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Untapped seaweed potential & Biodiversity Act

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In 17th century Japan, scientists discovered the beneficial effects of agar-agar, a resin extracted from marine macroalgae called seaweeds (plant-like organisms
that are attached to rocks etc) which grow abundantly on the coastline. Since then agar-agar, a jelly like substance is used in a wide variety of products such as medicines, milk additives, ice cream, chocolates, pet foods.

With over 7,000 km of coastline, India is an ideal location to grow seaweeds, which are broadly categorized as red, brown, and green algae, in abundant quantities to
meet domestic demands and export to the needy world. The reality in India is different. India actually imports huge quantities of agar-agar to meet the growing needs, thanks mainly to the restrictions placed on its cultivation and exports by the Biodiversity Act, 2002.

Seaweeds is not a plant native to India. It is found abundantly in coastal areas around the world yet India's overzealous regulators wanted to protect this and put various restrictions on it. Under the Biodiversity Act, any grower has to get a permission from the Biodiversity Authority and pay a 5 percent royalty on the export
earnings. The export fee is supposed to be used to take up conservation activities.

A detailed study on the socio-economic potential of seaweeds in the country was done in 2010 by Dr M Krishnan at the Central Institute of Brackish Water Aquaculture, Chennai and Dr R Narayankumar at the Central Marine Untapped Seaweed Potential & Fisheries Research Institute, Kochi. According to their study, India has 434 species of red seaweeds, 194 species of brown seaweeds, and 216 species of green seaweeds. Both red and brown seaweeds grow only in seawater proximity.

Green algae grows on land based waterbodies too.

The study has estimated that India can grow more than one million tonnes of seaweeds in six states-Gujarat, Tamil Nadu, Kerala, Andhra Pradesh, Maharashtra and Andaman & Nicobar Islands. In the global markets each tonne of average quality agar-agar is sold for more than $2000 (Rs 120,000) and the country has the potential to generate more than Rs 200 crore in foreign exchange annually from this besides providing additional income and gainful employment to thousands of people on the coastline.

However, India imports agar-agar worth more than Rs 50 crore annually. In India, serious commercial production of seaweeds was started in 2007 by Pepsico Holdings as part of its corporate social responsibility (CSR) initiatives. Pepsico helped form hundreds self help groups (SHGs) comprising mostly women in the coastal areas of Ramanathapuram district in Tamil Nadu and helped grow seaweeds and extract the byproducts. It has become so popular that seaweeds are actually called "Pepsi Pasi" (Pepsi algae) in southern parts of Tamil Nadu.

According to the study by Dr Krishnan and Dr NarayanaandKumar, under the Pepsi project, SHGs in the fishing villages of Vedalai, Thonithurai, Ariyankkundu, and R Vadakadu operate more than 1,000 rafts growing seaweeds.

Most SHGs obtain a yield of 50 kg per raft per day. Seaweed farming offered 161 and 144 days of employment annually in Rameshwaram and Mandpam areas which is much more than the 100 days of employment offered by the central employment scheme, MGNREGA at great public cost.

An Indian company, Sea6Energy, founded by young engineers from IIT Madras, and mentored by biotechnologist, Dr Shrikumar Suryanarayan, has extracted good quality biofuels from seaweeds. All their efforts to get permission to grow seaweeds along the country's shoreline has been stopped by various environmental regulations. This company is now growing seaweeds in association with partners in Indonesia and even faraway Brazil just to get materials to do more research work on biofuels.

On the other hand, the Philippines and Indonesia grow seaweeds abundantly, encouraged by government policies and dominate the global supplies. How is the Biodiversity Act hampering the growth of this activity? Various experts BioSpectrum spoke to indicate that the tedious, time-consuming process of getting permission from the Biodiversity Authority to handle seaweeds is a dampener for entrepreneurs eyeing this field.

Also, entrepreneurs cannot access capital from venture funds or event top banks which have foreign share holdings. This is because the Biodiversity Act prohibits any entity with foreign holdings from doing any commercial activity with seaweeds and other plant based materials. Since foreign holding is not defined under the Act, if a foreigner or foreign entity owns even a single share in such an enterprise, it will be barred from the activity by the Act.

Also, Access and Benefit Sharing (ABS) is mandated by the Act and entrepreneurs have to share part of the surpluses generated with the local community where seaweeds are grown. Entrepreneurs want to do this. However, ABS has to handled by the Biodiversity Committees to be set up in each state under the Act. Even a state like Tamil Nadu has not set up such a committee. So all the collections under the Act lie unused in the coffers of the central government.

So this is yet another mindless government initiative which was started with the good intention protecting the nation's natural resources from "rapacious foreigners" actually used to stymie indigenous entrepreneurship.