



Country's First Drone-Based Cloud Seeding Experiment

Why in News?

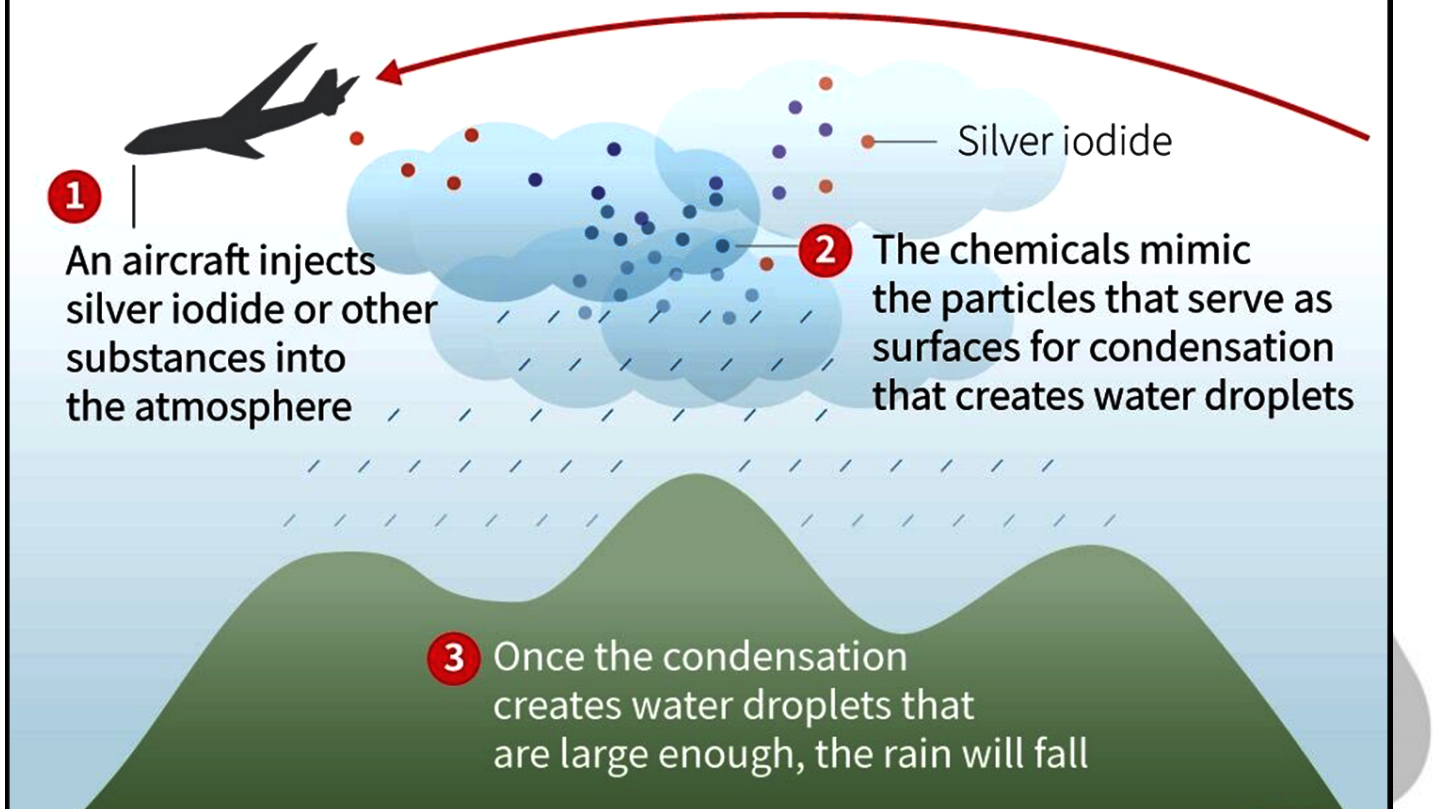
The state agriculture department of **Rajasthan** launched the **first-ever drone-based cloud seeding experiment** to address the [water crisis](#) in the region and revive the [Ramgarh Lake](#).

Key Points

- **Objective:** The experiment **aims to trigger rainfall** by dispersing **specialized chemicals** into [rain clouds](#), potentially benefiting agricultural activities in the region.
 - This 60-day pilot project aims to **promote water droplet formation** in clouds to tackle the **area's water shortage**, as part of a larger, ongoing effort to address regional water scarcity.
- **Technology Used:** The cloud seeding process is powered by an **AI-driven platform** called **Hydro Trace**, which uses real-time data, [satellite imaging](#), and sensor networks to target the right clouds at the right time accurately.
- **Approvals:** The technology received approvals from multiple bodies, including the [Directorate General of Civil Aviation \(DGCA\)](#), the India Meteorological Department, district authorities, and the agriculture department.

Cloud seeding

Traditional method of rainmaking, in use since the 1940s



Cloud Seeding

- It is a **weather modification technique** that enhances precipitation by dispersing chemicals like **silver iodide**, **potassium iodide**, or **dry ice** into clouds, serving as nuclei for water droplet formation, leading to rainfall.
- It can help **combat air pollution**, especially during periods of high **Air Quality Index (AQI)** readings.
- Cloud seeding may **increase water availability** and result in economic, environmental, and human health benefits.

Cloud Seeding Techniques

Dynamic Cloud Seeding



Enhances vertical air currents to promote rain cloud growth.

Glaciogenic Cloud Seeding



Induces ice formation in clouds to trigger precipitation.



Hygroscopic Cloud Seeding

Uses salt particles to increase cloud droplet size.



Made with  Napkin

PDF Reference URL: <https://www.drishtiias.com/printpdf/countrys-first-drone-based-cloud-seeding-experiment>