



"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

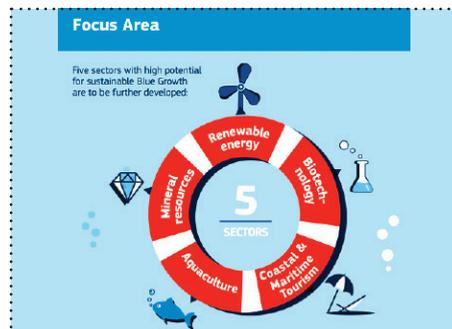
Blue Economy-Wave 45

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



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

One of the fastest emerging high-technology sectors in Blue Economy is marine biotechnology. It has wide-ranging applications in industrial sectors including pharmaceuticals, cosmetics, nutritional supplements, molecular probes, enzymes, fine chemicals and agrichemicals. In the global economy, the size of biotechnology market is estimated at US\$ 2.4 billion which is expected to register an annual growth of 10 per cent. Marine bio-resources such as sponge, marine fish species, molluscs, bacteria, algae, olga,



coral, fungus, sea worm, etc. are used extensively for industrial applications, drug developments, agriculture, fisheries, biofuel, oil spills, tissue and dental applications. Broadly speaking, marine biotechnology can be categorised into white by industrial biotechnology, red by pharmaceuticals, green by agriculture, and blue by biofuel as well as Bioinformatics. Among various sub-sectors of marine biotechnology, the bio-pharmaceutical sector is expanding globally. The EU is a leader in this sector. According to a recent estimate, the pharmaceutical market of the EU is likely to reach € 8.6 billion in 2016 and has registered a compound growth of 12.5 per cent during the period 2011-16. Marine biotechnology produces several kinds of products. For example, biopolymer is useful in wound dressing, bio-adhesives,

Table 3: Drugs Using Marine Species

Disease	Source	Product
Antibiotic	Cephalosporium sp., marine fungi	Cephalosporins
Cancer	Marine Sponge	Ara-C
Cancer	Sea Squirt	Yondelis
Cancer	Sea slug	Dolastatin
Cancer	Bryozone	Bryostatin-1
Cancer	Shark	Squalamine
		Lactate
Inflammation, Asthma	Sponge	PL512602 (steroid)
Molecular Probe	Marine Sponge	Manoalide
Viral	Marine Sponge	Ara-A

Source: Thakur and Thakur (2006)

dental biomaterials, tissue regeneration and 3D tissue culture scaffolds. Specific marine fish species are used for drug development to cure cancer, pain and inflammation, various forms of infections, malaria, schizophrenia, Alzheimer, and neovascular diseases. Sponge is used to prepare drugs for diseases like cancer, inflammation, viral infections, malaria and cardiovascular issues; coral for inflammation and wounds; marine fishes for inflammation, cancer, neo-vascular diseases and hypertriglyceridemia, among others. There are certain drugs available in the market for specific critical diseases and these drugs are manufactured using marine bio-resources as shown in Table 3 below. Moreover, bio-resources and compounds are used for preparation of various cosmetic products, which are traded widely across the globe. The relevance of white

biotechnology is becoming important due to growing dependence on agriculture, particularly on sectors like fisheries and food additives. Polyculture is becoming important in fishing technology to replace conventional method of aquaculture production in maricultural. Since capture fishing is declining persistently in the face of growing demand for fisheries products, increasing supply of fish production in an environmentally sustainable manners becoming important. Agricultural biotechnology has the advantage of improving supply of high quality food on a sustained basis. This technology focuses on optimum food and feeding, health of cultural organisms, diseases and resistance.

(To be continued...)

Hyundai Heavy books \$360 million order for VLCC quartet



Very large crude carriers

NEW DELHI
Sagar Sandesh News Service

South Korean shipbuilder Hyundai Heavy Industries (HHI), part of Korea Shipbuilding & Offshore Engineering Co., has secured an order for the construction of four very large crude carriers (VLCCs).

The order, received by companies from Oceania and

Europe, is valued at ₩420 billion (about \$360 million).

As informed, the ships will be built at the shipyard in Ulsan and are scheduled for delivery in the first half of 2022.

Once completed, the tankers will have a length of 330 meters and a width of 60 meters. Featuring energy-efficient technologies, they will be equipped with

scrubbers, complying to international environmental regulations.

According to an official from Korea Shipbuilding & Offshore Engineering, the shipbuilder has been steadily winning new orders thanks to energy-saving, eco-friendly technologies it developed in the ultra-large crude oil carrier sector.

So far this year, the South

Korean shipbuilder has won orders for seven of a total of sixteen VLCCs ordered on a global scale, representing 40 per cent of the market share.

Korea Shipbuilding, a subholding company of Hyundai Heavy Industries Holdings, comprises three shipbuilders — HHI, Hyundai Mipo Dockyard (HMD) and Hyundai Samho Heavy Industries (HSHI).

Fincantieri delivers 1st ship in COVID-19 aftermath

NEW DELHI
Sagar Sandesh News Service

Fincantieri hosted a delivery ceremony on Wednesday 30th Sept, 2020 at Monfalcone shipyard for **Enchanted Princess**, the 100th cruise ship to be delivered by the Italian shipbuilder in the last 30 years.

Princess Cruises, a Carnival brand, welcomed the ship into its fleet in a virtually streamed ceremony.

"Enchanted Princess is a special ship: she is, indeed, the first cruise ship we delivered after COVID-19 outbreak and the 100th ship built by Fincantieri in the last 30 years," **Giuseppe Bono, CEO of Fincantieri**, said.

"We believe she demonstrates the best ability to tackle the hardest times with passion and commitment, as well as the historic resilience of our industry."

The cruise ship features **145,000 gross tons and can accommodate 4,610 passengers and 1,411 crew members.**

It is an evolution of its sister ships – Royal Princess, Regal Princess, Majestic Princess, and Sky Princess, all built by Fincantieri.

The upcoming unit of the same class, Discovery Princess, is slated for delivery in 2021.



Princess Cruises, a Carnival brand, welcomed the ship into its fleet in a virtually streamed ceremony.

Enchanted Princess is scheduled to arrive in North America in December 2020, for a season of Caribbean cruises.

Princess Cruises said it was working on enhancing health and safety protocols with input from global health leaders in light of COVID-19 and assessing how they may impact future itineraries.

Princess Cruises has two more next-generation ships set for delivery from the Monfalcone shipyard in 2023 and 2025.

The dual-fuel LNG powered ships will be the largest cruise ships built in Italy featuring 175,000 gross tons, and capacity to accommodate 5,300 guests respectively.