DAILY CURRENT AFFAIRS 13-10-2025

GS-1

1. **Atacama Desert**

GS-3

2. **Draft National Labour & Employment Policy – Shram Shakti Niti 2025**
3. **Diethylene Glycol (DEG)**
4. **SPARK–4.0 Initiative**
5. **International Solar Alliance (ISA)**

Atacama Desert

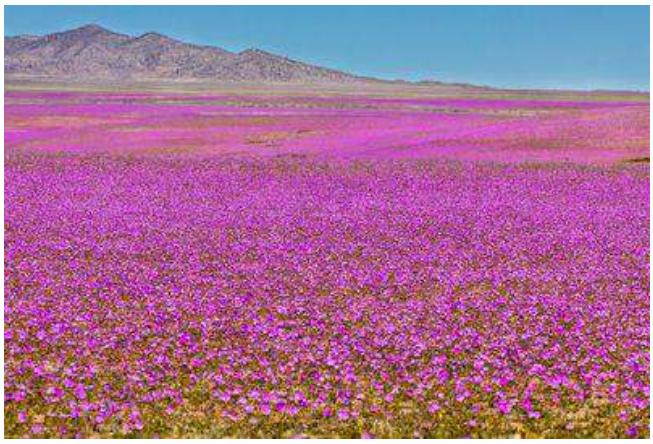
Syllabus: GS-1: Geography – Climate and Weather.

Context:

- **Unusual winter rains** (linked to climate variability/El Niño events) triggered a **mass bloom** of fuchsia-pink wildflowers across the desert.
- Phenomenon visible even from **satellite imagery**.

About the Flower

- **Species:***Cistanthelongiscapa* — locally called **"pata de guanaco"**.
- **Habitat:** Native to **Atacama's arid soils**; seeds lie **dormant underground for years**, germinating only after rare rains.



Key Adaptations

- **Drought-tolerant physiology** – adjusts **photosynthetic pathways** (C3 ↔ CAM transition).
- Capable of **rapid growth and flowering** during short moisture availability.
- Seeds can **remain viable for decades** under arid conditions.

The "Desierto Florido" Phenomenon

- Literally means **"Flowering Desert."**
- Occurs roughly **once a decade** after unusual rainfall.
- Transforms barren landscapes into a **vibrant carpet of colours** (fuchsia, pink, purple).
- Duration: **Few weeks**, depending on rainfall and temperature.

Ecological Significance

- **Enhances soil fertility** and aids **soil regeneration**.

- Temporarily supports **pollinators, insects, birds, and small fauna**.
- Boosts **local biodiversity** and **ecosystem resilience** in a hyper-arid zone.
- Attracts **eco-tourism**, providing income to local communities.

Broader Implications

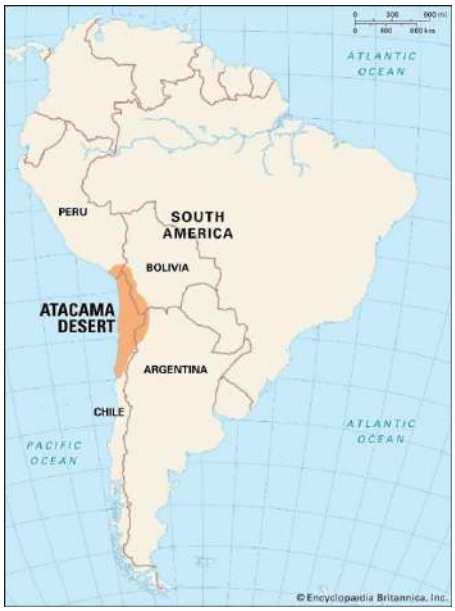
- **Indicator of climate variability** — linked to anomalous rainfall patterns due to **El Niño–Southern Oscillation (ENSO)**.
- Demonstrates **resilience of desert ecosystems** and the **dormant biological potential** in extreme environments.
- Offers insights into **Mars analog research**, **climate adaptation**, and **seed dormancy mechanisms**.

Atacama Desert: Overview

What It Is

- The **Atacama Desert** is the **driest non-polar desert** in the world.
- Often used as a **terrestrial analog for Mars** due to its hyper-arid conditions, high salinity, and mineral-rich soils.
- Known for **unique geological formations**, salt crusts, and minimal life forms.

Location & Extent



- Situated in **northern Chile**, South America.
- Stretches **600–700 miles (1,000–1,100 km)** between the **Pacific Ocean and Andes Mountains**.

- Borders **Peru to the north** and extends into the **Loa River basin**.

Physical Features

- **Rainfall:** Average ~**2 mm/year**; some regions have had **no measurable rain for decades**.
- **Elevation:** From **sea level** to ~**4,000 m** (Atacama Plateau).
- **Terrain:** Includes **salt flats (salares)**, **volcanic cones**, **sand dunes**, and **alluvial plains**.
- **Temperature:** Mild due to **cold Humboldt Current**; summer avg. **18–19°C**.
- **Fog (Camanchaca):** Forms due to Pacific upwelling — provides minimal moisture sustaining micro-ecosystems.

Draft National Labour & Employment Policy – Shram Shakti Niti 2025

Syllabus: GS-3: Indian Economy – Employment – Labour Laws.

Context:

- The **Ministry of Labour and Employment** has released the **draft National Labour & Employment Policy – Shram Shakti Niti 2025** for **public consultation**.
- It aligns with the vision of **"Viksit Bharat @2047"**, aiming for a **fair, inclusive, and technology-driven labour ecosystem**.
- Marks a paradigm shift from *regulation to facilitation*, redefining the ministry's role as an **employment facilitator**.

Constitutional Basis

- **"Labour"** is in the **Concurrent List** of the Indian Constitution.
- Both **Central and State Governments** can make laws on the subject.

Philosophy and Vision

- Rooted in India's ethos of **"Śrama Dharma"** – dignity and moral value of work.
- Aims to ensure **Protection, Productivity, and Participation (3Ps)** for every worker.
- Seeks to balance **worker welfare with enterprise growth** and sustainability.

Core Objectives

1. Creation of a **resilient, skilled, and inclusive workforce**.
2. Promotion of **universal social security** and **income protection**.
3. Strengthening **Occupational Safety and Health (OSH)**.
4. Enhancing **women and youth participation** in the workforce.
5. Fostering **green and technology-enabled jobs**.
6. Building a system for **lifelong learning and skill upgradation**.

Digital Infrastructure for Employment

National Career Service (NCS)

- Envisioned as India's **Digital Public Infrastructure for Employment**.
- Features:
    - AI-enabled job matching & career guidance.
    - Skill mapping and credential verification.
    - Cross-sectoral & regional linkages between job seekers, employers, and training providers.

Unified Labour Stack

- Integration of key national databases:**EPFO**, **ESIC**, **e-Shram**, and **NCS**.
- Aims to:
    - Enable interoperable and data-driven governance.
    - Ensure universal social protection and income security.
    - Support real-time labour market insights and lifelong learning.

Complementing Labour Law Reforms

- Builds on consolidation of **29 Central Labour Laws** into **4 Labour Codes**:
    1. Code on Wages (2019)
    2. Industrial Relations Code (2020)
    3. Occupational Safety, Health and Working Conditions Code (2020)
    4. Social Security Code (2020)
- Objective: Simplify compliance, strengthen worker protection, and promote formalisation.

Guiding Principles (4 Pillars)

1. Dignity of Labour
2. Universal Inclusion
3. Cooperative Federalism
4. Data-driven Governance

Seven Strategic Priorities

1. Universal & Portable Social Security
2. Occupational Safety and Health (OSH)
3. Employment and Future Readiness
4. Women & Youth Empowerment
5. Ease of Compliance and Formalisation
6. Technology and Green Transitions
7. Convergence through Good Governance

Women and Youth Empowerment

- Goal: Increase **female labour-force participation to 35% by 2030**.
- Promote **youth entrepreneurship** and **career guidance**.
- Initiatives:
    - **Single-window digital compliance** for MSMEs with self-certification.
    - **Green jobs and just-transition** for workers shifting to new industries.
    - **Expanded NCS services** for employment facilitation.

Technology-Driven Governance

- **Unified national labour data architecture** for inter-ministerial coherence.
- Tools and Mechanisms:

- **AI-enabled safety monitoring**.
- **Predictive analytics** for workforce planning.
- **Digital dashboards** for real-time monitoring.
- **Annual National Labour Report** to Parliament.
- **Labour & Employment Policy Evaluation Index (LPEI)** to rate State performance.

Implementation Phases

Phase	Key Focus
I (2025–27)	Institutional setup and social security integration
II (2027–30)	Nationwide rollout of universal accounts and skill-credit systems
III (Post-2030)	Full paperless governance and predictive analytics

Expected Outcomes

- Universal worker registration through e-Shram integration.
- Portability of social security benefits across states.
- Near-zero workplace fatalities.
- Female LFPR: 35% by 2030.
- Reduced informal employment via digital compliance.
- AI-based labour governance operational in all States.
- Creation of millions of green and decent jobs.
- Realization of a "One Nation, Integrated Workforce" ecosystem.

Significance

- First-ever **comprehensive labour and employment policy** in independent India.
- Aligns employment generation with **climate goals, digitalisation, and skill transformation**.
- Supports India's journey toward **Viksit Bharat @2047**.

Diethylene Glycol (DEG)

Syllabus: GS-3: General Science.

Context:

- In **October 2025**, at least **17 children died in Madhya Pradesh (Chhindwara)** after consuming **Coldrif cough syrup**, found contaminated with **Diethylene Glycol (DEG)**.
- The incident has renewed concerns over **pharmaceutical safety**, **regulatory oversight**, and **drug quality control** in India.

What is Diethylene Glycol (DEG)?

Parameter	Details
Chemical formula	$C_4H_{10}O_3$
Physical properties	Clear, colourless, odourless, hygroscopic liquid
Solubility	Soluble in water and many organic solvents
Industrial uses	Antifreeze, brake fluids, lubricants, and as an industrial solvent
Not for	Human or animal consumption
Toxic effect	Metabolized into toxic compounds (e.g., diglycolic acid) causing kidney and CNS damage

Health Impacts of DEG Ingestion

- **Acute toxicity:** Nausea, vomiting, abdominal pain, CNS depression.
- **Renal effects:** Acute kidney injury, metabolic acidosis, anuria (no urine output).
- **Severe cases:** Multi-organ failure and death.

Recent Incident Details (2025)

- **Cough syrup involved:***Coldrif* (Sresan Pharmaceuticals, Chennai).
- **DEG levels found:** ~48.6% (far above permissible 0.1%).
- **Other toxic syrups identified:***Respifresh TR* (1.342%) and *ReLife* (0.616%).
- **Deaths:** 17 children under age 5 in Madhya Pradesh.
- **Action taken:**
    - Arrest of company owner (*S. Ranganathan*).

- Ban on sale and distribution of affected syrups.
- Proposal for **mandatory DEG testing in final drug formulations**.

Regulatory & Legal Actions

- **Central Drugs Standard Control Organisation (CDSCO)** and **MP State Drug Controller** initiated an inquiry.
- **WHO** and **U.S. FDA** confirmed the toxic syrups were *not exported* to other countries.
- Government proposes:
  - Mandatory DEG/Ethylene glycol testing before product release.
  - Stricter **batch-level traceability**.
  - Enhanced **Good Manufacturing Practice (GMP)** compliance audits.
  - Punitive action under **Drugs and Cosmetics Act, 1940**.

Historical Context: Past DEG Poisoning Cases

Year	Country	Incident	Deaths (approx.)
1937	USA	*Elixir Sulfanilamide* tragedy	107
1990	India (Haryana)	DEG in paracetamol syrup	14
2022	The Gambia	Indian-made cough syrups (Maiden Pharma)	70+
2022	Uzbekistan	*Dok-1 Max* (Marion Biotech)	68
2025	India (MP)	*Coldrif syrup* (Sresan Pharma)	17

India has been linked to multiple global DEG-related syrup tragedies, raising international scrutiny.

Issues Highlighted

1. Regulatory Gaps

- Inadequate **post-manufacturing quality testing**.
- Weak enforcement of **GMP norms**.
- Lack of **accountability** between central and state drug regulators.

2. Ethical Concerns

- Substitution of pharmaceutical-grade solvents with cheaper, industrial-grade glycols.
- Poor record-keeping and lack of raw material verification.

3. Public Health Impact

- Loss of trust in Indian pharmaceutical products.
- Potential global trade repercussions on Indian pharma exports.

Measures Suggested / Way Forward

- **Mandatory DEG Testing:**
  - For both *raw materials* and *finished products*.
- **Strengthened Regulatory Oversight:**
  - Empower CDSCO with more staff and resources.
  - Introduce real-time digital audit of manufacturing batches.
- **Independent Quality Audits:**
  - Third-party accredited labs for random product sampling.
- **Traceability System:**
  - Implement QR-based tracking from raw material source to final sale.
- **Legal Reforms:**
  - Amend Drugs and Cosmetics Act to impose heavier penalties for adulteration causing death.
  - Fast-track courts for pharmaceutical negligence cases.
- **International Collaboration:**
  - Adopt WHO's *Global Surveillance System* for substandard and falsified medicines.

SPARK–4.0 Initiative

Syllabus: GS-3: General Science.

Context:

- The *Central Council for Research in Ayurvedic Sciences (CCRAS)* under the *Ministry of Ayush* launched **SPARK–4.0** to foster research aptitude among Ayurveda undergraduates.

About SPARK–4.0

- **Full Form:***Studentship Program for Ayurveda Research Ken (SPARK) – Version 4.0*

- **Launched by:** Central Council for Research in Ayurvedic Sciences (CCRAS), Ministry of Ayush
- **Objective:**
  - To **ignite scientific curiosity** and **develop research skills** among undergraduate *BAMS* students.
  - To integrate **traditional Ayurvedic knowledge** with **modern scientific research methods**.

Key Features

- **Beneficiaries:**
  - 300 *Bachelor of Ayurvedic Medicine and Surgery (BAMS)* students from colleges recognized by **National Commission for Indian System of Medicine (NCISM)**.
- **Studentship:**
  - ₹50,000 total (₹25,000 per month for two months).
- **Duration:**
  - Two-month research studentship.
- **Mode:**
  - Students undertake **short-term, independent research projects** under the **guidance of faculty mentors**.
- **Focus Areas:**
  - Research methodology, experimental design, data collection, and analysis.
- **Institutional Support:**
  - Colleges are encouraged to provide **research facilities** and **academic mentorship**.
- **Certification:**
  - Participants receive a **certificate** after successful completion and approval of the final research report.

Significance

- **For Students:**
  - Provides early exposure to **scientific research in Ayurveda**.
  - Bridges the gap between **traditional learning** and **evidence-based research**.

- **For the Ayush Sector:**
  - Strengthens **India's research capacity** in traditional medicine.
  - Encourages **evidence-based validation** of Ayurvedic principles.
- **For the Nation:**
  - Promotes **integration of innovation and heritage**.
  - Contributes to the global recognition of Ayurveda as a scientific system of medicine.

Background

- Earlier versions (SPARK 1.0–3.0) supported similar studentship programs, producing small-scale research studies that contributed to *Ayurvedic pharmacology, clinical evaluation, and medicinal plant studies*.
- SPARK–4.0 builds upon these efforts by expanding reach and funding.

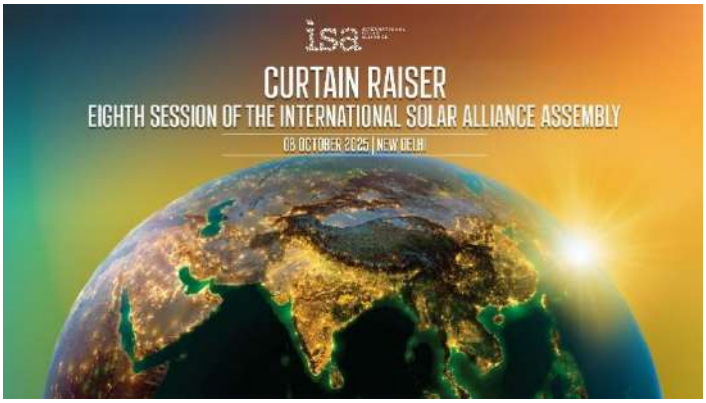
International Solar Alliance (ISA)

Syllabus: GS-3: International Organisations.

Context:

- India will host the **8th International Solar Alliance (ISA) Assembly** from **October 27–30, 2025**, at **Bharat Mandapam, New Delhi**.

About the International Solar Alliance (ISA)



- **Type:** Global intergovernmental organization
- **Founded:** 2015

- **Origin:** Joint initiative of **India and France** launched during **COP21 (Paris Climate Summit)**.
- Headquarters: **Gurugram, India** — the first international organization headquartered in India.

Membership

- **Total Members & Signatories (2025):** 124 countries
- **Full Members:** Over 90
- **Membership Scope:** Open to all **UN member states** after 2020 framework amendment.
- Includes **developing nations, LDCs**, and **Small Island Developing States (SIDS)**.

Objectives and Targets

- **Mobilize** USD **1 trillion** in solar investments by **2030**.
- **Provide clean energy access** to **1 billion people**.
- **Install 1,000 GW** of global solar capacity.
- Promote **low-cost, sustainable, and equitable** solar energy systems.

Major Functions and Initiatives

Policy & Advocacy

- Assists governments in creating **solar-friendly policies**.
- Publishes **"Ease of Doing Solar"** reports and **annual solar investment outlooks**.

Programmatic Support

- Implements and replicates solar projects in key sectors:
  - **Agriculture:** Solar pumps (PM-KUSUM model).
  - **Housing:** PM Surya Ghar initiative.
  - **Health, transport, and energy** projects in Africa and island nations.

Financing Mechanisms

- Operates **Africa Solar Facility** (based in Ahmedabad, India).
- Provides **risk guarantees** to attract private investment for mini-grids and solar pumps.
- **Goal:** Leverage **$200 million** by **2026** to mobilize **$2–4 billion** in investments.

Capacity Building

- Runs **Solar Technology and Application Resource Centres (STAR-C)**.

- Trains **engineers, entrepreneurs, and policymakers** in solar technology deployment.

Knowledge & Collaboration

- Collaborates with **MDBs, DFIs, private sector, and civil society**.
- Facilitates **data sharing, innovation, and technology transfer** to enhance affordability and access.

Significance of Hosting ISA Assembly in India

- Reinforces India's **global leadership in renewable energy diplomacy**.
- Showcases India's progress toward **Net Zero 2070** and **Viksit Bharat @2047** goals.
- Encourages **South–South cooperation** in solar technologies.
- Provides a platform for India to **expand its solar diplomacy** and promote **Make in India** solar manufacturing.

Additional Facts

- India's installed solar capacity (as of 2025): Over **80 GW**.
- Key flagship programs:
  - **National Solar Mission (2010)**
  - **One Sun One World One Grid (OSOWOG)** initiative
- ISA aligns with **SDG 7 – Affordable and Clean Energy** and **SDG 13 – Climate Action**.