



Natural Pearl Farming in India

For Prelims: Pearl Farming, Mollusks

For Mains: Government Initiatives for Natural Pearl Production in India, Challenges in Pearl Production and Way Forward

[Source: PIB](#)

Why in News?

The **Ministry of Fisheries, Animal Husbandry and Dairying** in collaboration with the State Governments, Research Institutes, and other concerned agencies has taken several initiatives to promote natural pearl farming in India.

What is Pearl Farming?

- **About:** Pearl farming is the **process of cultivating pearls** within freshwater or saltwater oysters **in a controlled environment**.
 - It involves the process of cultivating pearls by inserting an **irritant (nucleus)** into the **body of a mollusk**, which then secretes layers of nacre around it. Over time, these layers form a pearl.
 - Nacre (the mother of pearl) is an organic-inorganic composite system, produced by some mollusks as an inner shell layer. The material is strong, resilient, and iridescent, and this is what the pearls are composed of.
 - This scientific and commercial practice leverages the **natural biological process** of mollusks to produce high-quality pearls in controlled conditions.
 - **Mollusks** are **soft-bodied invertebrates** that inhabit marine, freshwater, brackish waters, or land environments such as **snails, octopi, oysters**.
- **Procedure:** Farming practice of the freshwater pearl culture operation involves six major steps sequentially:
 - Collection of mussels
 - Pre-operative conditioning (keeping mussels in crowded condition in captivity)
 - Implantation (Inserting nuclei or graft tissues into mussels)
 - Post-operative care (antibiotic treatment)
 - Pond culture (12-18 months)
 - Harvesting of pearls
- **Pearl Production:**
 - **Global - China leads global pearl production**, focusing on freshwater pearls, followed by **Japan, Australia, Indonesia**, and the Philippines.
 - **India** - Pearl culture practices are present in **Gujarat, Maharashtra, Bihar, Odisha, Kerala, Rajasthan, Jharkhand, Goa, and Tripura**.
 - In 2022, **India was the 19th largest exporter of pearls** in the world, exporting USD 3.79 million worth of pearls.
- **Challenges in Pearl Farming in India:**

- Limited freshwater pearl farmers and absence of an organized sector.
- Lack of standardized protocols for broodstock management, breeding, and water quality tailored to diverse agro-climatic zones.
- Scattered availability of mussel broodstock (reproductively mature adults that breed and produce more individuals) and inadequate research support.
- Poor extension networks to disseminate existing technologies.

What are the Government Initiatives for Natural Pearl Production in India?

- **Pradhan Mantri Matsya Sampada Yojana (PMMSY):**
 - Under the [PMMSY](#), the government has approved the establishment of **bivalve cultivation units**, encompassing **mussels, clams, and pearls**, with a total investment of Rs 461 lakh across various States and Union Territories.
 - Additionally, a **Standard Operating Procedure (SOP)** has been circulated to guide the development of fisheries and aquaculture clusters, including specialized pearl farming clusters.
- **Pearl Farming Clusters:**
 - Establishment of the first [pearl farming cluster](#) in Hazaribagh, Jharkhand. [TRIFED \(Tribal Cooperative Marketing Development Federation of India\)](#) has also inked an agreement with the Jharkhand-based Purty Agrotech for the promotion of pearl farming in tribal areas.
- **Support Under Blue Revolution:**
 - The Department of Fisheries has included a sub-component for pearl culture in the [Blue Revolution](#) scheme for encouraging the sector.
- **Training and Capacity Building:**
 - Training of over 1900 participants by **Indian Council of Agricultural Research (ICAR)** institutions on both freshwater pearl farming and marine pearl farming.

Way Forward

- To advance pearl farming in India, there is a need to enhance government support and infrastructure by strengthening subsidies, improving broodstock management, and standardizing breeding and water quality protocols.
- Establishing organized sectors and cooperatives will streamline operations and improve market linkages. Promoting research through institutions like ICAR-CIFA and building farmer capacity with innovative techniques and training programs is essential.

Drishti Mains Question:

Discuss the potential of pearl farming as a sustainable livelihood option in India. Highlight the challenges faced by the sector and suggest measures to overcome them.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q. Which one of the following is a filter feeder? (2021)

- (a) Catfish
- (b) Octopus
- (c) Oyster
- (d) Pelican

Ans: (c)

Q. Under the Kisan Credit Card scheme, short-term credit support is given to farmers for which of the following purposes? (2020)

1. Working capital for maintenance of farm assets
2. Purchase of combine harvesters, tractors and mini trucks
3. Consumption requirements of farm households
4. Post-harvest expenses
5. Construction of family house and setting up of village cold storage facility

Select the correct answer using the code given below:

- (a) 1, 2 and 5 only
(b) 1, 3 and 4 only
(c) 2, 3, 4 and 5 only
(d) 1, 2, 3, 4 and 5

Ans: (b)

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