

A gap between small- scale community mariculture and mariculture as a business: can KCDP bridge the gap?

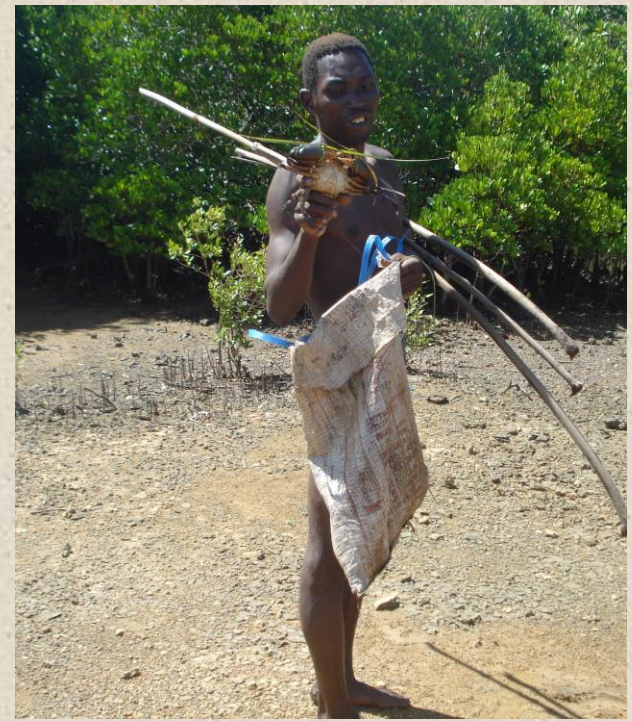


David Mirera

Kenya Marine and Fisheries Research Institute (KMFRI), Box 81651, Mombasa

So! What are the issues?

- High population growth and climate change impact negatively on natural resources and **food security**
- Limited alternative sources of income leaves the coastal people struggling for their livelihoods



So what happens under these circumstances?

1. Degradation of the vital marine support ecosystems leading to decline in capture fish production
1. Inability to mitigate climate change impacts
1. Over dependency on ocean resources with limited capacity for improved catches
1. Over fishing in nearshore fisheries



May be Mariculture is the long awaited intervention!

So! How has mariculture evolved?

Scenario 1: Commercial mariculture farming interventions

1. Pilot commercial farm to culture prawns in a 111 ha farm of intertidal area of Ngomeni in Malindi area, Kilifi County (80's)- **sizes of 1000m²**

1. Two private farms initiate adoption of commercial mariculture (90's) (Wampare farm at Mtepeni area and Kwetu Training centre at Mtwapa creek of Kilifi County)- **sizes of 1200m²**



Wampare prawn farm



Kwetu prawn farm

Scenario 2: Experimental/research interventions on commercial productions

Research and production of oysters and seaweeds (Gazi bay, Kwale County)
(90's)



Osyter farm, Gazi



Seaweed, Gazi farm

Scenario 3: Participatory research interventions and community subsistence production (2000-2013)

1. Small scale interventions in mud crab, milkfish, mullets, seaweed and artemia farming

a. Mud crabs (**Fattening systems**-drive-in cages and floating cages: **Grow-out systems**-pond culture)



Drive-in cages (1ftx1ftx1ft)



Floating cages (1ftx1ftx1ft)



Pond systems (mainly (120m² -300m²))



Packaged for export

b. Milkfish/mullet/prawn farming



Community subsistence harvest



Sale at farm gate



seed collection



Prawn harvest at a community pond

c. Seaweed farming



Scenario 4: Development of aquaculture strategy, policy and mariculture forum

- In 2005 in the WIOMSA scientific symposium a special meeting of all mariculture stakeholders lead to the formation of the Mariculture forum:
Resulted in development of inventory for mariculture activities in the region
- An aquaculture strategy was developed in 2010
- An aquaculture policy developed in 2011

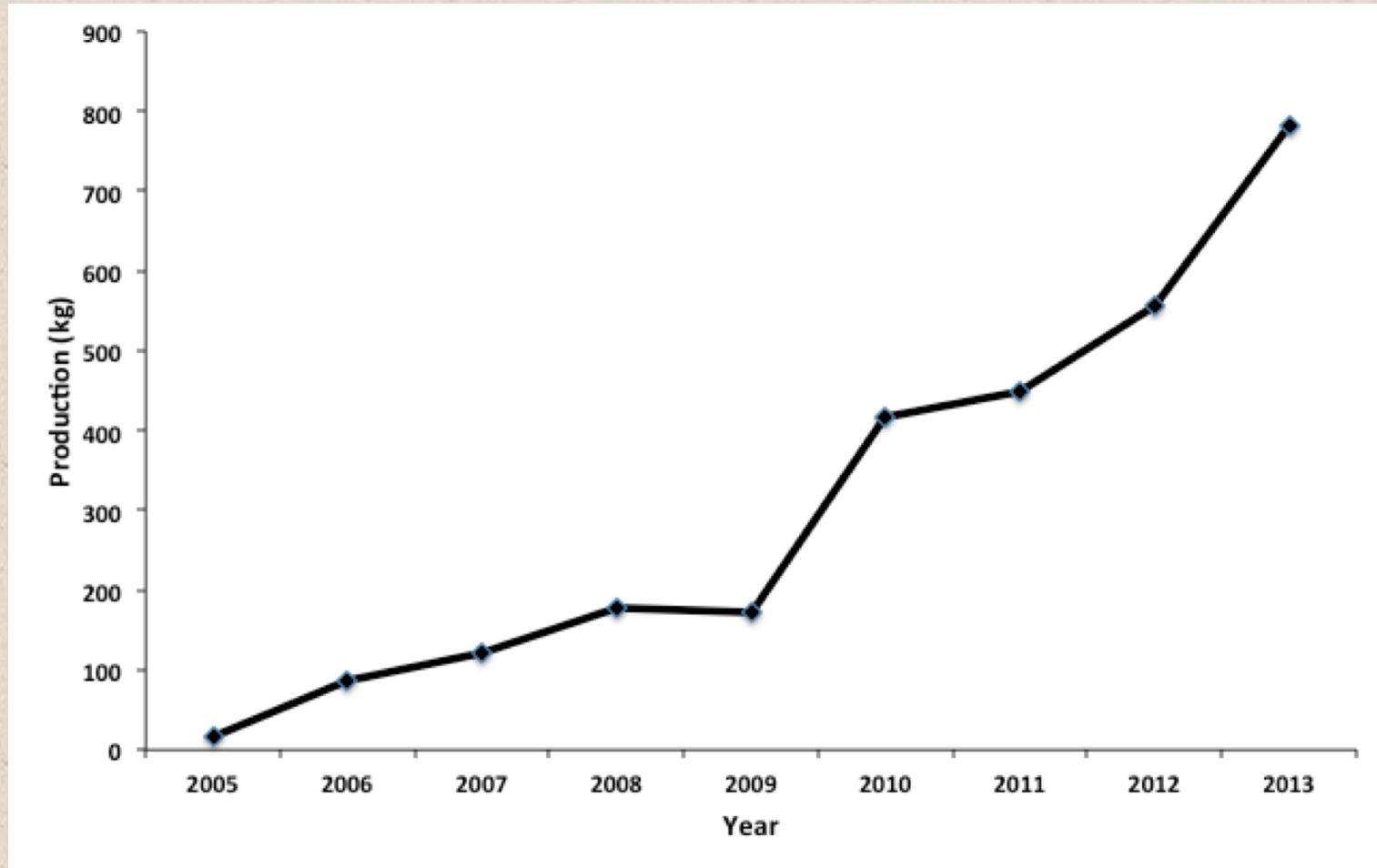
Observable trends

- The **number of OCGs** involved in small-scale mariculture increased by 360% between 2007 and 2013 while the **area under pond culture** increased by 404%, crab cages by 204%.



- Production capacity has varied between **0.06-0.2kg fish/m²**, **0.02-0.03kg prawn/m²** and 5-20kg crab/month in 2007 and **0.08-0.44kg fish/m²**, **0.02-0.05kg prawns/m²** and 15-40kg crab/month in 2013
- Un planned** and **uncoordinated** mariculture interventions along the coast

Trend in mariculture production (finfish and shellfish) in Kenya (Mirera, 2014)



Mariculture in Kenya is characterised with:

- Low and **inconsistent annual production** regimes
- Lack of a **business approach** in mariculture operations
- Small **uneconomical production facilities**
- **Dependency on wild seed** for stocking ponds and yet **information on availability is scanty**

Low stocking densities that rely on organic fertilization in ponds/natural feeds like mangrove gastropods for crabs without formulated feeds

Lack of post harvest facilities to ensure quality like driers for seaweeds

Increase in number of communities participating in mariculture based on available funding

Uncoordinated mariculture initiatives (done based on which organization has funds)

Lack of statistics on mariculture production in the country

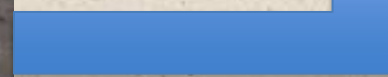
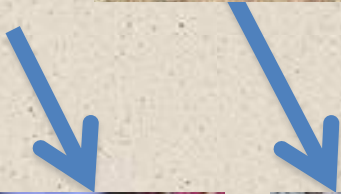
KCDP interventions

1. Working with the coastal farmers to establish large mariculture facilities and increase farm size to provide a breakthrough in annual production (**bigger ponds for fish production and many lines for seaweed farmers**)-1200m²



**(Production = 1 ton
of fish/1200m² pond
after-6 months)**

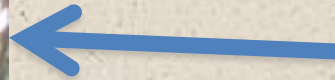
2. Helping mariculture farmers to stock at appropriate densities and in good time to be able to attain profitability



3. Empowering communities to produce quality fish feeds using locally available materials



4. Helping farmers to access suitable markets for their products

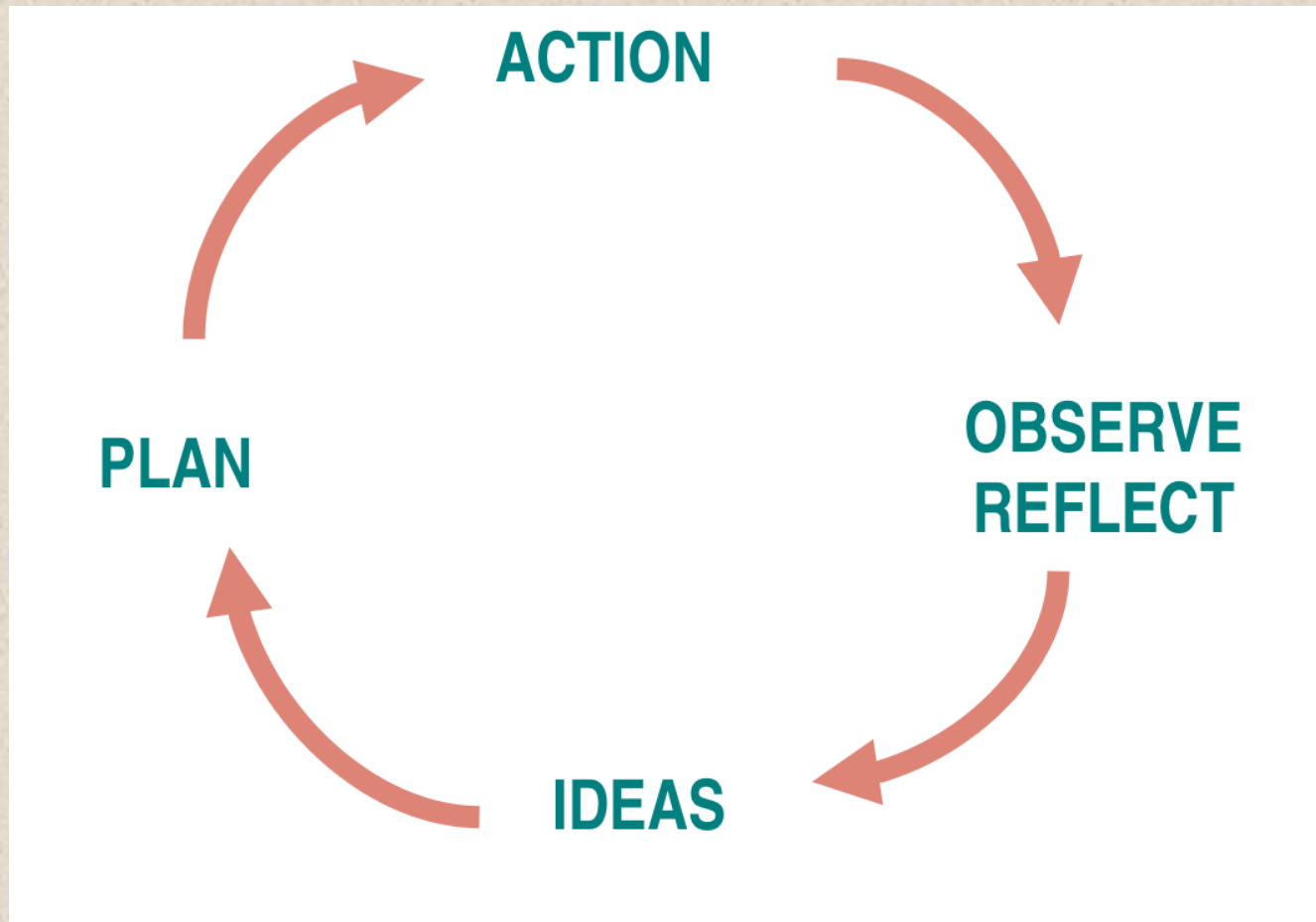




So! Where could collaborative partnerships be in mariculture development?

1. Development of marine hatchery will open-up a variety of species for aquaculture
2. Production of quality and affordable feed for marine fish
3. Undertaking research that address industry needs
4. Diversification of culture technologies and species for culture
5. Understanding market dynamics for the different mariculture products and using them as opportunities in development of the sector
6. The need for coordinated mariculture development

To develop community mariculture as a business the following approach is necessary



Thank you