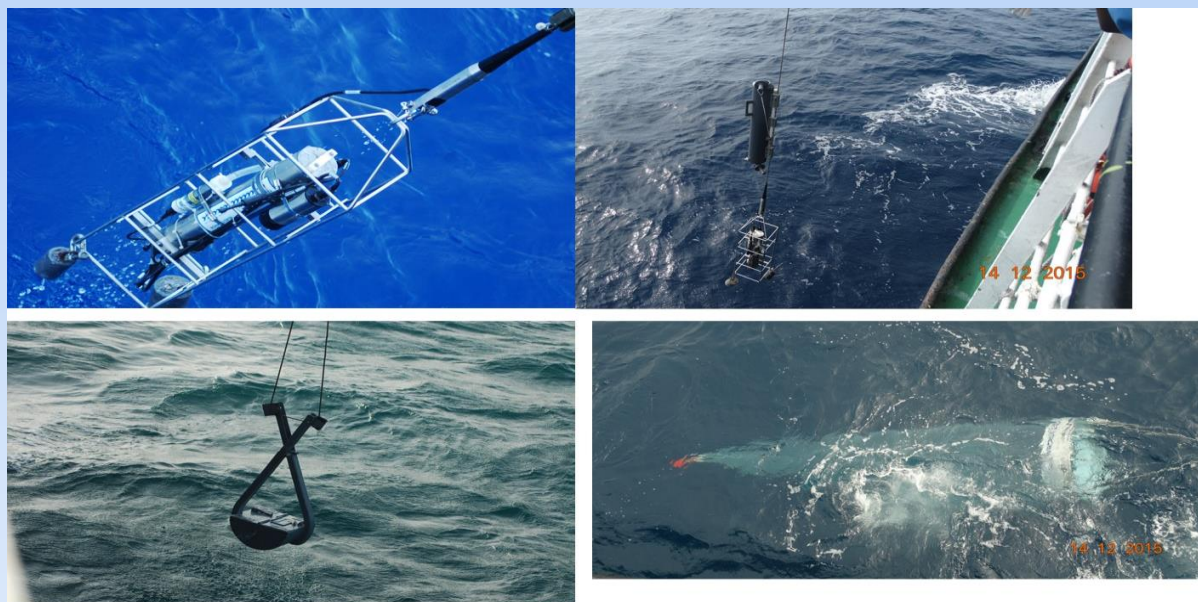


Research geared towards promoting environmentally sustainable management of Kenya's coastal and marine resources

Editors: Victor Mwakha, Judith Okello, Lilian Nduku, Charles Mitto, Rashid Anam, Noah Ngisiang'e.

Overall Editor: Christopher Mulanda Aura

OCEANOGRAPHY AND HYDROGRAPHY DEPARTMENT



Sampling equipment



OCEAN AND COASTAL SYSTEMS RESEARCH DIVISION

Fish Biomass and the Environment of Kenya's Territorial Waters & Exclusive Economic Zone (EEZ) Off Lamu County (Block 1)

RV MTAFITI Cruise Technical Report

Cruise Dates: 26th November 2016 – 19th December 2016.

Cruise Number: RVM/01/2016



Prepared by
J. Kamau, A. Kimeli, C. Nyamwea, N. Ngisang'e, H. Ong'anda, J. Mwaluma, E. Kimani, C. Magori,
C. Kosore, N. Wambiji, G. Okemwa.
Kenya Marine and Fisheries Research Institute
P. O. Box 81651 Mombasa, Kenya

Mombasa, March 2016

FISHERIES RESEARCH DEPARTMENT

- ✓ Provide scientific information and data on the sustainable management of fishery resources.
- ✓ Responsible for inventory and assessment of fish stocks: their spatial and temporal abundance and distribution, biology and population dynamics.
- ✓ Studies on the interaction between fisheries organisms and their environment – Fish ecology
- ✓ Fish diseases
- ✓ Adaptive fishing technologies
- ✓ Research on fish post-harvest technology and value addition





Malindi-Ungwana Bay Small-scale Prawn Fishery Stock Assessment



TECHNICAL REPORT



Stock Assessment of the Marine Aquarium Fishery in Kenya



Final Technical Report

April 2016



MAY 2014

Selected Indicator Species for Stock Assessment



Lobster Fishery



Shrimp Fishery



Aquarium
Fishery



Pelagic Fishery



Demersal Reef Fisheries



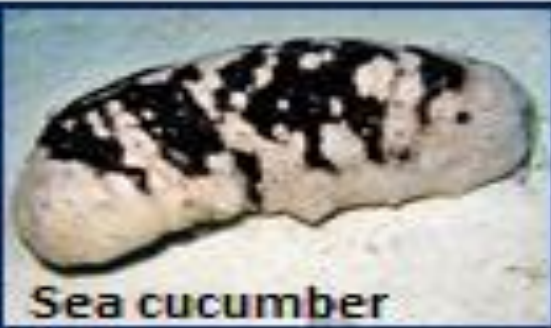
Octopus Fishery



Crab Fishery



Pelagic Fisheries



Sea cucumber
Fishery

NATURAL PRODUCTS PROGRAMME

- ◆ Aquatic bio-products:-bioactive compounds incl. seaweed extracts, algae etc
- ◆ Value addition /post harvest control to reduce losses eg. smoking and solar drying
- ◆ Quality control to ensure food safety, bio-safety etc



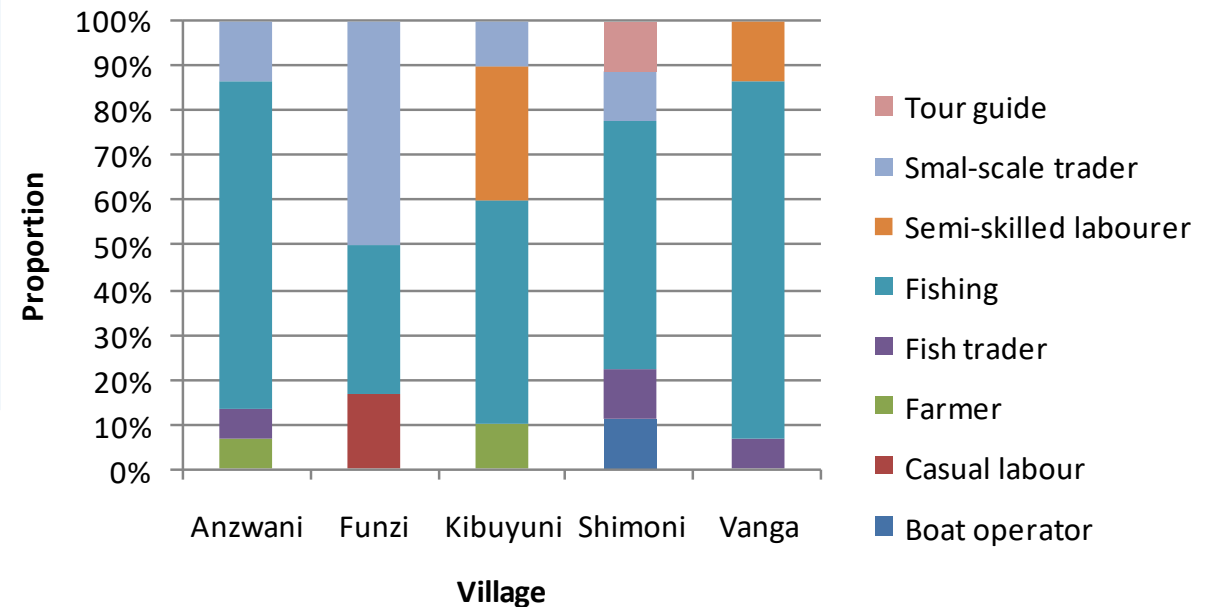
AQUACULTURE DEPARTMENT

- ✓ Investigating new and adaptive culture species and techniques for enhanced fish production in ponds, tanks, raceways, and through cage and pen culture.
- ✓ Research on:
 - Appropriate seed (fingerlings) production.
 - Integrated aquaculture production
 - Feed formulation and production.
 - Hatchery development and operations techniques.
 - Appropriate stocking levels for different production systems.
 - Genetic and hormonal manipulation for increased fish production in aquaculture systems.



SOCIO-ECONOMIC RESEARCH DEPARTMENT

- ✓ Establishing cost-effective methods for sustainable exploitation of the aquatic resources through participatory approaches with stakeholders including local communities.
- ✓ Assess the economics of markets and supply channels for unprocessed and processed fish
- ✓ Studies on community perceptions and needs based on research



INFORMATION COMMUNICATION AND TECHNOLOGY

Older data

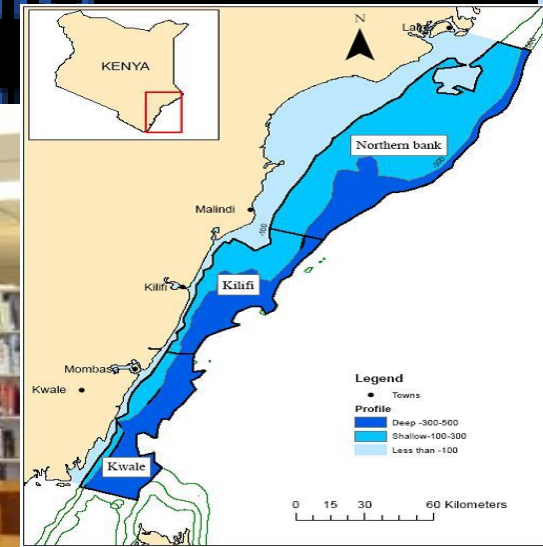
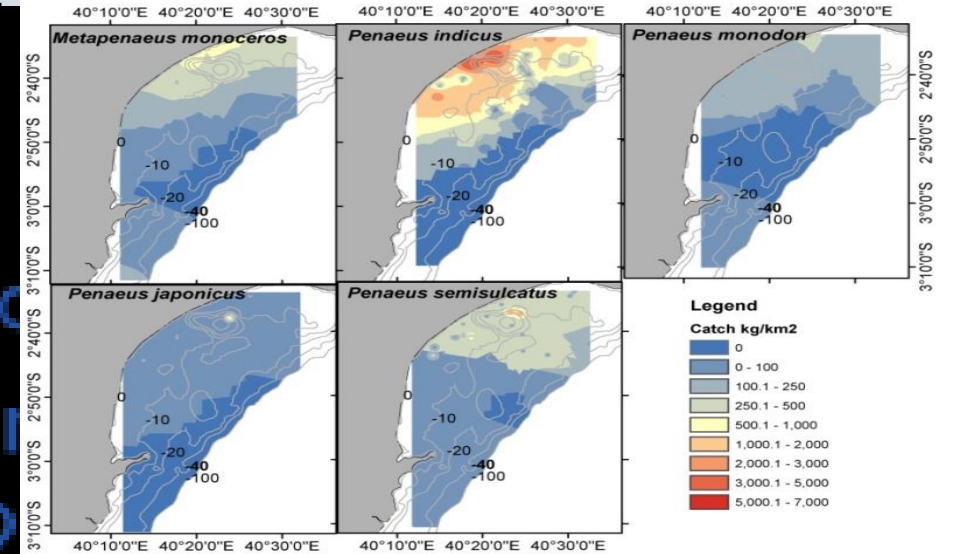
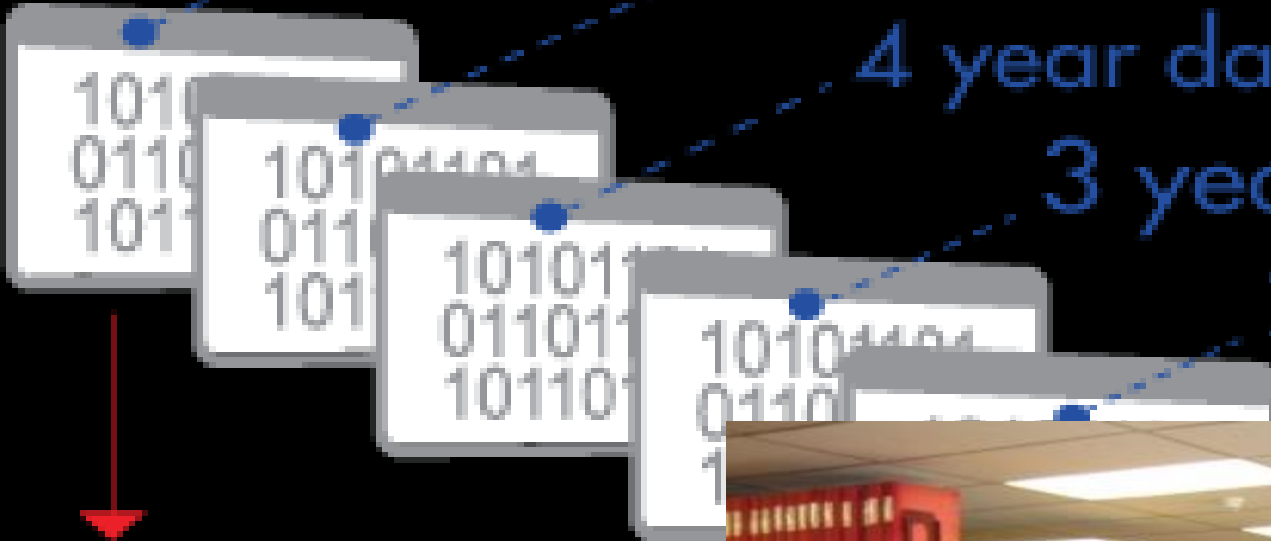
5 year data

4 year data

3 year data

2 year data

1 year data



PARTNERSHIPS

- **Local partnerships**
 - Government depts.
 - County Government s
 - Universities
 - NGO's
 - Private sector
- **International partnerships**
 - Universities,
 - International NGO
 - MOU's



FROM EXPERIMENTAL FARMING TO VALUE ADDITION KIBUYUNI SEAWEED FARMING IN KWALE COUNTY

Experiment of seaweed culture was initiated in Kibuyuni (Kwale County) on the basis of an experiment carried out with technical support from KMFRI in 2002

In 2011, with financial support from the KCDP project, the farming was up scaled by the provision of implements (lines, seedlings) and drying racks. Further support came from FAO in the form of sheds to cover the drying racks

The group in Kibuyuni managed to produce a quantity of dry seaweed which was sufficient to be marketed and was able to sell the first batch of about The first batch was bought in January 2015, and the farmers sold a total of 14.919 kgs of dried seaweeds for Ksh. 494,320

Currently, the Blue Economy Implementation Committee is providing support for value addition





KENYA MARINE AND FISHERIES RESEARCH INSTITUTE



ENHANCING KENYA-BELGIUM COOPERATION IN MARINE RESEARCH AND DEVELOPMENT

Through
KMFRI-VUB Partnerships

KMFRI- VUB RESEARCH (SINCE 1980'S....



- Oyster Farming
- Mangrove research
- Fisheries
- Joint expeditions - TYRO



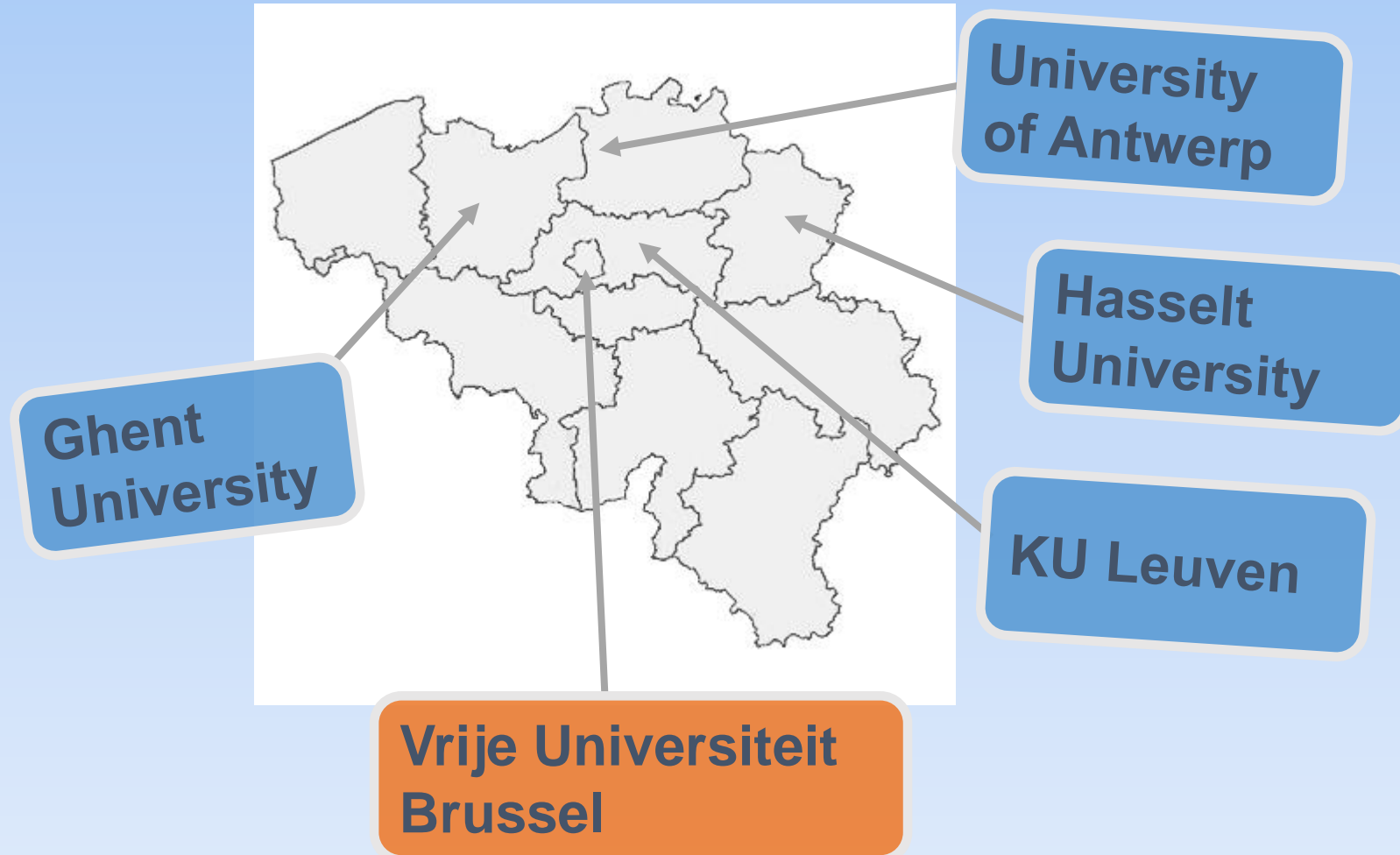
LONG TERM PARTNERSHIPS AND LINKAGES



RESEARCH FACILITIES...



VLIR - 5 Flemish universities, 16 university colleges



KMFRI-VUB Partnerships

- More than 30 Kenyan trained at PhD levels in VUB – **15 on Marine Sciences**
- A lot more at MSc.
- Most of these are holding important leadership positions in the country
- Opportunity for collaborations...
- Informing global processes – IPCC etc.

PhD Students through Kenya –Belgium partnerships

- **Kenya**

Dr. James Kairo, VUB.- International Cooperation Prize (2001), WIOMSA Fellow (2007), MBS (2010); VUB Fellow, (2017), Pew Fellow (2019)

Dr. Jared Bosire, VUB, Project Officer, UNEP

Dr. Jonson Kazungu, VUB, Former Director, KMFRI

Dr. Fredrick Tamoor, KUL, Kenyatta University

Dr. Mohamed Omar, VUB, KWS

Dr. Judith Okello, VUB, KMFRI

BELGIANS – VUB AND GAZI

- Nele Schmitz,
- Farid Dahdouh- Guebas,
- Elisabeth Robert.
- Dennis De Ryck
- Diana Di Nitto
- Tom Van Der Stocken
- Steve Boullion

There are far more Belgium compared to other nationalities who have completed PhDs in Kenya

MIKOKO PAMOJA'S HEWA KAA PROJECT IN KWALE COUNTY



Mikoko Pamoja is a community-led mangrove conservation and restoration project in Gazi Bay, Kenya. It involves community-based policing of illegal mangrove harvesting, as well as the application of local expertise in mangrove planting.

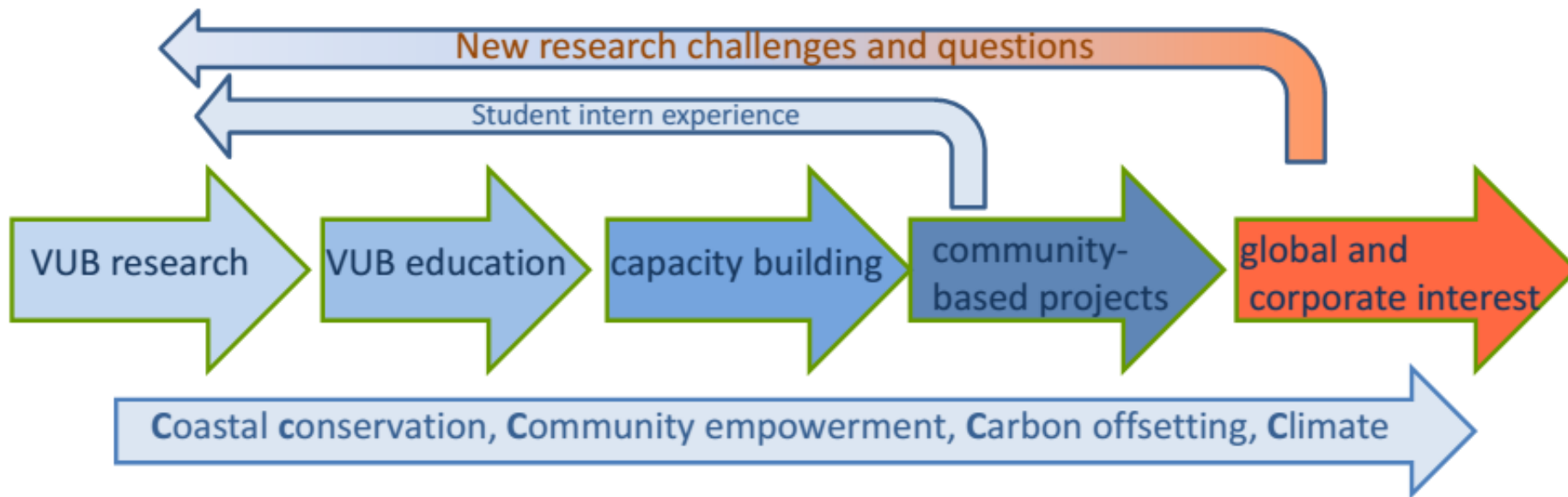
Since its inception in 2014, Mikoko Pamoja Community Based Organisation has been able to ensure conservation of 117 ha of mangroves in the Gazi bay. The group through the technical support from Kenya Marine and Fisheries Research Institute (KMFRI) and WWF-Kenya has established new mangrove forests covering 10 ha

Trading in carbon credits is a science Plan Vivo is the international body that regulates carbon credit and there has to be evidence of forest protection and restoration as well as ensuring that there is zero stumps which means there is no forest destruction

From the conservation efforts, the community has received a total of Ksh. 2.6 million shillings over the past two years which has gone to support education initiatives such as provision of school book and rehabilitation of class rooms

Looking at the future partnership....?

CARBON - COAST- CLIMATE - COMMUNITY “4C”



ENABLERS FOR STRONGER PARTNERSHIPS IN the FUTURE

- **Call for sustainable blue economy**
 - Fisheries, aquaculture, deep sea research , ecotoxicology--- capacity enhancement needed in these fields
- **Paris agreement**
 - Countries partnering for low carbon pathways... this can be enhanced through Joint projects between Kenya and Belgium
- **National Coast Guard... In place..**



THANK YOU

www.kmfri.co.ke