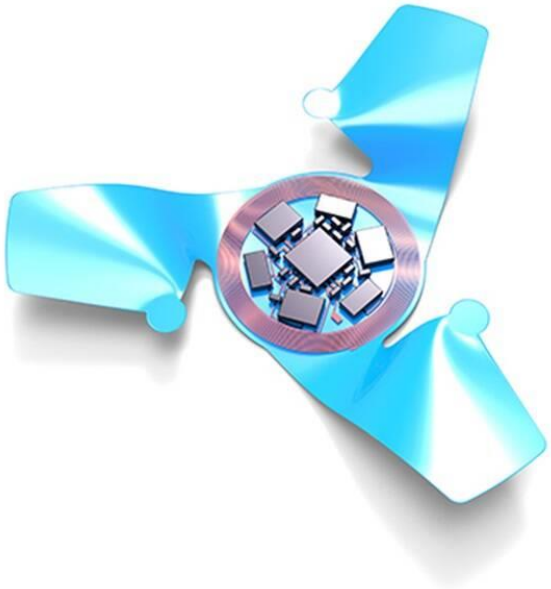
Microflier

GS Paper - 3 - Nanotechnology



Context

Recently, Northwestern University (US) has created an **Electronic Microchip or Microflier** with the capability of flight. It is the **smallest-ever human-made flying structure.**

What is this

- It is about the size of a **grain of sand** and does not have a motor or engine.
- It **catches flight on the wind** — much like a **maple tree's propeller seed** — and spins like a helicopter through the air toward the ground.

What are major Idea Behind the Design:

- The engineers optimised their design by studying maple trees and other types of **wind-dispersed seeds** and fashioned the micro flier such that when dropped from a height it would fall at a slow velocity in a controlled manner.
    - This behaviour stabilizes its flight, **ensures dispersal over a broad area and increases the amount of time** it interacts with the air.
- They designed many different types of micro fliers, including one with three wings, resembling the wings on a **tristellateia seed.**

Major Significance:

- It can be packed with **ultra-miniaturised technology**, including sensors, power sources, antennas for wireless communication and embedded memory to store data.
    - **Miniaturization** is the trend to manufacture ever **smaller mechanical, optical and electronic products** and devices.
- It is ideal for **monitoring Air Pollution and Airborne Disease**.

Source: HT

CIPS Excellence in Procurement Awards 2021 (CIPS Awards).

GS Paper - 2 , GS Paper - 3 , Growth & Development , Government Policies & Interventions

Context

Government e Marketplace (GeM) was announced as the winner in the **Best Use of Digital Technology category** at the **CIPS Excellence in Procurement Awards 2021 (CIPS Awards).**

Other related information

- GeM was shortlisted as a finalist in two additional categories as well, i.e., **'Public Procurement Project of the Year'** and **'Best Initiative to Build a Diverse Supply Base'.**

CIPS Awards:

- It is an opportunity to showcase and **celebrate the best work and teams in the procurement profession.**

- The awards are conducted under the aegis of **The Chartered Institute of Procurement & Supply (CIPS),** London.

  - **CIPS** is a global **not-for-profit organisation** and professional body dedicated to promoting good practices in procurement and supply management, with a community across 150 countries.

GeM:

- GeM is a **one-stop National Public Procurement Portal** to facilitate online procurement of common use Goods & Services required by various Central and State Government Departments/Organizations/Public Sector Undertakings (PSUs).
- The procurement of goods and services by **Ministries and the Central Public Sector Enterprises (CPSEs) is mandatory** for goods and services available on GeM.
- It also **provides the tools of e-bidding and reverse e-auction** to facilitate the government users achieve the best value for their money.
- At present, **GeM has more than 30 lakh products,** over Rs. 10 lakh crore worth of transactions have happened so far at the portal.

- **Launch:**
  - Launched in **2016 to bring transparency and efficiency** in the government buying process.
- **Nodal Ministry:**
  - Ministry of Commerce and Industry.

Significance of GoM:

- Enables **transparent and Cost-effective Procurement**
- Promotes **India's Atmanirbhar Bharat Policy**
- **Facilitates entry of small local sellers** in Public Procurement.
- **Facilitates online marketplace** to aggregate demand from multiple entities for similar products.

Source: PIB

solar DC cooking technology developed (CMERI).

GS Paper - 3 - Solar Energy , Renewable Energy , Scientific Innovations & Discoveries

Context

Recently, the **solar DC cooking technology** was developed by the **Central Mechanical Engineering Research Institute (CMERI).**

Related information

- The CMERI is an institute under the **Council for Scientific and Industrial Research (CSIR)**.

What is this

- It is a **Solar Energy based Cooking System** which consists of a solar PV panel, charge controller, battery bank and cooking oven.
- It provides a **Clean Cooking Environment**, Invertor-Less Direct Operation, Fast and Uniform Heating and a potential to save 1 ton Carbon Dioxide emissions per year/household.
- It has **20-25% better efficiency** and is **more Economical** in comparison with **Conventional Solar based Cooking Systems** which loses efficiency owing to AC-DC conversion.

- The simple Technology Design also ensures **Ease-of-Manufacturing** and thus provides a substantial Economic Opportunity for the Micro-Industries.
- It will cost in the range of **Rs 65,000- Rs 70,000** and if Government subsidies are provided there will be a **significant reduction in the price of the product.**

Major Significance:

- Widespread usage the system can also **play a critical role in achieving the target of 200 GW of Solar energy** and also to **save almost 290 million tons of Carbon Dioxide emissions.**
- Along with the **widening of the popularity base of Technology**, there is a probability of **improvement in Job Prospects.**

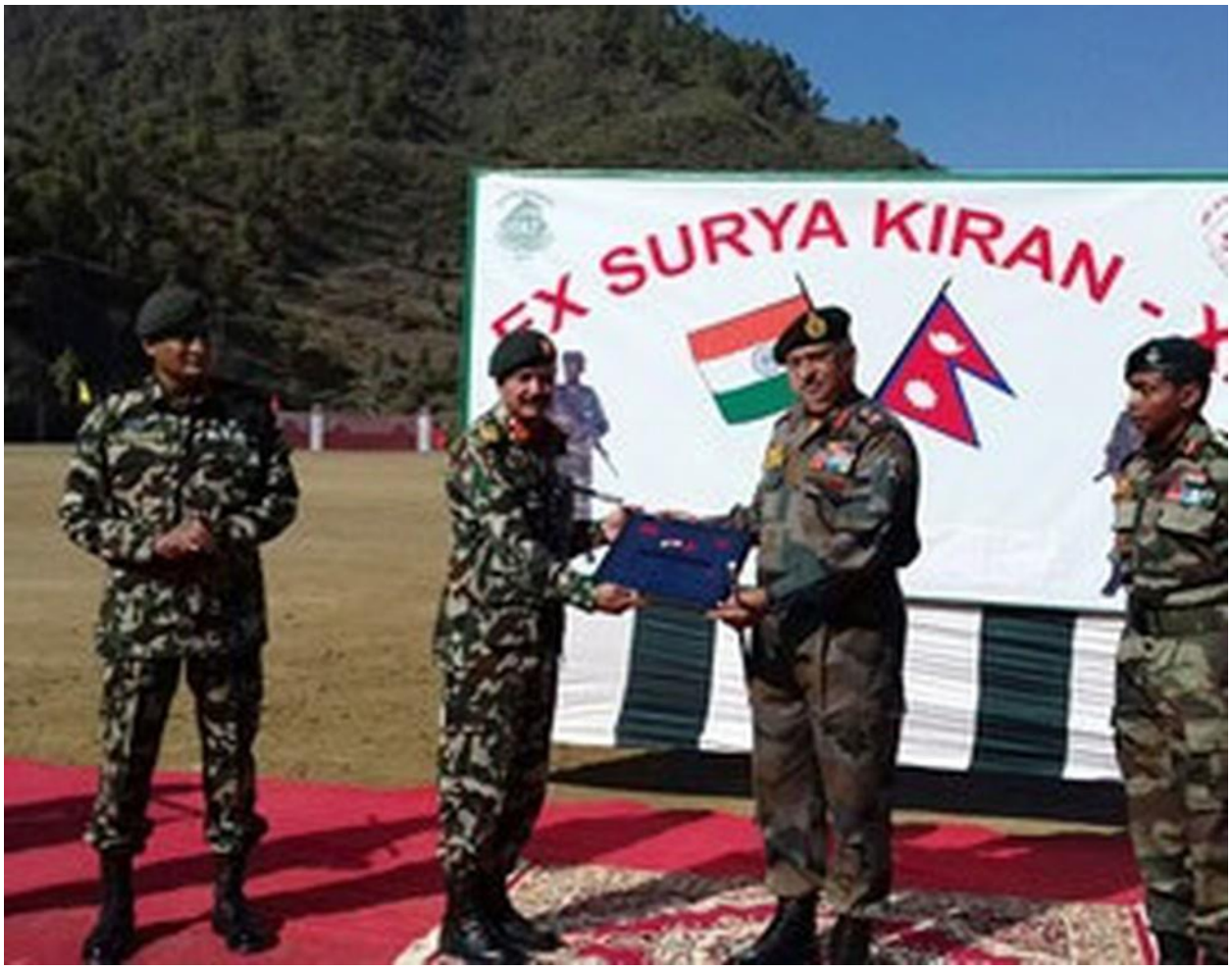
Government Schemes Related to Solar Energy:

- **Rooftop solar scheme**
- **Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM)**
- **International Solar Alliance**
- **One Sun, One World, One Grid (OSOWOG)**
- **National Solar Mission (a part of National Action Plan on Climate Change)**

Source: PIB

15th edition of joint military exercise 'Surya Kiran' at Pithoragarh in the Indian state of Uttarakhand.

GS Paper - 3 , India and its Neighbourhood , Various Security Forces & Agencies & Their Mandate



Context

Recently, the armies of India and Nepal have started the **15th edition of joint military exercise 'Surya Kiran' at Pithoragarh in the Indian state of Uttarakhand.**

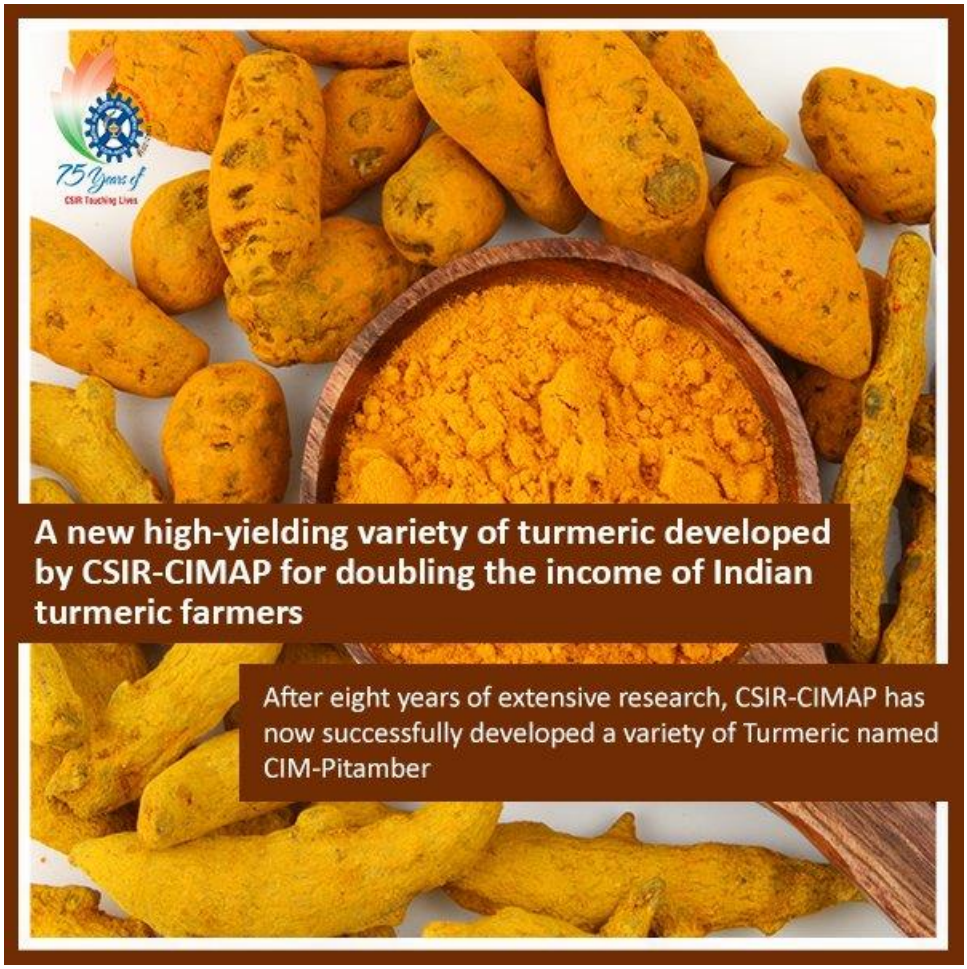
What is this exercise

- The **biannual exercise,** which **takes place alternately in both countries.**
- The **main objective** of this exercise is to:
  - Establish **military relations in inaccessible mountainous** areas by the soldiers of both countries,
  - Provide **humanitarian assistance** under disaster management,
  - Get training in **anti-terrorist operations,**
  - Build **interoperability and sharing expertise** between the two countries.
- The **14th edition** of the exercise took place **in Saljhandi, Nepal in 2019.**

Source: TH

CIM-Pitamber

GS Paper - 1 - Agricultural Resources



Context

Recently, a high-yielding curcuminoid-rich variety of turmeric named **CIM-Pitamber** and the **NBRI's (National Botanical Research Institute) Keshari variety** have been introduced in Nabarangpur (One of the **Aspirational Districts**) of **Odisha.**

What is CIM-Pitamber:

- It is a high-yielding **curcuminoid-rich variety** of turmeric developed by **Central Institute of Medicinal and Aromatic Plants (CIMAP)**.
    - **High yielding varieties (HYV)** of seeds are those seeds which **produce huge quantities of crops** particularly wheat and rice.
    - Regular supply of water, maximum use of fertilisers and use of pesticides in an accurate proportion is needed to use these seeds.
- In this variety, **curcuminoid content is 12.5% more** than the existing variety.
    - **Curcuminoid** is a substance derived from turmeric which has anti-**cancer** properties, anti-inflammatory, anti-aging, anti-diabetic and has several medicinal properties.

What are the Benefits:

- It can yield **50% more than the existing varieties** of turmeric and help farmers. It is also **tolerant to the leaf blotch disease of turmeric**.
- Turmeric with **high content of curcuminoid** is preferred by European nations and North

America. Export and sale value will be more if curcumin content is more.

- **Keshari variety:**

  - It is **tolerant to low temperature** and frost during winter. It has a **longer growth period** as compared to other varieties, which directly **reflects higher fresh rhizome yield** of high quality.
  - In comparison to other existing varieties, there is **less problem of yellowing and falling of leaves** in this variety during winter, which leads to extending the life period of this variety.
  - The total curcuminoid **content is around 1.16 %, which is also more than other existing cultivated varieties** of north India.

- **Turmeric:**

  - Turmeric is a **flowering plant**, Curcuma longa of the **ginger family**, it is used as **condiment, dye, drug and cosmetic** in addition to its use in religious ceremonies.
  - Its color comes mainly from **curcumin**, a bright **yellow phenolic compound**.
  - India is a leading producer and exporter of turmeric in the world. India produces **80% of turmeric** in the world.

    - **Telangana** was the leading producer of turmeric in India during 2018. **Maharashtra** and **Tamil**

Nadu were second and third in the ranking that year.

- It can be **grown in diverse tropical conditions** from sea **level to 1500 m above sea level**, at a temperature range of **20-35° C** with an annual **rainfall of 1500 mm or more**, under **rainfed or irrigated conditions.**

entral Institute of Medicinal and Aromatic Plants

- It is **a frontier plant research laboratory of Council of Scientific and Industrial Research (CSIR), established in 1959.**
- It is steering multidisciplinary high quality research in biological and chemical sciences and extending technologies and services to the farmers and entrepreneurs of medicinal and aromatic plants (MAPs).
- It is **headquartered in Lucknow.**

National Botanical Research Institute

- It is o**ne of the constituent research institutes of the CSIR set up in 1953**. It is **headquartered in Lucknow**.
- It undertakes **basic and applied research on various aspects of plant science**, including documentation, systematics, conservation, prospection, and genetic improvement.

Source:TH