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## India's First Dark Sky Reserve For Astronomy Tourism

### Context

- By the end of 2022, India will have established the country's first Dark Sky Reserve in Ladakh's cold desert regions. The Minister of State (Independent charge) for Science and Technology recently announced this.
- A Dark Sky Reserve is public or private land with a distinguished nocturnal environment and starry nights that has been responsibly developed to prevent light pollution.
- These reserves, according to the International Dark Sky Association (IDSA) website, include:
  - a core area that meets minimum criteria for sky quality and natural darkness, and
  - a peripheral area that supports dark sky preservation in the core.

### Relevance

GS Paper 3: Science and technology, Space Technology

### Mains Question

Discuss India's accomplishments in space science and technology. How has the use of this technology aided India's socioeconomic development? (150 Words)

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**The site is in the process of becoming a Dark Sky Reserve.**

- Individuals or groups can nominate a site for International Dark Sky Association



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certification (IDSA).

- IDSA is a non-profit organisation based in the United States.
- It is the world's leading organisation combating light pollution and the recognised authority on light pollution.
- There are five designated categories: International Dark Sky parks, communities, reserves, sanctuaries, and Urban Night Sky Places.
- The certification process is similar to that of a site being designated as a UNESCO World Heritage Site or a Biosphere Reserve.
- The IDSA considers a piece of land suitable for dark sky place only if:
  - it is either publicly or privately owned;
  - it is accessible to the public partially or entirely throughout the year;
  - the land is legally protected for scientific, natural, educational, cultural, heritage, and/or public enjoyment purposes;
  - the core area of the land provides an exceptional dark sky resource relative to the communities and cities that surround it; and
  - the land offers prescribed recreational opportunities.

## Construction of India's first Dark Sky Reserve

- The Ladakh Union Territory administration is spearheading efforts to establish the country's first Dark Sky Reserve, which will be located at Hanle at a height of 4,500 metres above sea level. The Hanle Dark Sky Reserve (HDSR) will be established within the Changthang Wildlife Sanctuary, with scientific and technological assistance provided by the Department of Science and Technology and experts from the Indian Institute of Astrophysics (IIA), Bengaluru.
  - The Indian Astronomical Observatory (IAO) complex in Hanle, Ladakh, is already managed by the IIA.
- At the Hanle Observatory, prominent telescopes include the Himalayan Chandra Telescope (HCT), the High Energy Gamma Ray Telescope (HAGAR), the Major Atmospheric Cherenkov Experiment Telescope (MACE), and GROWTH-India.

## Why Ladakh was chosen for the project?

- Ladakh is a unique cold desert with high mountainous terrains located about 3,000 metres above sea level.
- Long and harsh winters with minimum temperatures as low as minus 40 degrees Celsius make large parts of the UT highly inhabitable.
- This aridity, limited vegetation, high elevation, and large areas with sparse populations all combine to make it an ideal location for long-term astronomical observatories and dark sky locations.
- However, the proposed Dark Sky Reserve's primary goal is to promote astronomy tourism in a sustainable and environmentally friendly manner.



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## Tourism in Laddakh

- Since becoming a UT, tourism in Ladakh has increased during favourable months; however, its fragile environment is vulnerable to rising carbon footprints and in-coming vehicles.
- The Ladakh Tourism Vision Document 2022 emphasised the importance of increasing the use of green fuels and increasing carbon-neutral activities.

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