Seaweed Farming and Pegasus

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In news : Recently, the Union Finance Minister has proposed in the Budget to set up aa multi-purpose seaweed park in Tamil Nadu as part of promoting seaweed cultivation.

What is Seaweed Farming?

Seaweed farming or kelp farming refers to the practice of cultivating and harvesting seaweed. In its simplest form, it consists of the management of naturally found batches

About seaweed

- Seaweed or sea vegetables are forms of algae that grow in the sea. They’re a food source for ocean life and range in color from red to green to brown to black.
- Seaweed grows along rocky shorelines around the world, but it’s most commonly eaten in Asian countries such as Japan, Korea and China.
- Seaweed are plant-like organisms, playing a key ecological role in coastal ecosystems: support of food web, coastal protection of erosion, bioremediation by removal of nitrogen or phosphate and possible pollutants and CO2 sequestration
- Seaweeds are also called macro-algae. This distinguishes them from micro-algae (Cyanophyceae), which are microscopic in size, often unicellular, and are best known by the blue-green algae that sometimes bloom and contaminate rivers and streams.
- Naturally growing seaweeds are often referred to as wild seaweeds, in contrast to seaweeds that are cultivated or farmed.

Classification of seaweeds

Seaweeds can be classified into three broad groups based on

pigmentation: brown, red and green. Botanists refer to these broad groups as Phaeophyceae, Rhodophyceae and Chlorophyceae, respectively.

- Brown seaweeds are usually large, and range from the giant kelp that is often 20 m long, to thick, leather-like seaweeds from 2-4 m long, to smaller species 30-60 cm long.
    - The main uses of brown seaweeds are as foods and as the raw material for the extraction of the hydrocolloid, alginate.
    - The more useful brown seaweeds grow in cold waters in both the Northern and Southern Hemispheres.
    - They thrive best in waters up to about 20°C. Brown seaweeds are found in warmer waters, but these are less suitable for alginate production and rarely used as food.
- Red seaweeds are usually smaller, generally ranging from a few centimetres to about a metre in length; however, red seaweeds are not always red: they are sometimes purple, even brownish red, but they are still classified by botanists as Rhodophyceae because of other characteristics.
    - The main uses of red seaweeds are as food and as sources of two hydrocolloids: agar and carrageenan.
    - Useful red seaweeds are found in cold waters such as Nova Scotia (Canada) and southern Chile; in more temperate waters, such as the coasts of Morocco and Portugal; and in tropical waters, such as Indonesia and the Philippines.
- Green seaweeds are also small, with a similar size range to the red seaweeds.

Seaweed species in India

The commercially exploited seaweed species in India mainly include Kappaphycus alvarezii, Gracilaria edulis, Gelidiella

acerosa, Sargassum spp. and Turbinaria spp. Seaweeds are valued for commercial products such as Karrageenan and Agar besides being used for the production of polysaccharides, fertilizer, sludge and other high-value products such as nutraceuticals and cosmeceuticals for use against various lifestyle diseases

Seaweed Park in Tamil Nadu

- Union Finance Minister, while presenting the Union Budget 2021. “Seaweed farming is an emerging sector with the potential to transform the lives of coastal communities
- It will provide large scale employment and additional income
- Natural seaweed resources exist in abundance in the state’s Ramanathapuram, Thoothukudi and Pudukkottai districts

PEGASUS-Psychomorph European Guidelines for a SUstainable Aquaculture of Seaweeds

Recently, PEGASUS on seaweed has been released, following are the key highlights of the document:

- Domestication of the oceans is widely regarded as a possible solution to increase food and could be one of the next most important developments in human history.
- As per PEGASUS, by 2050, the edible bioresource biomass will have to satisfy the 9 billion people predicted to live on the planet.
- Seaweed aquaculture can help to address global challenges related to nutrition, health and sustainable circular bio economy.
- According to it there is growing need for development, improvement and diversification of seaweed aquaculture practices in Europe, a continent characterised by its large coastal territory and large range of climates.

- The technical document “PEGASUS” highlights the current state of European seaweed production and pinpoints challenges for the development of this sector in the current European context.
- It proposes recommendations for short-term and long-term improvements at different levels of the chain.