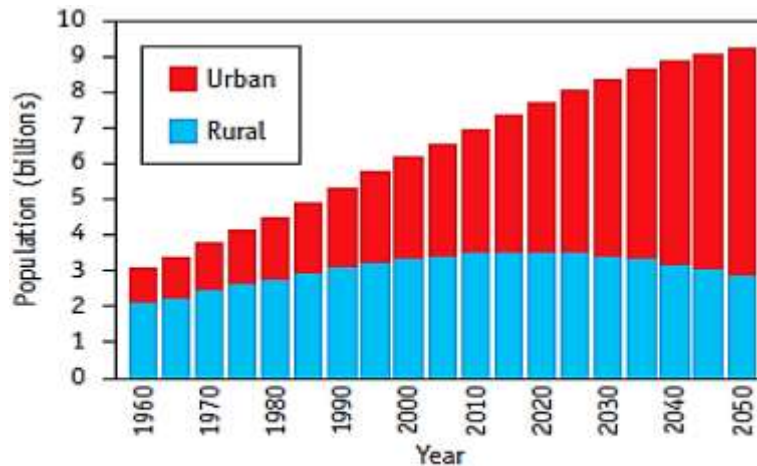
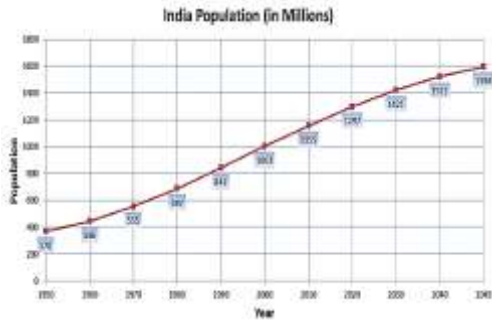
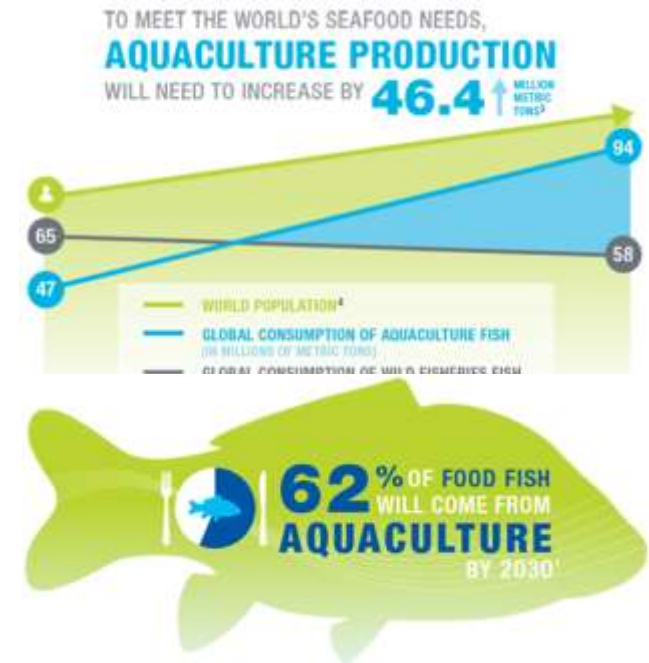


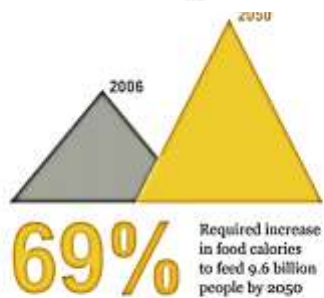
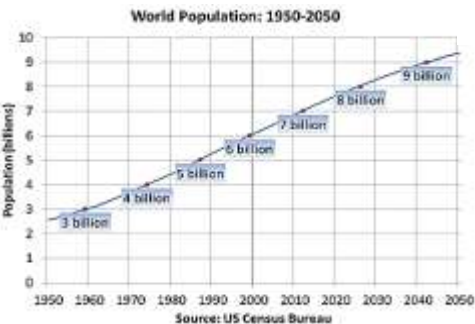
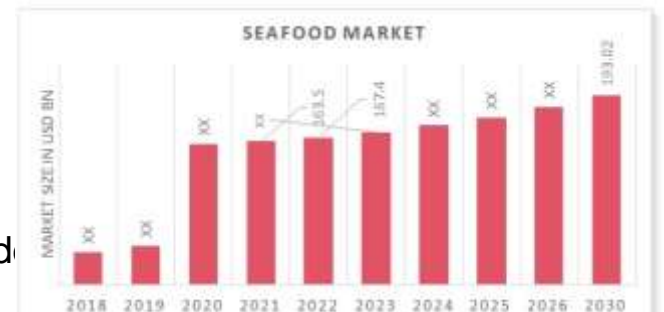
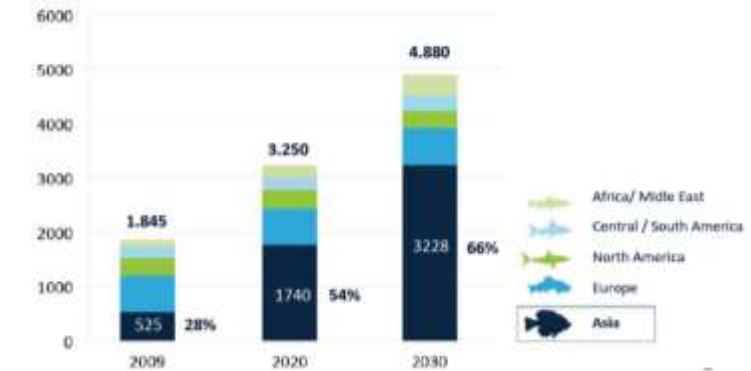
- Agriculture GDP – 15-16%; Aquaculture >1.2
- “Mariculture”, one of the emerging sectors in India, is poised to touch greater heights by leaving its infancy.
- The prominence and focus on this particular sector is due to its proven technological potential and socio-economic and employment upliftment across the globe.
- In addition, food and nutrition security contribute to mankind.
- Therefore, the sector become one of the fastest-growing sub-sectors of Aquaculture globally.
- The driving factors for mariculture advent



World urban and rural population 1960-2050

Source: FAOSTAT; Teng et.al, 2011

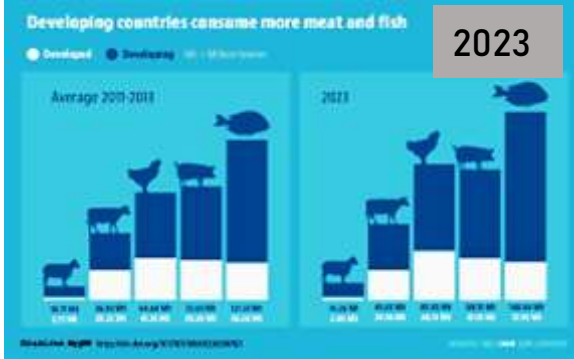
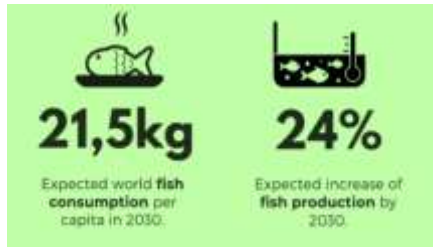
Tsunami of middle class consumers (Million of people)



Population growth outpaces food supply

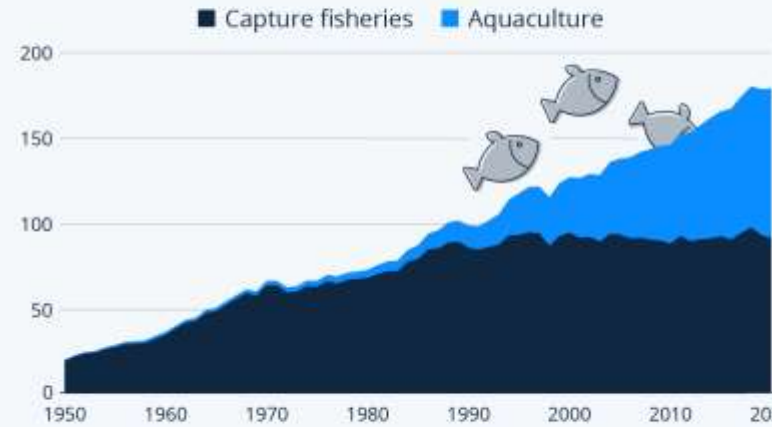
Urbanization and tremendous increase in mid

- The driving factors for mariculture advent



Aquaculture Accounts for Half of the World's Fish Supply

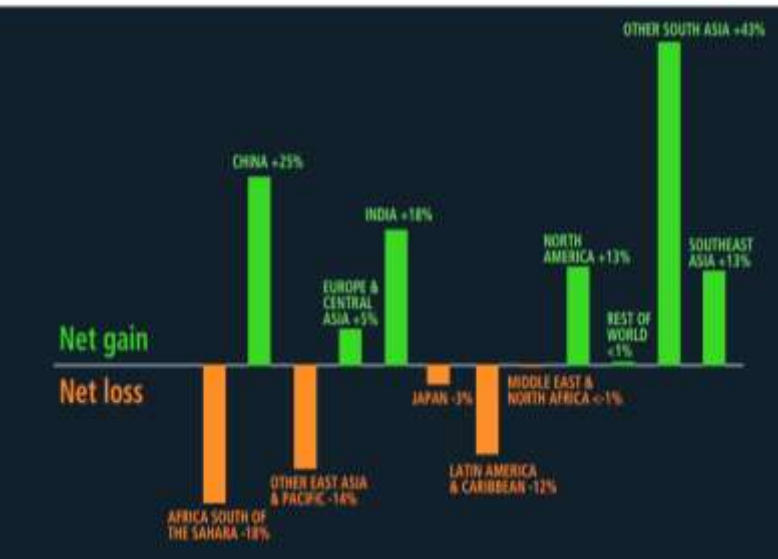
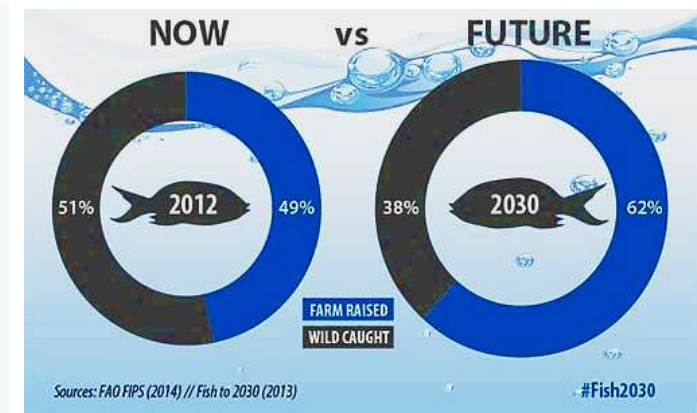
Estimated global fisheries and aquaculture production* (in million tonnes live weight equivalent)



* excluding aquatic mammals, crocodiles, caimans and algae



statista



Food consumption by 2030 (FAO 2013)

One of the sustainable food-producing sector



Low Carbon footprint comparatively any meat producing sector



Decision-making framework Developed for identifying best suitable mariculture sites in India with GIS-MCE based modelling approach

Journal of Cleaner Production 284 (2021) 124760

Contents lists available at ScienceDirect

Journal of Cleaner Production

journal homepage: www.elsevier.com/locate/jclepro



Decision-making framework for identifying best suitable mariculture sites along north east coast of Arabian Sea, India: A preliminary GIS-MCE based modelling approach

Damodaran Nair Divu ^a, Suresh Kumar Mojjada ^{a,*}, Abdul Azeez Pokkathappada ^a, Kapil Sukhdhane ^a, Muktha Menon ^b, Ramesh Kumar Mojjada ^c, Mayur Shivdas Tade ^a, Hiralal Mepabhai Bhint ^a, Achemveetil Gopalakrishnan ^d

^a Indian Council of Agricultural Research-Central Marine Fisheries Research Institute (CMFRI), Veraval Regional Centre, Matsya Bhavan, Bhidia Plot, Veraval, 362 269, Gujarat, India

^b Indian Council of Agricultural Research-Central Marine Fisheries Research Institute (CMFRI), Visakhapatnam Regional Centre, Pandurangapuram, Ocean View Layout, Pandurangapuram, Visakhapatnam, 530 003, Andhra Pradesh, India

^c Department of Computer Science and Engineering, KL University, Green Fields, Vaddeswaram, Guntur, 522 502, Vijayawada, Andhra Pradesh, India

^d Indian Council of Agricultural Research-Central Marine Fisheries Research Institute (CMFRI), North P.O Abraham Madamakal Road, Ernakulam, Ayyappankavu, Kochi, 682 018, Kerala, India

Highlights

- A novel GIS-MCE based spatial model was developed for identifying best suitable mariculture sites along the Arabian Sea, Gujarat state of India.
- The model demarcated 12557.74 km² area for potential mariculture sites through the established decision support framework.
- The model is adoptable to similar agro-climatic sub-continent with the inclusion of region-specific factors/criteria.
- Use of this model as a decision-making tool will ensure sustainable mariculture development with least impacts on the ecosystem, thereby, adhering to the principles of Ecosystem Approach to Aquaculture and Cleaner Production as well.

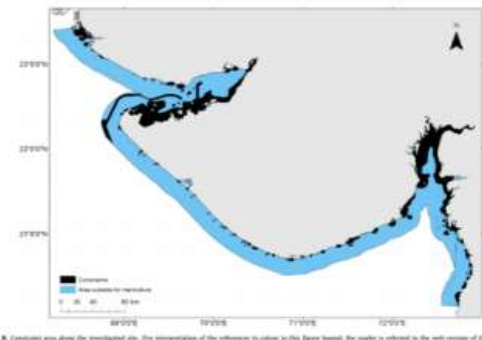
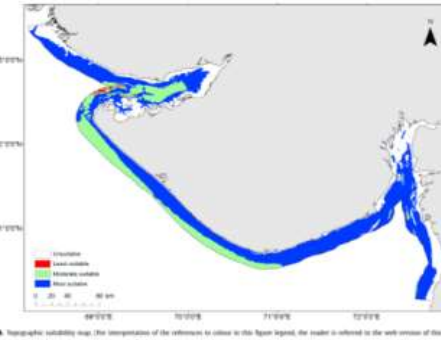
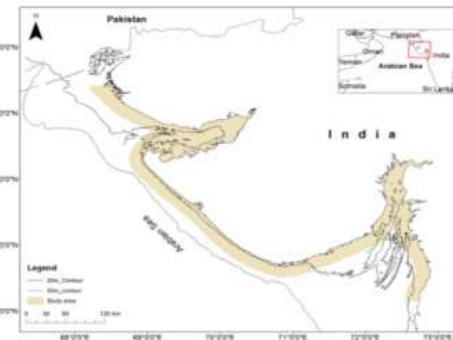
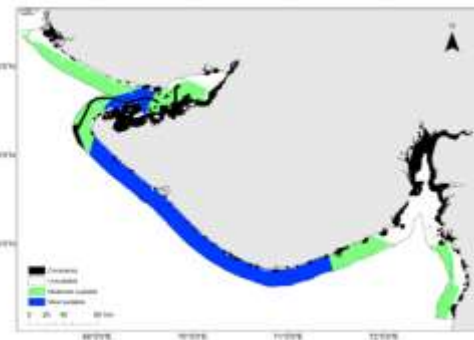


Fig. 4. Topographic suitability map. (The interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

Fig. 5. Candidate area along the investigated site. (The interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)