02 Aug 2020: PIB Summary & Analysis

1. Khadi Agarbatti Aatmanirbhar Mission

Context:

Union Minister for MSME approves the Khadi Agarbatti Aatmanirbhar Mission.

About the Khadi Agarbatti Aatmanirbhar Mission:

- This is an employment generation programme proposed by the Khadi and Village Industries Commission (KVIC).
- The idea is to make India aatmanirbhar (self-reliant) in agarbatti production.
- **Objective of the mission:**
    - The mission aims at creating employment for unemployed and migrant workers in different parts of the country while increasing domestic Agarbatti production substantially.
- The scheme will operate on a PPP model.
- Under the scheme, KVIC will provide Automatic Agarbatti making machines and powder mixing machines to the artisans through successful private Agarbatti manufacturers who will sign the agreement as business partners.
- KVIC has decided to procure only locally made machines by Indian manufacturers which also aims at encouraging local production.
- KVIC will provide a 25% subsidy on the cost of the machines and will recover the remaining 75% of the cost from the artisans in easy installments every month.
- The business partner will provide the raw material to the artisans for making Agarbatti and will pay them wages on a job work basis.
- The cost of artisans' training will be shared between KVIC and the private business partner wherein KVIC will bear 75% of the cost while 25% will be paid by the business partner.
- Each automatic Agarbatti making machine makes approximately 80 kg Agarbatti per day which will provide direct employment to 4 persons. One powder mixing machine, to be given on a set on 5 Agarbatti making machines, will provide employment to 2 persons.
- The supply of raw material to the artisans, logistics, quality control and marketing of the final product will be the sole responsibility of the business partner.
- The programme aims at handholding artisans and supporting the local Agarbatti industry. The current consumption of Agarbatti in the country is approximately 1490 MT per day; however, India's per day production of Agarbatti is just 760 MT. There is a huge gap between the demand and the supply and hence, immense scope for job creation.

2. Prevention of cataract

Context:

INST scientists develop simple economical nonsurgical prevention of cataracts.

What is Cataract?

- A cataract is a dense, cloudy area that forms in the lens of the eye.
- A cataract begins when proteins in the eye form clumps that prevent the lens from sending clear images to the retina. The retina works by converting the light that comes through the lens into signals.

- A cataract is a form of blindness that occurs when the structure of crystallin proteins that make up the lens in our eyes deteriorates, causing damaged or disorganised proteins to aggregate and form a milky blue or brown layer, which ultimately affects lens transparency.

Thus, prevention of the formation of these aggregates as well as their destruction in the early stage of disease progression is a major treatment strategy for cataracts.

Details of the study:

- A team of scientists from the Institute of Nano Science & Technology (INST), an autonomous institute under the DST, has developed nanorods from the nonsteroidal anti-inflammatory drug (NSAID) Aspirin and found it to be an effective non-invasive small molecule-based nanotherapeutics against cataract.
- The team has used the anti-aggregation ability of self-build aspirin nanorods for this purpose.
- Aspirin nanorods prevent the aggregation of crystallin protein and various peptides derived from its fragmentation, which play a crucial role in cataract formation.
- These were found to prevent cataract formation by inhibiting aggregation of crystallin, and crystallin derived peptide aggregates.
- The targeted disaggregation of the accumulated alpha-crystallin protein and crystallin derived peptide aggregates in aged and cataractous human lenses are considered as a viable therapeutic strategy for the prevention of cataract formation.
- The aspirin nanorods are produced using the process of molecular self-assembly, which is a low cost and high-yield technique to generate the aspirin nanorods as compared to the high cost and laborious physical methods generally used for the synthesis of nanoparticles.
- **Benefits of using aspirin:**
    - Many natural compounds have already been reported as potential aggregation inhibitors for crystallin aggregation, but the utility of nonsteroidal anti-inflammatory drugs (NSAIDs) like aspirin in this direction will open a new paradigm.
    - In addition, aspirin nanorods due to their nano-size will enhance the bioavailability, improve drug loading, lower toxicity, etc.
    - Hence, the delivery of the aspirin nanorods as eye drops is going to serve as an effective and viable option to treat cataract non-invasively.
- This easy to use and low-cost alternative nonsurgical treatment method will benefit patients in developing countries who cannot access expensive cataract treatments and surgeries.