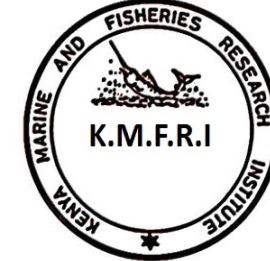
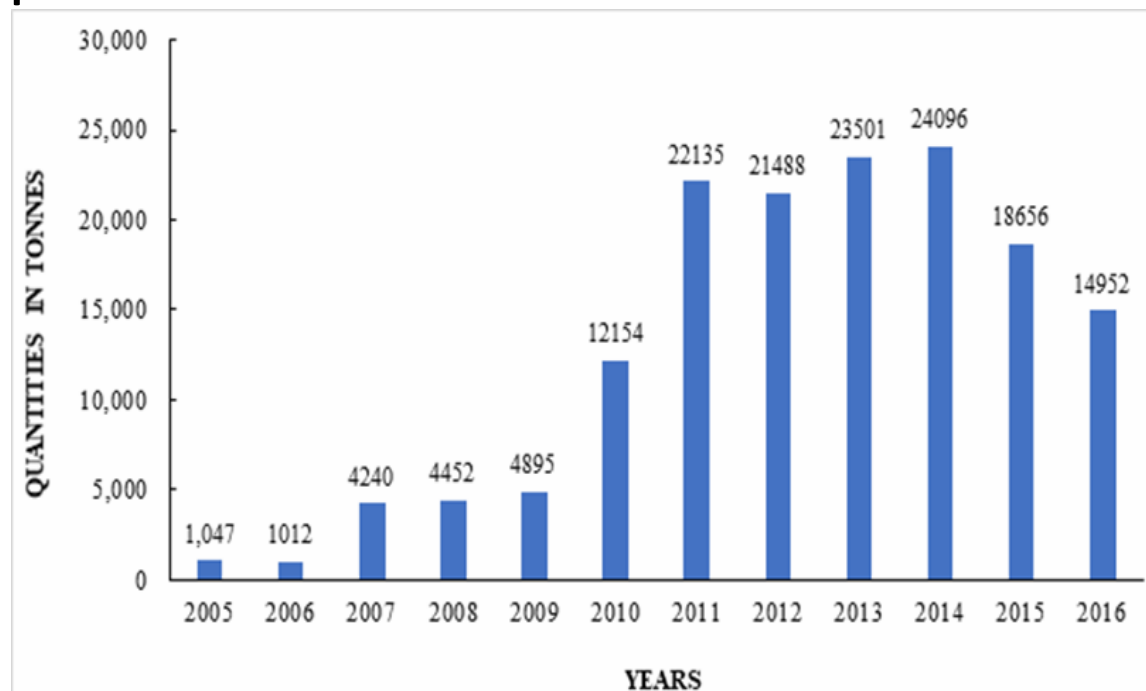
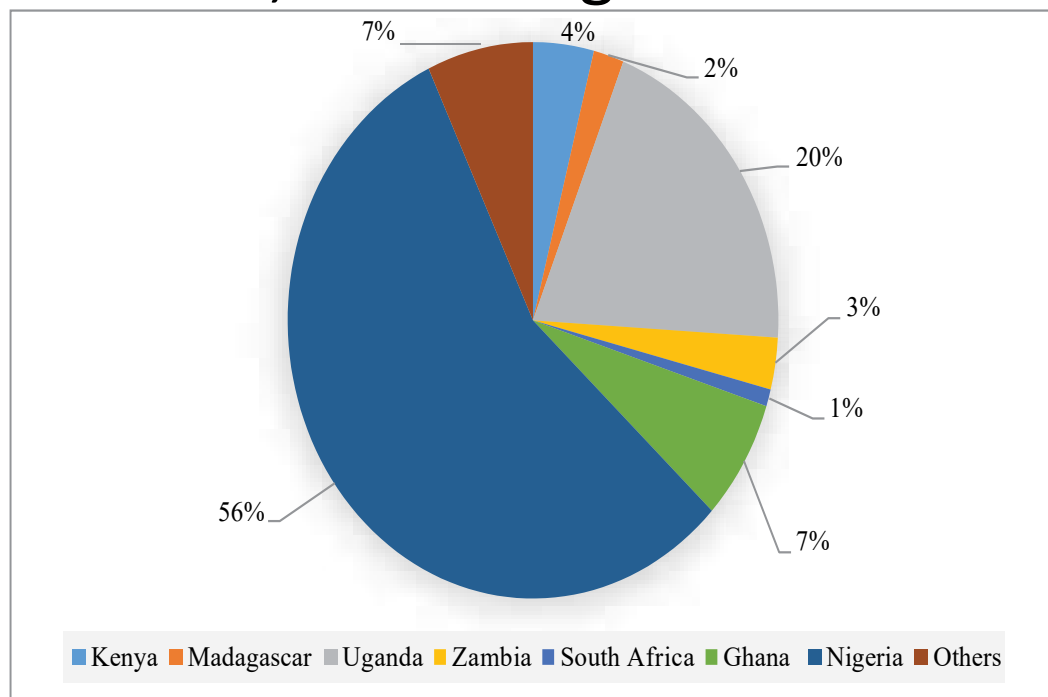


AQUACULTURE DIVISION



- Fish farming in Kenya dates back to the introduction of trout as sport fish for stocking rivers between 1910 and 1921.
- Eat More fish campaigns dating back to 1963 had little effect of aquaculture development in the country
- However, this changed since ESP inception



SEED IMPROVEMENT

- Nile tilapia selective breeding at KMFRI Sagana is at the F7 generation and African catfish at F3 generation. The generations are currently being subjected to growth and survival comparison trials.
- Further hybridization and back crossing of African catfish local strain and Dutch strain have enhanced catfish production at hatchery and grow-out levels.



Cont.....

- KMFRI Kegati Centre is at advanced levels of introduction to aquaculture of indigenous species with high commercial value. This include Tilapia baringo, Jipe tilapia and African carps (*Labeo* and *Barbus*).
- *Labeo victorinus*, *Tilapia baringo* and *Tilapia jipe* are already domesticated with culture growth and survival against varying diets underway.

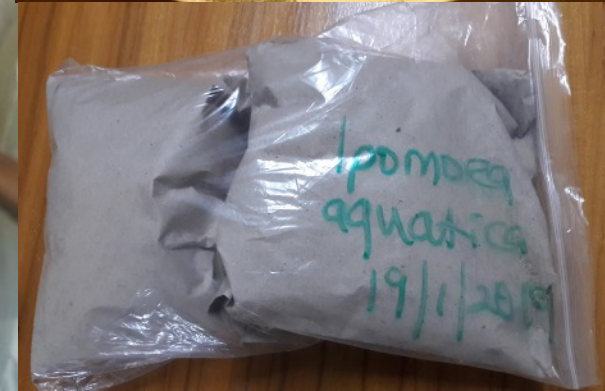


Feeds

- Locally available fish feed ingredients documented and proximate analysis conducted to inform formulations.
- Locally pelletized and commercial feeds have been tested on their effects on Nile tilapia growth and survival in cages in Lake Victoria with KMFRI pelletized feeds emerging 2nd among local and imported commercial feeds

Cont....

- Potential omega-3 rich aquatic marine and freshwater macrophytes documented and high value species analyzed for essential amino acids. Selected species have been included in fish feed formulations and on-farm growth trials successfully carried out.



Insect based feeds

- KMFRI Sagana Centre is working closely with ICIPE on replacement of fish meal with insects (Black soldier fly). Mass culturing achieved, processed and feed formulated and tested.



KMFRI Commercial Feeds

- KMFRI Sangoro is 6 months old as the latest entrant into commercial standards fish feed producer in Kenya. This is aimed at regulating the private sector prices.



Live feed production

- KMFRI Sangoro is leading on the bio-floc technology and use of fertilizer for mass production of bacterial and other zooplankton for fish larval rearing.
- This has significantly lowered larval mortality of catfish and enhanced survival and quality of tilapia fingerlings.



Culture Systems Technologies





Mariculture at Kenyan Coast



Upcoming Technologies

- KMFRI Kegati has initiated the adoption of above ground wooden backyard pond technology for small scale and peri-urban land owners.
- KMFRI Sagana and Sangoro are enabling fish hatchery operators adopted the greenhouse system for enhanced performance.
- KMFRI Kegati is working with WorldFish Centre (Egypt) in the adoption of in-pond raceway by farmers in Kenya.



Adoption of in-pond Raceway Technology in Kenya by KMFRI, AAK & SDFBE



Hatchery Technologies

SANGORO



KEGATI



Commercial Hatchery

- A commercial hatchery may contain the following facilities;
 - broodstock holding
 - spawning area,
 - feed culture facility,
 - larval culture area,
 - juvenile culture area,
 - pump facilities,
 - laboratory,
 - offices and bathrooms
 - Quarantine & chemical disposal area



Post-harvest Handling and Value Addition

- KMFRI Sagana is leading the aquaculture division in fish value addition, products development and shelf life assessment.
- 10 products developed including;
 - ✓ Samosa
 - ✓ Fish balls
 - ✓ Fish fingers
 - ✓ Fish pie
 - ✓ Sausage

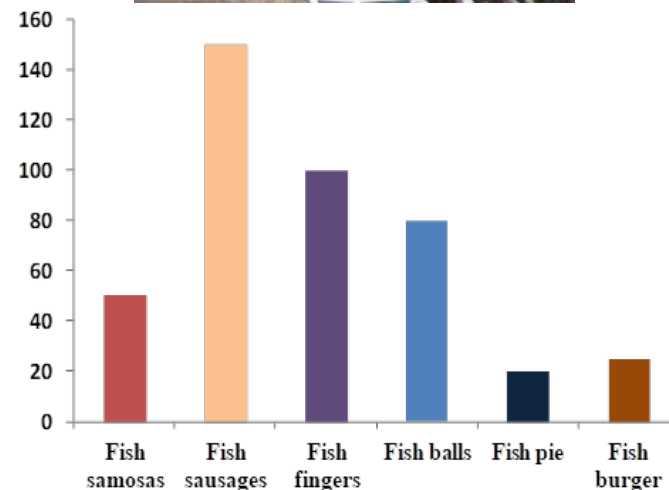


Figure 1: Graph showing various value added products and their number



Plate 2: Some of the fish outlets in Kenya

Value Addition



Fish Fillet



Mincing



Ingredients



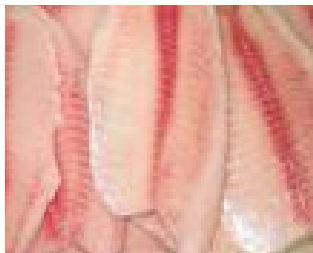
Cone making



Deep frying



Samosa



Fish fillet



Fish balls

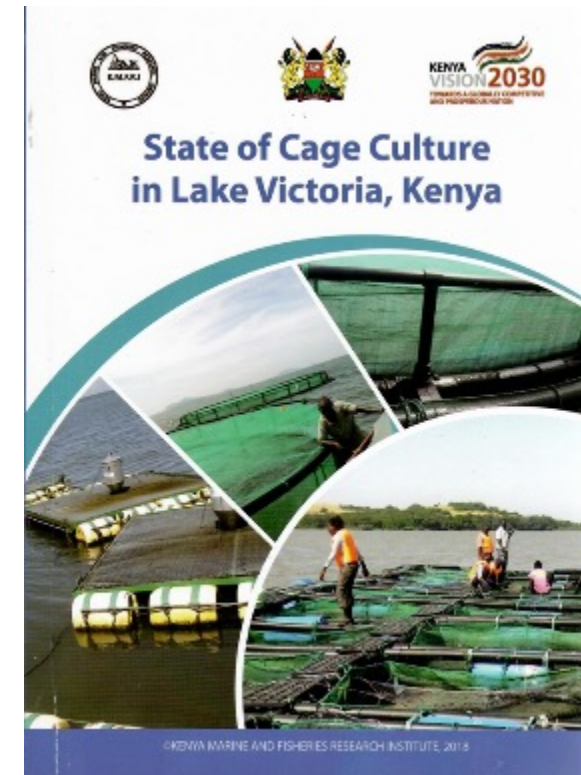
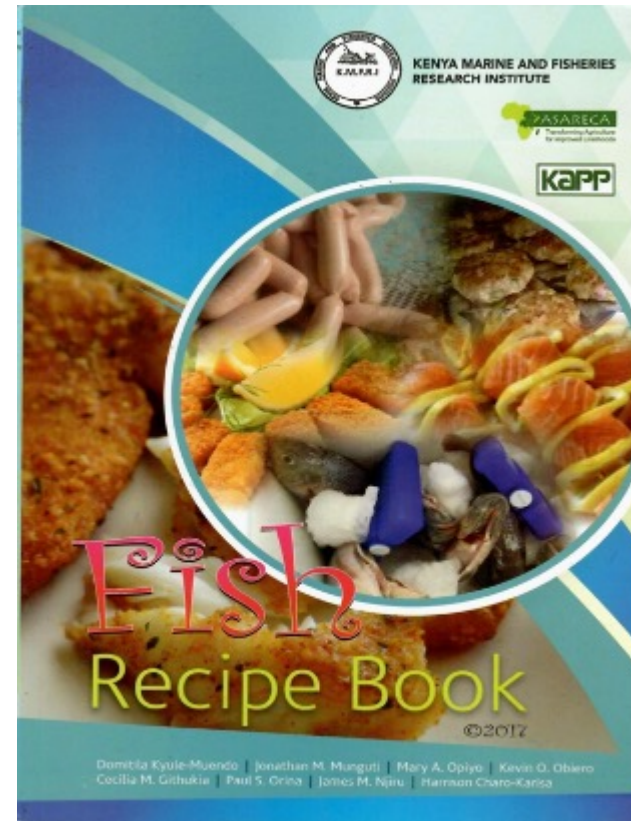
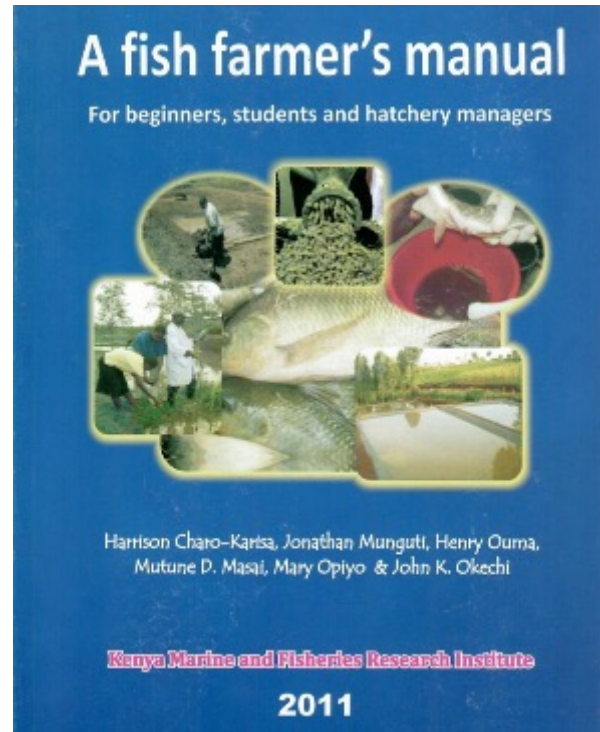
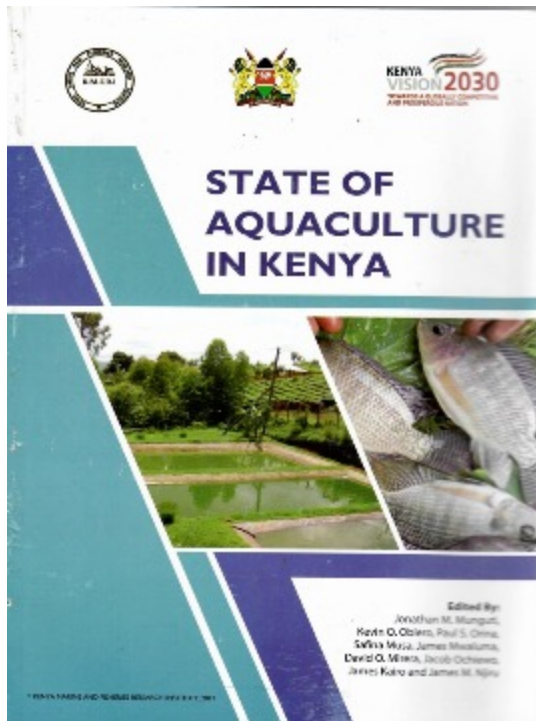


Fish fingers



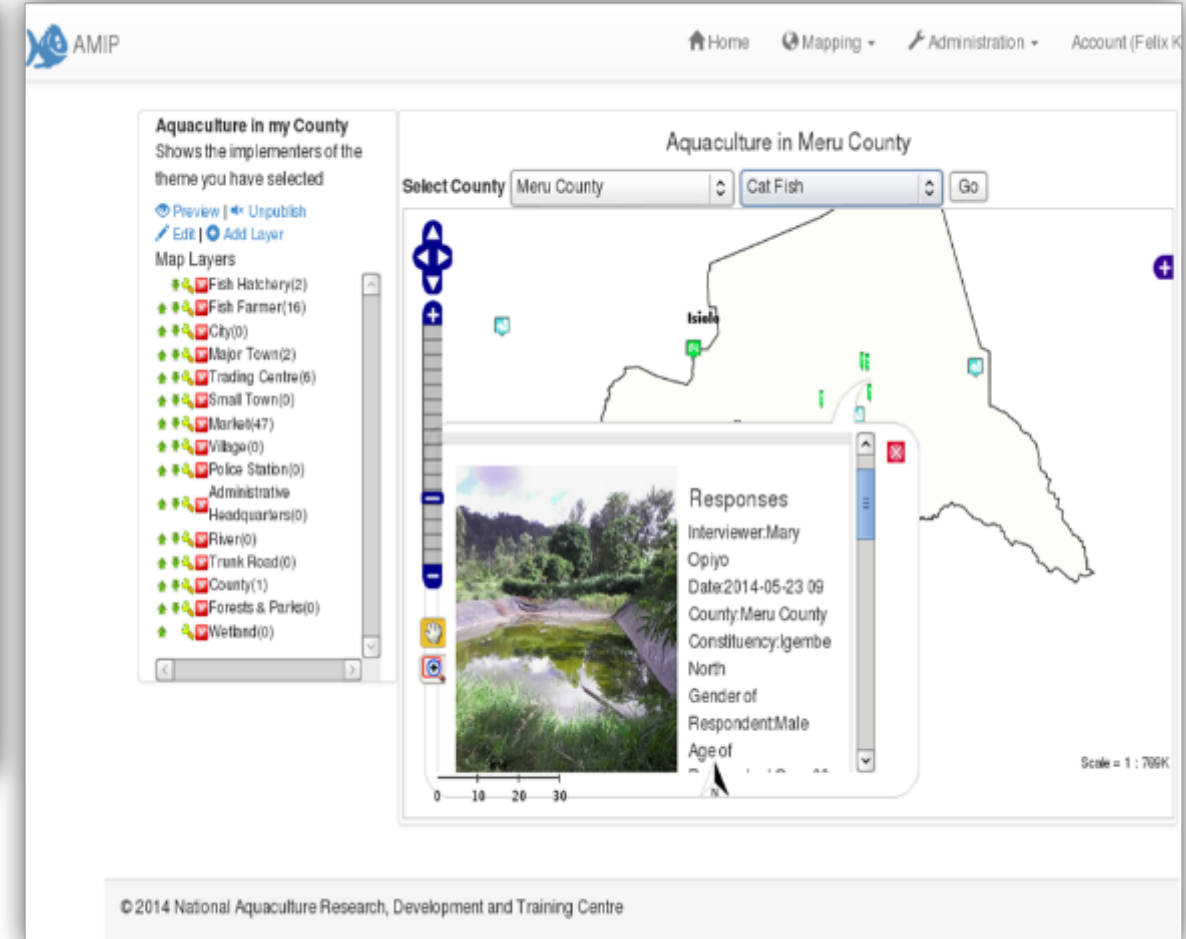
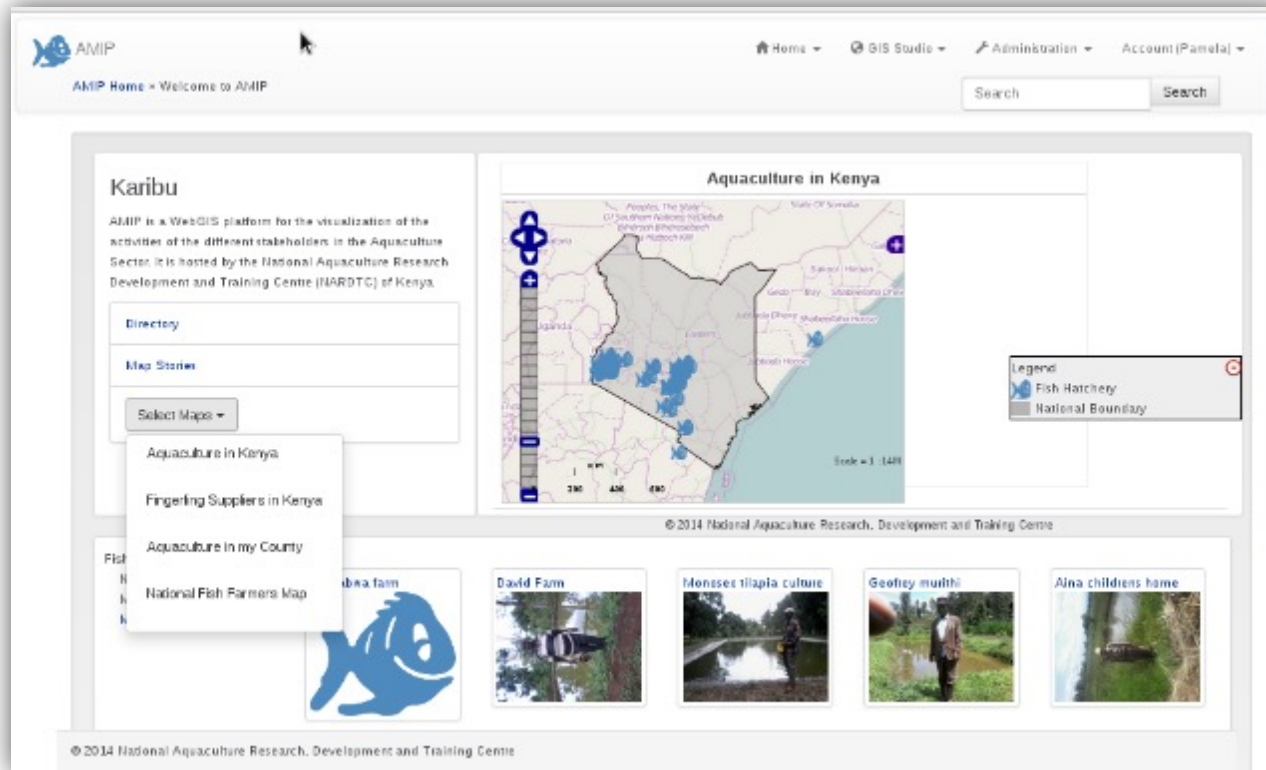
Fish samosa

AQUACULTURE PUBLISHED MATERIAL



Aquaculture Market Information Platform (AMIP)

- KMFRI Aquaculture division has developed a market information platform (AMIP) to ease linkages among aquaculture stakeholders.



Linkages

- Raised wooden backyard ponds, greenhouse hatchery, in-pond raceway, use of novel plant and animal ingredients in feed formulation are the various technologies being implemented on-farm at various parts of the country.

- Partners in the adoption strategy include

✓ SDF&BE

✓ CG

✓ AAK

**Mombasa and Taita Taveta
Counties**



Kisii County



Policy Gaps

- Lack of support on budget allocation at County levels
- Poor national and county synergy on sector promotion
- No clear cage guidelines yet
- Low consultative approaches to policies, frameworks and regulations
- High power tariffs
- High import duty
- Restrictive movement of genetic material
- Unfavorable fish market competition

THANK YOU

