



"A sailing ship is no democracy; you don't caucus a crew as to where you'll go anymore than you inquire when they'd like to shorten sail. - Sterling Hayden

Blue Economy - Wave 51

(Series on "Blue Economy" By Capt. Gajanan Karanjikar)



Capt. Gajanan Karanjikar, Blue Economy Social Activist & Multi Modal Logistics Expert

Marine Microorganism Resources and Biotechnology:

The oceans have a total volume of 1,369,000,000 km³, accounting for over 98% of the hydrosphere. They are also very complex microbiologically, with many types of microorganisms inhabiting environments of differing pressure, salinity, and temperature. Having developed metabolic processes and physiological capabilities to adapt within extreme environments, marine



microorganisms are very likely to contain metabolites that are quite different from those present in land-based microorganisms.

In terms of the physical and chemical properties of marine and land-based organisms, the marine environment consists of water and thus requires the production of large amounts of chemicals for smooth information exchange among organisms.

In addition, because the absorption of solar energy is confined to the marine environment's surface layer and protein-dominant biota possesses dominance over carbohydrates, the food chain is highly complex. The result is

a very diverse mixture of epibionts and symbionts. Marine microorganisms can therefore be seen as an unexplored treasure trove of industrially valuable compounds.

Marine bacteria possess outstanding capabilities in producing high-molecular weight substances and enzymes. Additionally, some species are used as potential producers of enzymes such as deoxyribonuclease, lipase, alginate lyase, protease, agarase, cellulase, and esterase. As previously noted, numerous bioactive substances have been found in marine microorganisms, including those with antimicrobial, antifungal, antiviral, antitumor, anti-inflammatory, antioxidant, and enzyme-inhibitors. While difficulties with mass-producing source materials create problems in the use of marine plants and animals, marine microorganisms are beneficial from a usage standpoint in that they can be cultured.

Conclusions:

To realize the potential that the oceans offer in terms of new products and processes requires the concerted effort of many parties. Effective academic-industrial collaboration is essential to bring any novel marine biotechnological outputs to the market. Key to this success is the establishment of formal and informal agreements with stakeholders and institutions to enhance the commercialization of marine biotechnologies through

education, market research, and business development activities. That will provide the parties with access to new tools and research capabilities which would otherwise be unavailable to them on an individual basis. Stimulating the development of research strategies and programmes for marine biotechnology research and aligning these at the national and international level is also of primary interest, as well as the development of local and major networks, which allows productive face-to-face interaction between academic and industrial partners that can help to break down last barriers from applied to commercially exploited science.

Marine bio resource are unlimited, but utilization to mankind is limited. Marine based bio industry plays an important role in produce several commercial products such as polysaccharides, proteins, peptides, small molecules, and lipids for various applications. Marine Biotechnology plays a significant role in our daily day life, and it is an emerging area of field in the past five decades. Marine biotechnological applications are widely utilized in food, pharmaceutical, cosmeceutical and energy applications. Some of the environmental applications such as bio fouling, removal of spilled oil is being overcome through some of the biotechnological methods. Production of novel chemicals with different biotechnological tools increases its production and can meet the consumer's expectation.

Prime Minister Modi praises Gujarat as he lists the projects implemented in the state

AHMEDABAD
Sagar Sandesh News Service

The Prime Minister lauded the way Gujarat realized its maritime potential in the last two decades and gave priority to port led development and said it is a matter of pride for every Gujarati.

Prime minister was inaugurating the Ro Pax ferry service to line Hazira port near Surat in southern Gujarat with Saurashtra in Northern part of the state

He listed the initiatives of both the central and State Governments in developing the maritime potential of the state like drafting a Shipbuilding policy, construction of Shipbuilding Park and Specialized Terminals, promotion of Vessel Traffic Management system and Groundbreaking Connectivity projects.

Ports of Gujarat have emerged as major maritime centers of the country

Gujarat has become a gateway of prosperity due to the efforts of the central government in ensuring the development of all types of infrastructure in the coastal area. He said over the past two decades, a unique model of integrated port has evolved from traditional port operations in Gujarat and has developed as a benchmark today. He said the result of these efforts is that the ports of Gujarat have emerged as major maritime centers of the country. Last year, it accounted for more than 40 percent of the country's total maritime trade.

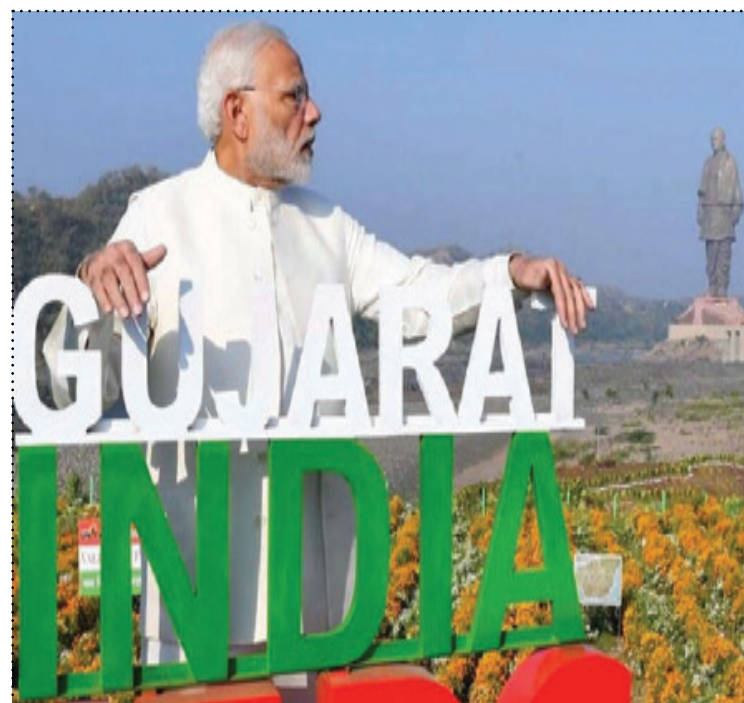
Maritime business-related infrastructure and capacity building in Gujarat is in full swing under this government. Many facilities are getting ready in Gujrat like Gujarat Maritime Cluster, Gujarat Maritime University and country's first CNG Terminal at Bhavnagar.

Gujarat Maritime cluster ports to be built in GIFT city would be a dedicated system to address the requirements of Ports.

India's first Chemical Terminal was established in Dahej, India's first LNG terminal was established, now India's first CNG terminal is going to be installed at Bhavnagar Port. In addition facilities like Ro-Ro terminal at Bhavnagar port, Liquid cargo terminal and a new container terminal are being prepared. He said with the addition of these new terminals, the capacity of Bhavnagar port will increase manifold.

Gujarat Maritime University is a big center for getting trained manpower and experts ready for maritime trade

The Prime Minister said the Central government is making efforts to restart the ferry service between Ghogha-Dahej very



PM Modi in Gujarat

soon. He said many natural challenges have arisen in this project and efforts are being made to remove them through modern technology. He added Gujarat Maritime University is a big center for getting trained manpower and experts ready for maritime trade.

Today, the Gujarat University

provides opportunities to pursue maritime law and international trade law and also MBA in Maritime Management, Shipping and Logistics. He said apart from the university, work is also going on to build the first National Museum to preserve the country's maritime heritage in Lothal in the state.