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TGPSC News Summary

TGPSC News Summary

Shivadhar Reddy Appointed as Telangana's State Security Advisor

Source: **The Hindu**

Relevance: **GS Paper II – Polity | Governance | Internal Security (Important for TGPSC)**

Important Key Words for Prelims and Mains

For Prelims:

- State Security Advisor, DGP, Article 162, Seventh Schedule, State List, Police, Public Order, Internal Security

For Mains:

- State Executive Powers, Internal Security Framework, Police Administration, Federal Structure, Advisory Institutions

Why in News?

- The Government of Telangana has appointed B. Shivadhar Reddy, former Director General of Police (DGP), as the State Security Advisor (SSA) after his retirement.
- The appointment is for a tenure of three years and aims to utilise his expertise in policing, internal security, and counter-extremism, particularly relevant for Telangana's governance context.

Nature of the Appointment and Position

- The State Security Advisor is an executive advisory post created by the State government.
- It is not a constitutional or statutory position but derives its authority from the executive powers of the State government.
- The post carries the **status equivalent to that of the Chief Secretary**, indicating high-level advisory importance in governance and internal security decision-making.
- Such positions are often created to utilise the experience of senior officials in specialised domains like security and law enforcement.

Constitutional Framework Related to Internal Security

- The appointment must be understood within the constitutional framework governing State powers.
- Under **Article 162**, the executive power of a State extends to matters on which the State Legislature has the authority to make laws. Since internal security, police, and law and order fall under the State domain, the State government is empowered to create advisory mechanisms like the State Security Advisor.
- The **Seventh Schedule of the Constitution**, particularly the **State List (List II)**, provides

the legal basis for this authority.

Relevant entries include:

- **Entry 1 – Public Order:** Maintenance of peace, prevention of disturbances, and internal stability within the State.
- **Entry 2 – Police:** Organisation, control, and functioning of police forces within the State.
- These provisions make internal security primarily a State subject, giving Telangana the authority to design its own security architecture and advisory systems.
- At the same time, coordination with the Union is necessary in matters involving national security, intelligence sharing, and counter-terrorism.

Role and Responsibilities of State Security Advisor

The State Security Advisor provides policy-level guidance to the government on key areas of internal security.

The advisory role covers:

- maintenance of law and order across districts
- strengthening internal security mechanisms
- improving crime control strategies
- tackling narcotics trafficking and organised crime
- enhancing road safety and enforcement systems

The role focuses on strategic planning rather than operational command, helping the government in decision-making and policy formulation.

Internal Security Context in Telangana

The appointment assumes importance due to Telangana's specific internal security profile.

Certain regions of the State, especially forested and border areas, have historically witnessed Left Wing Extremism (LWE).

Although the intensity has reduced, maintaining vigilance remains essential.

The State also faces challenges such as:

- organised crime networks
- drug trafficking routes
- urban law and order issues
- increasing road safety concerns

An experienced officer with background in counter-insurgency and policing strengthens the State's preparedness in dealing with these challenges.

State Security Advisor

- The position of State Security Advisor is an **advisory role created by the State Government** to provide expert inputs on security-related issues.
- It is not part of the regular police hierarchy but functions at the policy-making level.
- The appointment is made under the **executive powers of the State government derived from Article 162 of the Constitution of India**, which enables the State to create such posts for effective administration.
- The tenure of the appointment is **three years**, and the post carries the **status equivalent to that of the Chief Secretary**.

Buddha Purnima Celebrated at Buddhavanam with Mobile Museum Launch

Source: **The Hindu**

Relevance: **GS Paper I (Art & Culture) | Buddhism | Telangana Culture & Tourism**

Important Key Words for Prelims and Mains

For Prelims:

- Buddha Purnima, **Buddhavanam**,

Nagarjuna Sagar, Gautama Buddha, Tripitaka, Hinayana, Mahayana

For Mains:

- Buddhist heritage, cultural tourism, heritage outreach, soft power

Why in News?

The 2570th Buddha Purnima was celebrated at Buddhavanam, where the Telangana government launched a Mobile Museum on Wheels to promote Buddhist heritage and awareness across the State.

Key Highlights

- The celebrations included Buddhist prayers, meditation, and participation of monks and scholars. A Mobile Museum showcasing Buddhist life events, teachings, and artefacts was flagged off to reach schools and rural areas. The initiative aims to strengthen cultural tourism and heritage education in Telangana.

Buddha Purnima: Concept and Religious Significance

- Buddha Purnima commemorates the birth, enlightenment, and Mahaparinirvana of Gautama Buddha.
- It is observed on the full moon day of Vaishakha month. The festival reflects the core ideals of Buddhism such as non-violence, compassion, and middle path.

Buddhavanam: Location and Cultural Importance

Buddhavanam is a major Buddhist heritage theme park located near the Nagarjuna Sagar Dam on the banks of the Krishna River.

- It is designed as a Buddhist circuit site showcasing:
  The life of Buddha through sculptural panels
  Stupa replicas and meditation zones
  Depictions of Jataka tales and Buddhist philosophy
- Its location near Nagarjuna Sagar is significant because the region was historically associated with the ancient Buddhist centre of Nagarjunakonda.

Buddhist Heritage in Telangana

Site	Location	Importance
Nagarjunakonda	Near Nagarjuna Sagar	Major Mahayana Buddhist centre
Phanigiri	Suryapet district	Early Buddhist monastic complex
Nelakondapalli	Khammam district	Associated with early Buddhism
Dharmapuri	Godavari river bank	Buddhist remains and settlements

These sites indicate that Telangana was an important centre of Buddhist learning and monastic activity in ancient India.

Mobile Museum on Wheels: Features and Purpose

- The Mobile Museum is designed as a travelling educational unit that carries Buddhist heritage to different regions.

It includes:

- Replicas of Buddhist sculptures and stupas

Panels showing major life events of Buddha
Audio-visual content explaining Buddhist philosophy
Educational material for students

- The initiative aims to bridge the gap between heritage sites and public awareness, especially among younger generations.

Core Teachings of Buddhism

- Buddhism is based on fundamental doctrines such as the Four Noble Truths and the Eightfold Path. It emphasizes the elimination of suffering through ethical conduct, meditation, and wisdom.
- The concept of the Middle Path rejects both extreme asceticism and indulgence.

Buddhist Councils and Sects

Council	Location	Key Outcome
First Council	Rajgriha	Compilation of teachings
Second Council	Vaishali	Split into sects
Third Council	Pataliputra	Spread of Buddhism
Fourth Council	Kashmir	Rise of Mahayana

Major sects include Hinayana (Theravada) and Mahayana traditions.

Significance for Telangana Cultural Policy

The initiative reflects Telangana's effort to promote Buddhist tourism and integrate heritage with education. It strengthens the State's cultural identity and supports tourism-led development.

Way Forward

- There is a need to integrate Buddhist heritage sites into national and international tourism circuits, improve infrastructure, and promote digital heritage outreach through such mobile initiatives.

Conclusion

The celebration of Buddha Purnima at Buddhavanam, combined with the launch of a Mobile Museum, highlights the revival and promotion of Buddhist heritage in Telangana, linking history, culture, and modern outreach strategies.

Ramagundam Integrated Coal Mine Project Gets Environmental Clearance

Source: The Hindu

Relevance: **GS Paper III (Energy, Mining, Environment) | Telangana Economy | Coal Sector**

Important Key Words for Prelims and Mains

For Prelims:

- SCCL, Ramagundam, Opencast Mining, Underground Mining, Coal Grade G-10, Environmental Clearance, MoEFCC, EAC

For Mains:

- Energy security, coal dependency, sustainable mining, environmental governance

Why in News?

The Expert Appraisal Committee under the Ministry of Environment, Forest and Climate

Change has recommended environmental clearance for the Ramagundam Integrated Coal Mine Project of Singareni Collieries Company Limited, located in Telangana.

Key Highlights

- The project has coal reserves of about 315 million tonnes and an annual production target of 21 million tonnes for a period of 25 years.
- It combines two opencast and three underground mines into a single integrated mining system. The coal will primarily supply thermal power plants such as NTPC Ramagundam.

Location and Resource

- The project is located in the Ramagundam coal belt of Peddapalli district in northern Telangana. This region lies in the Godavari Valley coalfields, which form part of the larger Gondwana coal deposits of India.
- The coalfields extend along the Godavari River basin and are known for non-coking coal reserves used in thermal power generation.
- Key regional linkage: Ramagundam is one of India's major thermal power hubs due to proximity to coal reserves and water availability from the Godavari river.

Structure of the Integrated Mining Model

- The project combines multiple mining blocks into a unified operational system.

It includes:

- Two opencast mines for large-scale surface extraction

  Three underground mines for deeper coal seams
- A key feature is the conversion of exhausted underground mines into opencast mines to extract residual coal, ensuring maximum resource utilisation.

Coal Extraction Techniques: Opencast vs Underground

Feature	Opencast Mining	Underground Mining
Depth	Shallow deposits	Deep deposits
Method	Surface excavation	Tunnels/shafts
Cost	Lower	Higher
Environmental impact	High land disturbance	Lower surface impact
Productivity	Higher	Lower

The project uses both methods to optimise extraction efficiency and economic viability.

Technical Features of the Project

- The project has recoverable reserves of about 314.98 million tonnes.
- Coal extraction is divided into: 182.28 million tonnes through opencast mining 132.70 million tonnes through underground mining
- The average coal grade is G-10, which is classified as non-coking coal suitable for thermal power generation.
- Mining methods include shovel-dumper techniques for opencast operations.
- The total land requirement is about 4,326 hectares.

Environmental Clearance Mechanism

- Environmental clearance for large projects is granted under the Environment Impact Assessment framework governed by the Ministry of Environment, Forest and Climate Change.

- The Expert Appraisal Committee evaluates:
  Environmental impact
  Forest diversion
  Pollution and rehabilitation measures
- Final approval ensures compliance with sustainability norms and mitigation strategies.

Role of Coal in India's Energy Mix

- Coal remains the dominant source of electricity generation in India, contributing around 70% of total power generation.
- Thermal power plants such as NTPC Ramagundam depend heavily on nearby coal supply for base-load energy.
- Despite renewable expansion, coal continues to be essential for grid stability and industrial energy demand.

Telangana Coal Economy

- Singareni Collieries Company Limited is a joint venture of the Government of Telangana and the Government of India.
- It operates in the Godavari Valley coalfields and is one of the few coal companies in India engaged in both underground and opencast mining.
- The Ramagundam region is one of its major production centres.

Significance of the Project

- The project is expected to compensate for declining output from older mines and extend the life of the Ramagundam coal belt.
- It ensures long-term fuel supply to thermal power plants and supports industrial growth in the region.

Way Forward

There is a need to balance coal extraction with environmental safeguards through afforestation, land reclamation, and adoption of cleaner mining technologies. Gradual integration with renewable energy systems is essential for sustainable energy transition.

Conclusion

The Ramagundam Integrated Coal Mine Project reflects India's continued reliance on coal for energy security while highlighting the need for efficient and environmentally responsible mining practices.

'One Meal a Day with Millets' Initiative: Nutrition, Agriculture and Policy Linkages

Source: The Hindu

Relevance: **GS Paper III (Agriculture, Food Security, Nutrition) | GS Paper II (Health) | APPSC (Agriculture & Welfare Schemes)**

Important Key Words

For Prelims:

- Millets, Nutri-cereals, ICAR-IIMR, Nutrihub, National Institute of Nutrition (NIN), International Year of Millets 2023

For Mains:

- Nutrition security, crop diversification, climate-resilient agriculture, behavioural change campaigns

Why in News?

A national initiative titled **"One Meal a Day with Millets"** has been launched in Hyderabad by ICAR-Indian Institute of Millets Research along with Nutrihub and Millet Marvels to promote millet consumption as part of daily diets for improved nutrition and sustainable agriculture.

Institutional Framework and Initiative Design

- The initiative is spearheaded by ICAR-Indian Institute of Millets Research, a premier institute under ICAR dedicated to millet research and promotion.
- Nutrihub, functioning as an incubation platform within IIMR, supports millet-based startups, value addition, and market linkages.
- The campaign adopts a **behavioural change model**, encouraging individuals to incorporate at least one millet-based meal daily and promote the idea through social outreach.
- The recommendation aligns with guidance from the National Institute of Nutrition that at least one-third of cereal intake should be millets.

Millets: Types, Nutritional Profile and Classification

Millets are a group of small-seeded coarse cereals cultivated primarily in semi-arid regions of Asia and Africa. In India, they are traditionally known as "nutri-cereals" because of their **high nutritional value, climate resilience, and low input requirements**. They are hardy crops capable of growing in poor soils, with minimal water, and under high temperature conditions, making them crucial for **food security and climate-smart agriculture**.

Classification of Millets

- Millets are broadly classified into **Major Millets** and **Minor Millets** based on their cultivation scale, productivity, and historical importance.

1. Major Millets

These millets are widely cultivated and form a significant part of the diet in many regions:

- **Sorghum (Jowar)** – Scientifically known as Sorghum bicolor
  It is a staple food in parts of Maharashtra, Karnataka, and Telangana. It is drought-resistant and used for making rotis and fodder.
- **Pearl Millet (Bajra)** – Pennisetum glaucum
  Grown extensively in Rajasthan and Gujarat, it is highly tolerant to heat and drought conditions.
- **Finger Millet (Ragi)** – Eleusine coracana
  Widely cultivated in southern India, especially Karnataka, it is known for its exceptionally high calcium content.

2. Minor Millets

These are less widely cultivated but highly nutritious and ecologically significant:

- **Foxtail Millet** – Setaria italica
- **Little Millet** – Panicum sumatrense
- **Kodo Millet** – Paspalum scrobiculatum
- **Barnyard Millet** – Echinochloa frumentacea
- **Proso Millet** – Panicum miliaceum

These millets are often grown in tribal and hilly regions and are gaining renewed importance due to their nutritional benefits and climate resilience.

Nutritional Profile of Millets

Category	Components	Nutritional Features	Health Significance
Macronutrients	Complex Carbohydrates	Provide slow and sustained release	Helps maintain energy levels and prevents sudden glucose spikes

Category	Components	Nutritional Features	Health Significance
		of energy	
	Protein (7–12%)	Moderate protein content compared to cereals	Supports growth, repair, and body functions
	Dietary Fibre	High fibre content	Improves digestion, promotes gut health, and aids in weight management
Micronutrients	Iron	Present in significant amounts	Helps prevent anemia and improves hemoglobin levels
	Calcium (especially in Ragi)	Very high in finger millet	Essential for strong bones and teeth
	Magnesium & Phosphorus	Important mineral content	Supports metabolic activities and bone health
	Zinc & Potassium	Essential trace elements	Boost immunity and maintain heart health
Vitamins	B-complex Vitamins (B1, B2, B3, B6)	Rich source of essential vitamins	Helps in energy metabolism and proper functioning of the nervous system
Bioactive Compounds	Antioxidants (Polyphenols)	Natural plant compounds	Reduce oxidative stress and help prevent chronic diseases like diabetes and cardiovascular disorders

Health Benefits and Glycaemic Properties

Millets have a **low glycaemic index (GI)**, meaning they release glucose slowly into the bloodstream. This makes them particularly beneficial for:

- Management of **Type 2 Diabetes**
- Prevention of lifestyle diseases such as obesity and cardiovascular disorders
- Maintaining stable blood sugar levels

Additionally, their high fibre content contributes to:

- Better digestion
- Reduced cholesterol levels
- Improved satiety, aiding in weight management

Agro-Climatic and Sustainability Dimensions

Millets are highly suited to India's semi-arid regions due to their **low water requirement and high drought tolerance**.

- They can grow in **poor soils with minimal inputs**, making them climate-resilient crops.

Compared to rice and wheat, millets have:

- Lower water footprint
- Lower carbon footprint
- Higher adaptability to climate variability

This makes them crucial in addressing **climate change and sustainable agriculture goals**.

Economic and Farmer-Centric Implications

- Promotion of millets supports **crop diversification**, reducing overdependence on rice and wheat.
- It enhances **income security for small and marginal farmers**, especially in rainfed regions.

The development of millet-based value chains through startups and food industries creates:

- Rural employment opportunities
- Processing and export potential
- Market expansion for traditional crops

Thus, millets connect **nutrition, sustainability, and livelihoods**.

Way Forward

- There is a need to strengthen procurement mechanisms and MSP support for millets to incentivise farmers.
- Awareness campaigns must be expanded to urban consumers to create sustained demand.
- Investment in processing, branding, and export infrastructure is required to make millets globally competitive.
- Integration of millets into institutional food programmes should be scaled up systematically.

Conclusion

- The "One Meal a Day with Millets" initiative represents a shift towards integrating nutrition, sustainability, and agriculture within a single framework. By promoting millets in daily diets, India can address health challenges, support farmers, and build a resilient food system for the future.

Urea Regulation Debate in Telangana and the Challenge of Sustainable Fertilizer Use

Source: The Hindu

Relevance: **GS Paper III (Agriculture, Fertilizer Subsidy, Soil Health) | TGPSC/APPSC (Agricultural Policies and Rural Economy)**

Important Key Words for Prelims and Mains

For Prelims:

- Urea, Neem-Coated Urea, N:P:K Ratio, Nutrient Use Efficiency (NUE), Soil Health Card, e-Panta, Fertilizer Control Order (FCO), Essential Commodities Act

For Mains:

- Fertilizer subsidy reforms, balanced fertilization, groundwater depletion, sustainable agriculture, nutrient imbalance

Why in News?

T. Harish Rao criticised the Telangana government for allegedly imposing an unofficial restriction on urea sales, stating that farmers cultivating sugarcane, vegetables, and orchards were facing shortages despite availability of fertilizer stocks with dealers and cooperative societies.

Urea and India's Fertilizer Consumption Pattern

- Urea is the most widely used nitrogenous fertilizer in India and contains nearly **46% nitrogen**, making it one of the highest nitrogen-content solid fertilizers used in agriculture.

- India's fertilizer usage pattern remains heavily tilted toward urea because:
- Urea receives high subsidy support from the government.
- It is significantly cheaper than phosphatic and potassic fertilizers.
- Farmers often associate higher nitrogen application with improved crop yields.

The scientifically recommended nutrient application ratio is generally:

N:P = 4:2:1

However, actual usage in many regions is dominated by nitrogen application, creating severe nutrient imbalance in soils.

Telangana's Monitoring System for Fertilizer Distribution

- Telangana uses the **Aadhaar-enabled Fertilizer Distribution System (AeFDS)**, where fertilizers are sold through PoS machines with Aadhaar authentication, ensuring only genuine farmers receive subsidized inputs.
- The system is integrated with the **Integrated Fertilizer Management System (iFMS)** of the Central Government for real-time tracking of fertilizer production, allocation, movement, and sales.
- Entire supply chain is digitally monitored from **manufacturer → wholesaler → retailer → farmer**, reducing diversion, hoarding, and black marketing.
- Fertilizer allocation is based on **crop-wise and season-wise demand estimation**, ensuring adequate supply during peak agricultural seasons.
- Telangana has introduced **mobile/app-based fertilizer booking systems**, allowing farmers to book fertilizers in advance and improving last-mile delivery efficiency.
- Multi-level monitoring is ensured through **mandal, district, and state-level control mechanisms**, enabling quick response to shortages and complaints.
- Every transaction is digitally recorded, promoting **transparency, accountability, and adherence to MRP**, with strict action against irregularities.
- The system supports **Direct Benefit Transfer (DBT) in fertilizers**, ensuring subsidies reach intended beneficiaries.
- Overall, it enhances **efficient resource utilization, reduces leakages, and strengthens agricultural productivity and governance**.

Environmental and Agricultural Effects of Excessive Urea Use

- **Soil Quality Decline:** Excess nitrogen application reduces soil microbial activity and depletes micronutrients such as zinc, iron, and boron.
- **Groundwater Contamination:** Unused nitrogen often leaches into groundwater as nitrates, creating health and environmental risks.
- **Low Nutrient Efficiency**

Only about 30–40% of applied nitrogen is effectively absorbed by crops, while the remaining portion is lost through:

- Leaching
- Surface runoff
- Volatilization

Water-Intensive Crops and Rising Resource Stress

- Water-intensive crops such as **rice, sugarcane, and wheat** require large quantities of water, often exceeding local

ecological capacity, especially in semi-arid regions.

- In India, cultivation of these crops in water-stressed regions like **Punjab, Haryana, and parts of Telangana and Maharashtra** has led to excessive dependence on groundwater.
- Over-extraction of groundwater has resulted in **falling water tables, aquifer depletion, and increased energy use** for irrigation.
- The dominance of these crops is driven by **Minimum Support Price (MSP), assured procurement, and input subsidies (power, irrigation, fertilizers)**, creating a policy-induced distortion.
- Inefficient irrigation methods, particularly **flood irrigation**, lead to significant water wastage and low water-use efficiency.
- Rising water stress contributes to **soil degradation, salinization, and reduced long-term agricultural sustainability**.
- Climate change further aggravates the issue through **erratic rainfall, higher temperatures, and increased evapotranspiration**, intensifying water demand.
- The imbalance in cropping patterns discourages the cultivation of **less water-intensive and climate-resilient crops like millets, pulses, and oilseeds**.
- Solutions include **crop diversification, promotion of micro-irrigation (drip and sprinkler systems), rational pricing of water and electricity, and awareness among farmers**.
- Addressing this challenge is crucial for ensuring **water security, sustainable agriculture, and long-term food security in India**.

Way Forward

States should promote balanced fertilization through awareness campaigns and scientific extension services.

Greater emphasis is required on:

- Precision agriculture
- Drip fertigation
- Organic nutrient integration
- Soil testing-based fertilizer application

Policy reforms must balance sustainability goals with timely availability of fertilizers to farmers.

Conclusion

The debate surrounding urea regulation in Telangana reflects the larger national challenge of balancing agricultural productivity with environmental sustainability. Long-term solutions require scientific nutrient management, efficient distribution systems, groundwater conservation, and farmer awareness rather than excessive dependence on nitrogen fertilizers alone.

Telangana's Subsidised Jowar and Maize Distribution Initiative

Source : **The Hindu**

Relevance: **GS Paper III – Food Security, Agriculture, Millets, Public Distribution System (PDS), Nutrition Security .TGPSC – Millets in Telangana, Civil Supplies System, Dryland Agriculture, Welfare Nutrition Programmes**

Important Key Words for Prelims and Mains

For Prelims:

- Jowar, Sorghum bicolor, Maize, Fair Price Shops (FPS), Public Distribution System (PDS), Nutri-cereals, Millets, Dryland Farming, Poaceae, Kharif Crop

For Mains:

- Nutrition security, millet economy, dryland agriculture, crop diversification, food subsidy systems, sustainable agriculture

Why in News?

The Telangana government has decided to distribute subsidised jowar and maize through Fair Price Shops (FPS) under the Civil Supplies Department. The initiative aims to support farmers, improve nutrition among economically weaker sections, and promote millet consumption in the State.

Key Highlights of Telangana's Initiative

Aspect	Details
Distribution mechanism	Through Fair Price Shops (FPS)
Crops involved	Jowar and maize
Procurement model	Direct procurement from farmers
Objective	Nutrition + farmer income support
Additional beneficiaries	Gurukul schools, hostels, poultry sector
Departments involved	Civil Supplies Department
Policy shift	Moving away from auction-based disposal

The State government plans to:

- Procure jowar and maize directly from farmers
- Prevent middlemen from controlling grain trade
- Process and package grains before distribution
- Supply grains at subsidised prices to consumers

The initiative also reflects a shift in food policy from merely calorie-based grain distribution toward nutrition-sensitive food security.

Jowar & Maize in Telangana Agriculture

Jowar (Sorghum): Jowar is one of India's major millets and is highly suitable for semi-arid regions like Telangana.

Feature	Details
Scientific name	*Sorghum bicolor*
Family	Poaceae
Crop season	Mainly Kharif
Nature	Drought-resistant millet
Soil type	Black cotton soil, loamy soil
Rainfall requirement	40–100 cm
Temperature	26–33°C

Why Jowar is Important for Telangana?

- Suitable for dryland farming
- Requires comparatively less water than paddy
- Heat tolerant crop of Deccan Plateau regions
- Important in rainfed agriculture

Major jowar-growing districts in Telangana include:

- Mahabubnagar
- Narayanpet
- Sangareddy
- Medak
- Nalgonda

Maize: Maize is one of the fastest-growing cereal crops in Telangana.

Feature	Details
Scientific name	*Zea mays*
Family	Poaceae
Crop type	Cereal crop
Usage	Food + poultry feed + starch industry

Importance of Maize

- Major feed crop for poultry industry
- Raw material for ethanol production
- Used in starch and food-processing industries
- Important cash crop in Telangana

Major maize-growing areas include:

- Karimnagar
- Warangal
- Khammam
- Adilabad

Nutritional and Food Security Importance

Jowar as a Nutri-Cereal: Jowar is rich in:

- Dietary fibre
- Iron
- Protein
- Magnesium
- Antioxidants

Health Benefits

- Helps control diabetes due to low glycaemic index
- Supports digestion
- Naturally gluten-free
- Beneficial for cardiovascular health

Millets and India's Nutrition Policy

India has increasingly promoted millets because they are:

- Climate-resilient crops
- Water-efficient crops
- Nutrient-rich cereals

Millets are now being integrated into:

- Mid-Day Meal Scheme
- ICDS nutrition programmes
- Hostel and welfare institution diets

Millets vs Rice

Feature	Millets	Rice
Water requirement	Low	High
Climate resilience	High	Moderate
Nutritional value	High fibre & minerals	Lower fibre
Suitability	Dryland farming	Irrigated farming

Way Forward

The government should strengthen millet procurement systems to provide assured market support and stable income opportunities for farmers cultivating millets. Expanding institutional procurement through agencies such as FCI and State marketing federations can encourage greater millet production.

- Development of modern processing infrastructure is essential to reduce post-harvest losses and improve the commercial viability of millet cultivation. Establishment of millet processing units, grading centres, cold storage facilities, and supply-chain networks can enhance market accessibility.
- Farmer awareness programmes should be expanded to educate cultivators about improved millet varieties, scientific cultivation methods, water-efficient farming practices, and government support schemes. Extension services and digital outreach can help increase millet adoption.

Conclusion

The Telangana government's initiative reflects an important shift toward nutrition-oriented food security and sustainable agriculture. By promoting jowar and maize through the public distribution network, the State is simultaneously addressing farmer welfare, nutritional improvement, dryland agriculture, and climate-resilient cropping systems.

Telangana to Boost Renewable Energy to 29,645 MW by 2029–30

Source: Telangana Today

Relevance:

UPSC: GS Paper III – Renewable Energy, Agriculture, Infrastructure, Environment and Climate Change
TGPSC: Paper IV – Economy and Development

Important Keywords

Prelims:

- PM-KUSUM, Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan, TGRPDCL, DISCOMs, Renewable Energy, Solar Power Plants, Component-A, SGST Reimbursement, Electricity Duty Exemption, MNRE

Mains:

- Energy Transition, Farmer Income Diversification, Decentralised Solar Power, Rural Energy Security, Climate Action, DISCOM Reforms, Sustainable Agriculture, Green Growth, Telangana Renewable Energy Model

Why in News?

Telangana Rythu Power Distribution Company Limited **TGRPDCL** Chairman and Managing Director **Musharraf Faruqui** announced that Telangana's renewable energy capacity stood at **10,642 MW in 2025–26** and the State government is planning to increase it to **29,645 MW by 2029–30**.

Key Highlights

- Telangana's renewable energy generation capacity stood at **10,642 MW in 2025–26**.
- The State plans to increase it to **29,645 MW by 2029–30**.
- TGRPDCL Chairman and Managing Director **Musharraf Faruqui** highlighted the effective implementation of **PM-KUSUM**.
- Under **PM-KUSUM-A**, farmers can set up solar power plants on agricultural and barren lands.
- Farmers can sell electricity generated from solar plants to **DISCOMs** and earn additional income.
- Solar plants with capacities ranging from **0.5 MW to 2 MW** can be established.
- Around **3.5 acres of land** is required for setting up a **1 MW solar plant**.
- Small and marginal farmers can form groups of two or three members to establish solar plants jointly.

Telangana Government Incentives

To encourage farmers to participate in the scheme, the Telangana government is offering:

- Exemption from **NALA conversion charges**
- **50% SGST reimbursement**
- Exemption from **Pollution Control Board NOC**
- **100% exemption from electricity duty**

About PM-KUSUM Scheme

- **Full Form:** Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan
- **Launched:** 19 February 2019

- **Nodal Ministry:** Ministry of New and Renewable Energy

Objectives

- Promote **solar energy use in agriculture**
- Provide **energy security to farmers**
- Reduce dependence on **diesel pumps**
- Support **clean and renewable energy**
- Enable farmers to earn income by selling **surplus solar power**
- Reduce the subsidy burden on **DISCOMs**

Components of PM-KUSUM

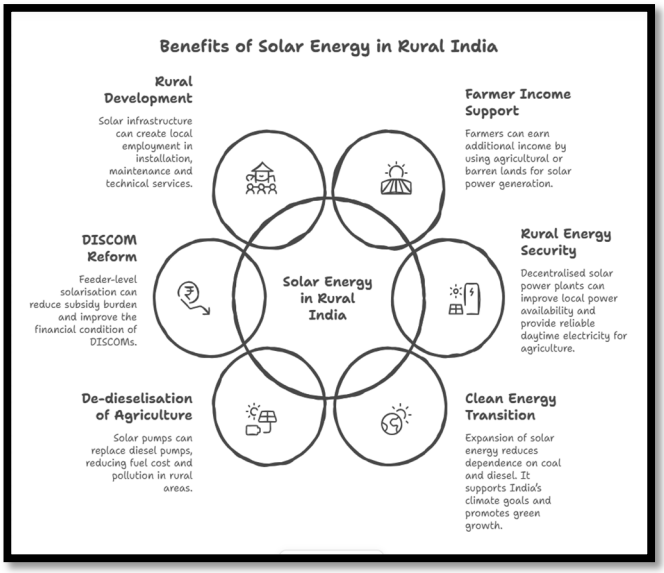
Component	Updated Target	Main Purpose
Component-A	**10,000 MW**	Setting up decentralised ground/stilt-mounted grid-connected solar or renewable energy-based power plants
Component-B	**14 lakh pumps**	Installation of standalone solar agriculture pumps
Component-C	**35 lakh pumps**	Solarisation of grid-connected agriculture pumps, including feeder-level solarisation

Financial Assistance

Source	Share
Central Government	**30%**
State Government	**At least 30%**
Farmer	**Up to 40%**

Issues and Challenges

- **High initial cost:** Small and marginal farmers may find it difficult to pay their share.
- **Implementation delays:** Progress depends on State agencies and DISCOMs.
- **Groundwater concern:** Easy access to solar power may increase groundwater extraction.
- **Maintenance gap:** Solar plants and pumps need timely repair and local service support.
- **Awareness problem:** Many farmers may not know the subsidy pattern and application process.
- **Grid infrastructure:** Large-scale renewable energy requires strong grid and storage systems.



Way Forward

- Conduct village-level awareness programmes for farmers.
- Provide easy loans and financial support to small and marginal farmers.
- Encourage farmer groups, cooperatives and Farmer Producer Organisations.
- Ensure timely payment by DISCOMs for purchased electricity.
- Strengthen grid infrastructure and energy storage systems.
- Promote responsible groundwater use

along with solar irrigation.
- Train rural youth in solar installation, maintenance and repair work.

Conclusion

Telangana's plan to increase renewable energy capacity to **29,645 MW by 2029–30** is an important step towards **green growth, farmer income diversification and rural energy security**. Through **PM-KUSUM**, farmers can become both energy users and energy producers.

PM Modi Virtually Inaugurates Kakatiya Mega Textile Park Under PM MITRA

Source: Deccan Chronicle; PIB

Relevance:

UPSC: GS Paper III – Industrial Growth, Infrastructure, Employment, Textile Sector, Inclusive Growth

TGPSC: Paper IV – Economy and Development; Telangana Economy; Industrial Development; Employment Generation

Important Keywords

Prelims:

- PM MITRA Park, Kakatiya Mega Textile Park, Warangal, Geesukonda Mandal, 5F Vision, Farm to Fibre to Factory to Fashion to Foreign, Competitive Incentive Support, Zero Liquid Discharge, PLI Scheme, VGF

Mains:

Textile Value Chain, Industrial Infrastructure, Employment Generation, Women Employment, Regional Development, Export Competitiveness, Investor Confidence, Sustainable Industrialisation

Why in News?

Prime Minister **Narendra Modi** virtually inaugurated the **Kakatiya Mega Textile Park (KMTP)** at **Warangal, Telangana**, under the **PM MITRA scheme**. The project is expected to boost India's textile sector and create large-scale employment opportunities, especially for women.

About Kakatiya Mega Textile Park

- The **Kakatiya Mega Textile Park** is located in **Warangal, Telangana**. It has been developed under the **PM MITRA scheme** and is described as the **country's first functional PM MITRA Park**.

The park operationalises the Government of India's **5F Vision**:

Farm → Fibre → Factory → Fashion → Foreign

- This vision aims to integrate the textile value chain from raw material production to global exports.

Cost, Funding and Financial Support

The total project cost is estimated at around **₹1,695 crore / ₹1,695.54 crore**.

According to officials:

- Around **₹800 crore to ₹900 crore** has been spent on:
  - Land acquisition
  - Infrastructure
  - Basic facilities

Under the PM MITRA scheme:

- The Centre has allocated **₹200 crore** for the project.
- **₹30 crore** was released earlier.
- The remaining **₹170 crore** will be released in phases.

After approval under the **Brownfield category**, KMTP became eligible for:

- **₹200 crore** as Development Capital Support
- **₹300 crore** as Competitive Incentive Support for industries being set up in the park

Manufacturing units in PM MITRA parks are eligible for incentive support, with a total fund of **₹300 crore for each park**.

Infrastructure and Connectivity

The park is spread across **1,327 acres**.

It is strategically located near:

- Proposed **Nagpur–Vijayawada Greenfield Expressway (NH-163G)**
- **NH-163**
- Major railway networks
- Seaports

This location is expected to provide strong multimodal connectivity and support smooth logistics for global trade.

The park has been designed as a world-class industrial ecosystem with:

- Extensive internal road network
- Dedicated power substation
- Assured water supply
- Common Effluent Treatment Plant
- Zero Liquid Discharge technology

Investment and Employment Potential

The PM MITRA Park at Warangal is expected to become a major driver of India's textile growth.

Important investment and employment details include:

- Expected investment of over **₹6,000 crore**
- **62% of the park** already allotted
- Over **24,400 jobs** expected
- Thousands of jobs already created
- Officials stated that the park will generate employment and contribute to the local economy of **Warangal and surrounding areas**

PLI Scheme Convergence

Units in PM MITRA parks are also eligible for benefits in convergence with other Government of India schemes.

One example is **Evertop Textile and Apparel Complex Pvt. Ltd.**, a unit in PM MITRA Park Warangal, which is also a beneficiary of the **PLI scheme**.

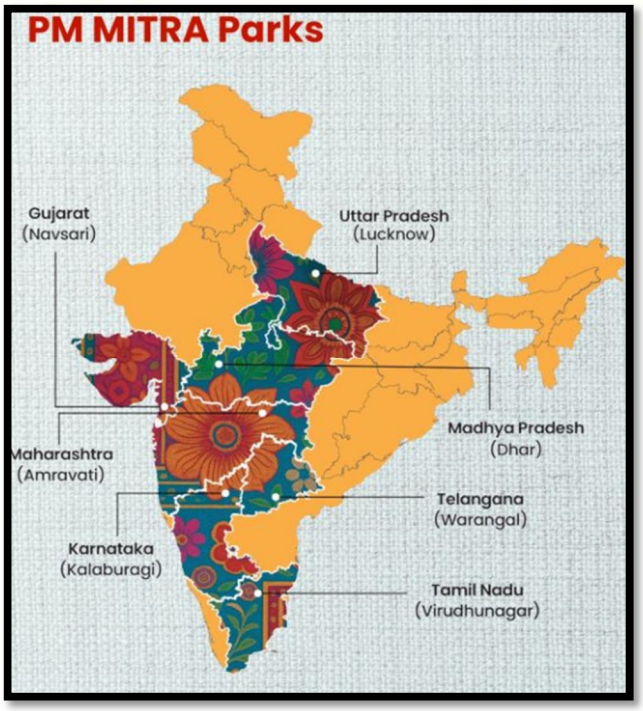
- Employment for around **12,800 persons**
- Proposed investment of **₹1,051 crore**
- Estimated annual turnover of **₹1,990 crore**

This shows how PM MITRA can work with other schemes to attract investment and create employment.

PM MITRA Scheme:

The Government of India approved the establishment of **seven PM MITRA parks** in March 2023.

The seven sites are:



The scheme is expected to generate:

- **3 lakh jobs**
  - **1 lakh direct employment**
  - **2 lakh indirect employment**
- Estimated investment of **₹10,000 crore per park**

More than **200 consultations** were conducted with States, investors and potential park developers at international, national and local levels.

Progress of PM MITRA Parks

- State governments have started external infrastructure works up to the park gates.
- DPR proposals for **Madhya Pradesh, Tamil Nadu, Maharashtra and Telangana** PM MITRA parks have been approved.
- In **Madhya Pradesh**, land has been allotted with proposed investment.
- In **Tamil Nadu**, land allotment applications have been received with proposed investment.
- In **Maharashtra**, applications have been invited for land allotment.
- In **Telangana**, investment has been grounded and land has already been allotted.
- Development Capital Support has been sanctioned to **Madhya Pradesh, Tamil Nadu, Maharashtra and Telangana**.
- For **PM MITRA Park, Virudhunagar, Tamil Nadu**, land acquisition and necessary approvals, including environment clearance, have been completed

Significance

1. Integrated Textile Value Chain

- The park aims to integrate the textile value chain from **production to exports**. This can strengthen the link between textile production, processing, apparel manufacturing and global markets.

2. Industrial Growth in Telangana

- The project can support industrial development in **Warangal** and surrounding areas by creating infrastructure and attracting investment.

3. Employment Generation

- The park is expected to generate large-scale employment opportunities. The Prime Minister specifically highlighted its role in creating employment, especially for women.

4. Investor Confidence

- PM MITRA status provides central funding, incentive support, modern shared infrastructure and national-level policy support. This can increase investor confidence.

5. Global Positioning

- Being part of PM MITRA elevates KMTP from a State industrial park into a nationally prioritised and globally positioned textile ecosystem.

6. Sustainable Industrialisation

- The use of **Common Effluent Treatment Plant** and **Zero Liquid Discharge technology** shows emphasis on sustainable industrial development.

Issues / Focus Areas

- Timely release of the remaining central allocation
- Full development of common infrastructure facilities
- Completion of CETP upgradation and Zero Liquid Discharge facilities
- Effective utilisation of Competitive Incentive Support
- Attracting more industries to the allotted land
- Ensuring large-scale employment, especially for women
- Strengthening logistics through expressway, rail and port connectivity
- Maintaining sustainability while expanding textile processing activities

Way Forward

- Complete remaining infrastructure works within planned timelines
- Ensure phased release and effective use of central support
- Attract textile and apparel units through Competitive Incentive Support
- Promote convergence with schemes such as the **PLI scheme**
- Strengthen worker dormitories and basic facilities
- Ensure strict implementation of Zero Liquid Discharge technology
- Use the park to expand employment opportunities in Warangal and nearby areas
- Position KMTP as a model for future integrated textile ecosystems

Conclusion

The **Kakatiya Mega Textile Park at Warangal** is an important step in India's textile and industrial growth journey. With a project cost of around **₹1,695 crore**, strong infrastructure, PM MITRA support and expected investment of over **₹6,000 crore**, the park can become a major textile hub.

- By operationalising the **5F Vision — Farm to Fibre to Factory to Fashion to Foreign**, the park can integrate production with exports, create employment, attract investment and contribute to the local economy of **Warangal and surrounding areas**.

Telangana to Double Education Budget to 15%; CM Revanth Reddy Launches Nursery-to-XII Model

Source: Deccan Chronicle

Relevance: **Paper-III: Indian Society, Constitution and Governance**

Important Keywords

Prelims:

- Exclusive Education Week, Praja Palana–Pragathi Pranalika, Telangana Education Commission, Nursery-to-XII Model, CURE Region, DSC, NEP Norm, Finland Teacher

Exchange, Young India Residential Schools

Mains:

- Public Education Reform, Human Capital Formation, Education Equity, Dropout Reduction, Government School Strengthening, Teacher Capacity Building, Nutrition and Learning Outcomes

Why in News?

Telangana CM **A. Revanth Reddy** launched **Exclusive Education Week** under **Praja Palana–Pragathi Pranalika** at **L.B. Stadium, Hyderabad**. He announced that education allocations will be gradually increased to **15% of the State Budget** and launched **₹1,700 crore** worth school infrastructure works for integrated complexes, additional classrooms and pre-primary sections.

Budgetary Priority for Education

- The Chief Minister stated that **education spending is an investment in future generations**.
- Telangana plans to gradually increase education allocation to **15% of the annual Budget**.
- The **Telangana Education Commission** had recommended **17%**, but the government said it cannot be raised suddenly from around **7.6%–8%**.
- The Chief Minister said the education Budget will increase every year.
- He also stated that he kept the **Education portfolio** with himself because he considers education central to Telangana's transformation.

Nursery-to-XII Government School Model

- From the **2026–27 academic year**, admissions in government schools will begin from **pre-primary sections**.
- Telangana plans to introduce education from **nursery to Class XII** in government institutions.
- The idea is linked to reducing dropouts after **Class X**.
- The Chief Minister noted that children who join private schools at nursery, LKG and UKG levels often do not return to government schools later.
- This model aims to retain students in the public education system from the foundational stage.

School Infrastructure Push

- The government launched works worth **₹1,700 crore**.
- These works include:
  - **11 integrated school complexes**
  - Upgradation of existing schools
  - Additional classrooms
  - Pre-primary sections in government schools
- These works will be taken up in:
  - **Medchal-Malkajgiri**
  - **Sangareddy**
  - **Rangareddy**

Teacher Recruitment and Capacity Building

- Since December 2023, the government has highlighted several teacher-related measures.
- Key measures include:
  - Recruitment of over **11,000 teachers**
  - Issue of **DSC notifications**
  - Promotions to around **22,000 teachers**
  - Transfers of around **36,000 teachers** without controversy

- The State sent **25 government teachers to Finland** to study school systems.
- The Chief Minister suggested that, if necessary, **500 best-performing teachers** may be sent abroad every year to study global education practices.
- The government also referred to **NITI Aayog recommendations** while discussing education reforms.

Nutrition and Student Support

- Students will receive:
  - Protein-rich breakfast
  - Lunch
  - Milk
  - Ragi java
- A breakfast pilot project in **Kodangal** is planned to be expanded from the coming academic year.
- The government is spending around **₹1,000 crore** on:
  - Uniforms
  - Shoes
  - Bags
  - Notebooks
  - Other education kits
- The Chief Minister warned suppliers against providing poor-quality education kits.
- Diet and cosmetic charges for hostel students have also been revised.

Government School Status in Telangana

- Telangana has around **27,000 government schools**.
- These schools have about **19 lakh students**.
- The State has around **1.05 lakh teachers**.
- Around **38 lakh students'** study in nearly **12,000 private schools**.
- Telangana has a teacher-student ratio of **1:17**.
- The Chief Minister compared this with the **NEP norm of 1:30**.
- He said government schools must compete directly with private institutions.

Broader Reform Vision

- Telangana aims to become the **number one State in public education**.
- The Chief Minister said government school students should secure top results, instead of only students from corporate colleges.
- He called for a **new Telangana education policy** that other States can follow.
- **Young India Residential Schools** were mentioned as part of efforts to reduce caste-based segregation.
- IT and Industries Minister **D. Sridhar Babu** linked education reform with Telangana's goal of becoming a **three-trillion-dollar economy by 2047**.

Significance

- Strengthens **public education** and reduces dependence on private schools.
- Supports **education equity** for poor and vulnerable students.
- Nursery-to-XII model can reduce dropouts and improve continuity in schooling.
- Pre-primary sections can improve early childhood learning.
- Better nutrition can improve attendance, health and learning outcomes.
- Teacher recruitment, promotions and training can improve classroom quality.
- Higher education spending can support long-term **human capital formation**.
- Strong public education can support Telangana's future economic growth.

Way Forward

- Increase education spending in a phased and transparent manner.
- Focus on foundational literacy and numeracy from pre-primary level.
- Strengthen existing government schools along with new integrated complexes.
- Link teacher training with classroom performance.
- Expand nutrition support across all government schools.
- Ensure quality checks for education kits and supplies.
- Involve parents, teachers and local communities in school monitoring.
- Prepare Telangana's new education policy as a practical public school reform model.

Conclusion

Telangana's education reform push aims to strengthen government schools through higher budget allocation, nursery-to-Class XII schooling, infrastructure development, teacher reforms and nutrition support. If implemented effectively, it can improve learning outcomes, reduce education inequality and build strong human capital for Telangana's long-term

Tobacco Violations Dominate Telangana NCRB Data

Source: Deccan Chronicle

Relevance: TGPSC Group 2: Paper I – General Studies – Current Affairs, Environment, Public Health, Government Policies and Law Enforcement.

Important Keywords

Prelims Keywords:

- NCRB, Environment-related Offences, COTPA 2003, Cigarettes and Other Tobacco Products Act, Environment Protection Act 1986, Tobacco-law Violations, Operation Safe School, Global Adult Tobacco Survey 2017, Public Smoking Ban, Pictorial Health Warnings.

Mains Keywords:

- Public Health Enforcement, Tobacco Control, Environmental Offences, Youth Addiction, Law Enforcement, Preventable Deaths, Non-Communicable Diseases, School Safety, Regulatory Compliance.

Why in News?

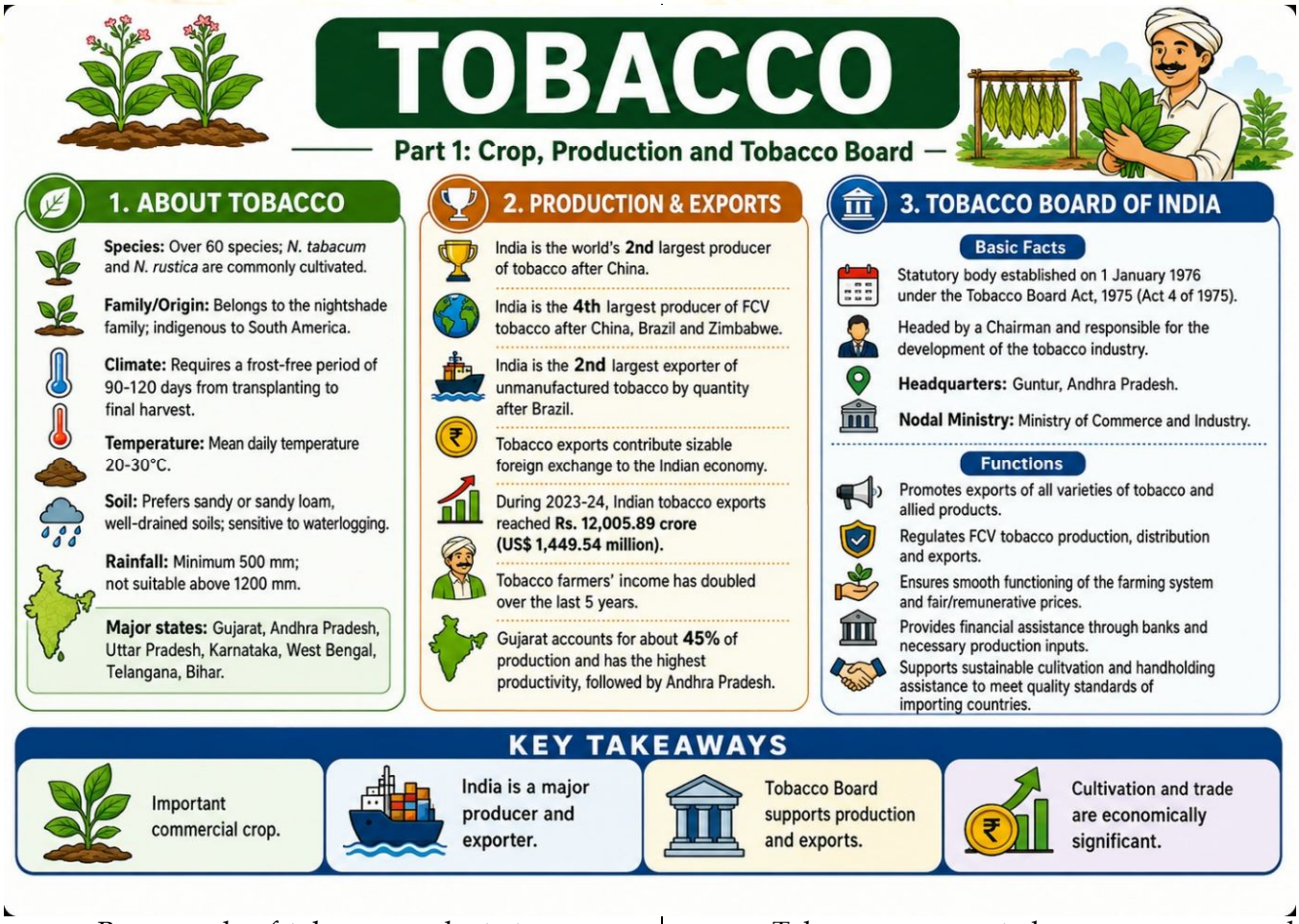
The latest **National Crime Records Bureau (NCRB)** data shows that **95% of environment-related offences in Telangana during 2024** were linked to violations of tobacco laws.

Out of **591 environment-related offences** registered in Telangana, **564 cases** were registered under the **Cigarettes and Other Tobacco Products Act (COTPA), 2003**.

Major Provisions of COTPA, 2003

The Cigarettes and Other Tobacco Products Act, 2003 contains several rules to control tobacco use and protect public health.

Important provisions include:



- Ban on sale of tobacco products to persons below **18 years** of age.
- Ban on sale of tobacco products near educational institutions within a **100-yard radius**.
- Mandatory **pictorial health warnings** on all tobacco product packages sold in India.
- Prohibition of smoking in **public places and workplaces**.

Key Highlights of NCRB Data

- Telangana recorded **591 environment-related offences** in 2024.
- Out of these, **564 cases** were under **COTPA, 2003**.
- Only **27 cases** were booked under the **Environment Protection Act, 1986**.
- Telangana reported **zero cases** under several major environmental laws.
- Telangana ranked **sixth** in India in environmental offences registered under COTPA in 2024.

Telangana's Environment-related Offences

According to NCRB's **Environment Related Offences** tables, tobacco-law violations formed the largest share of environment-related offences in Telangana.

- The data shows that environmental offence registration in the state was overwhelmingly concentrated under COTPA.

Laws With Zero Cases in Telangana

Telangana reported zero cases under several major environmental laws, including:

- Forest Act
- Wildlife Protection Act
- Air Pollution Act
- Water Pollution Act
- Noise Pollution Rules
- National Green Tribunal Act

This shows that registered environment-related offences in Telangana were mainly tobacco-law related.

Comparison with Tamil Nadu

- Tamil Nadu recorded the highest number of COTPA-related environmental offences in the country in 2024.
- It registered **26,451 offences** during the year.
- Telangana ranked **sixth** nationally in COTPA-related environmental offences.

Operation Safe School in Hyderabad

Hyderabad police recently carried out enforcement drives under **Operation Safe School**.

As part of the drive:

- Nearly **5,000 police personnel** participated.
- Raids were conducted on **558 shops** near schools and colleges.
- The raids covered Hyderabad city police limits.
- Multiple tobacco products were seized.
- Cases were registered against shops violating COTPA provisions.

The drive focused on pan shops accused of selling tobacco products to minors and operating near educational institutions.

Public Health Concerns

Tobacco use is a leading risk factor for cancer and several other non-communicable diseases.
It remains the single largest cause of preventable deaths globally.

- According to the **Global Adult Tobacco Survey, 2017**, around **28.6% of Indians aged 15 years and above** consume tobacco in some form.

Challenges

- High number of tobacco-law violations shows weak compliance.
- Sale of tobacco products near educational institutions remains a concern.
- Minors may be exposed to tobacco products through local shops.
- Enforcement requires continuous monitoring across city limits.
- Public reporting of violations needs active participation.
- Tobacco use remains linked to cancer, non-communicable diseases and preventable deaths.

Way Forward

- Continue strict enforcement of COTPA provisions.
- Monitor shops near schools and colleges regularly.
- Prevent sale of tobacco products to minors.
- Maintain special teams for continuous surveillance.
- Encourage the public to report violations.
- Strengthen action against shops operating within the prohibited 100-yard radius around educational institutions.
- Use NCRB data to identify enforcement gaps and improve public health protection.

Conclusion

The NCRB data shows that tobacco-law violations formed the largest share of environment-related offences in Telangana during 2024. The high number of cases under COTPA highlights the importance of strict enforcement, especially near educational institutions.

- Tobacco control is not only a legal issue but also a public health priority. Strong enforcement, public reporting and continuous monitoring are necessary to protect students and reduce the health burden caused by tobacco use.

Telangana Mega Urban Growth Corridors: 25-Year Urban Planning Roadmap

Source: The Hindu
Relevance: **TGPSC Group I: Paper II – Governance and Public Policy**

Important Keywords

Prelims Keywords:

- Urban Growth Corridors, Outer Ring Roads, Warangal–Karimnagar–Khammam Corridor, Temple Corridor, Tourism Corridor, AI-based Traffic Management, Smart Poles, Multi-Utility Towers, Electric Vehicles, Treated Water, Renewable Energy, Sewage Treatment Plants, Krishna Pushkarams, Singareni Collieries.

Mains Keywords:

- Sustainable Urbanisation, Regional Development, Urban Infrastructure, Long-term Planning, Smart Mobility, Wastewater Reuse, Urban Governance, Temple Tourism,

Airport Connectivity, Balanced Regional Growth

Why in News?

Telangana Chief Minister **A. Revanth Reddy** announced a major urban expansion roadmap for the State. The plan aims to guide Telangana's urban development over the next **25 years** through growth corridors, Outer Ring Roads, temple and tourism corridors, smart infrastructure, renewable energy and improved airport connectivity.

Major Proposals in the Urban Growth Plan

- Telangana plans to develop major **urban growth corridors** to support long-term urban expansion.
- The proposed corridors are:
  - **Warangal–Karimnagar–Khammam**
  - **Mahbubnagar–Bhoothpur–Jadcherla**
  - **Kothagudem–Palvancha–Sujathanagar**
- **Outer Ring Roads** are proposed for:
  - **Warangal**
  - **Karimnagar**
  - **Khammam**
- Towns will be integrated through **radial roads** aligned close to major municipalities.
- Infrastructure planning will be based on the **future population needs** of individual urban centres.
- The **Warangal–Karimnagar–Khammam corridor** has been identified as crucial for Telangana's future development.

Sustainable and Smart Urban Infrastructure

- Urban planning will include **solid waste management systems, wastewater treatment plants and underground drainage systems**.
- Renewable energy units and **solar power generation plants** will be planned in urban areas.
- The government plans to promote **Electric Vehicles**, and only EVs are to be hired for official purposes.
- **AI-based traffic management systems** will be used to improve urban mobility.
- **Smart poles** and **multi-utility towers** are proposed across cities and towns.
- Multi-utility towers are expected to help reduce radiation levels and improve urban infrastructure management.
- Treated water from the **Sewage and Wastewater Management Board** will be made mandatory for construction activities.

Temple, Tourism and Airport Connectivity Plans

- A **Temple Corridor** is proposed between **Nalgonda and Yadagirigutta**.
- A **Tourism Corridor** is proposed to link **Adilabad, Nagoba Temple, Basara and Kadem Project**.
- The **Alampur Jogulamba Temple** will be upgraded ahead of the upcoming **Krishna Pushkarams**.
- Water requirements for the proposed **Warangal airport** will be included in planning.
- The proposed **Adilabad airport** is being developed by the **Ministry of Defence**.
- Strong road connectivity will be ensured for upcoming airports.

Singareni Municipalities Integration

- Municipalities under the jurisdiction of **Singareni Collieries Company Limited**

will be merged into a single administrative unit.
- **Singareni CSR funds** will be used exclusively for local development works.
- This can improve planning, funding and execution in coal belt municipalities.

Challenges

- Large-scale urban projects need strong coordination among multiple departments.
- Land acquisition may create delays and local concerns.
- Funding and timely execution of ORRs and corridor projects may be difficult.
- Operation and maintenance of STPs, drainage systems and solid waste units need strong capacity.
- EV adoption requires charging infrastructure and reliable power support.
- AI traffic systems, smart poles and multi-utility towers need technical expertise.
- Unplanned real estate growth around corridors must be prevented.
- Tourism and temple corridor development should benefit local communities.

Way Forward

- Prepare detailed master plans for each growth corridor.
- Integrate road, drainage, water, waste and energy planning from the beginning.
- Develop ORRs and radial roads in a phased manner.
- Ensure public consultation and local body participation.
- Strictly monitor treated water use in construction.
- Build EV charging and renewable energy infrastructure.
- Use AI and digital systems for traffic and service delivery.
- Link airport planning with roads, water and urban services.
- Use Singareni CSR funds transparently for coal belt development.
- Prevent unplanned urban sprawl through zoning and land-use regulation.

Conclusion

Telangana's urban growth corridors aim to promote planned development beyond Hyderabad. By combining connectivity, sustainable infrastructure, smart technology, tourism and renewable energy, the plan can support regionally balanced growth. Its success will depend on proper planning, coordination, public participation and timely implementation.

Restoration of Nandi and Kalyana Mandapam at Thousand Pillar Temple, Hanamkonda

Source: The Hindu

Relevance: **TGPSC Group 1: Telangana History and Culture, Kakatiya Architecture, Heritage Conservation, Tourism and Cultural Development.**

Important Keywords

Prelims Keywords:

- Thousand Pillar Temple, Hanamkonda, Rudreshwara Temple, Kakatiya Dynasty, Rudradeva, Trikuta Aalayam, Kalyana Mandapam, Nandi, ASI, Sandbox Technology, Ulugh Khan, Raja Deen Dayal, Ramappa Temple.

Mains Keywords:

- Heritage Conservation, Kakatiya Architecture, Temple Restoration, Cultural Continuity, Conservation Ethics, Authenticity and Integrity, Living Heritage, Community Space, ASI Restoration, Telangana Heritage Tourism

Why in News?

- The iconic **Nandi sculpture** at the entrance of the **Rudreshwara Temple**, popularly known as the **Thousand Pillar Temple** in Hanamkonda, has been reconstructed after centuries of damage.
- The **Kalyana Mandapam / dance pavilion** of the temple has also been rebuilt stone by stone after a long conservation effort led by the **Archaeological Survey of India**.
- The restoration brings renewed attention to **Kakatiya-era architecture**, conservation techniques and Telangana's cultural heritage.

About Thousand Pillar Temple

- The Thousand Pillar Temple is located at **Hanamkonda** in Telangana.
- It is also known as the **Rudreshwara Temple**.
- It was built by **Kakatiya ruler Rudradeva** in **1163 AD**.
- The temple is a **Trikuta Aalayam**, meaning it has three sanctum sanctorums.
- The three shrines were dedicated to:
  - **Rudra / Shiva**
  - **Vasudeva / Vishnu**
  - **Surya**
- At present, regular worship is mainly offered to **Shiva**.

Historical Background

- The temple was damaged during the invasion of **Ulugh Khan**, who later became **Muhammad bin Tughlaq**.
- During this invasion, the Kakatiya kingdom was weakened and several temple structures were damaged.
- The sanctums of **Surya** and **Vasudeva** were left without deities.
- Several sculptures at the lower level were disfigured.
- The temple later remained in a state of neglect for a long period.

Nandi Restoration

- The massive **monolithic Nandi** outside the Shiva shrine had a broken leg for centuries.
- An **1888 photograph by Raja Deen Dayal** also shows the Nandi with a broken leg.
- Initially, a **gypsum model** of the leg was created.
- The plan was to replace it with a **black granite leg** matching the original form.
- The leg was recreated by studying Nandi sculptures from other **Kakatiya-era temples**.
- The restoration required correct proportions, clean lines and careful matching with the original sculpture.

Kalyana Mandapam Reconstruction

- The temple's **Kalyana Mandapam / dance**

pavilion had sunk into the ground over time.

- The restoration was carried out by dismantling and rebuilding the structure piece by piece.
- More than **4,000 stone pieces** were carefully removed during the dismantling process.
- The conservation effort began as a research project on Kakatiya monuments and later developed into a major ASI restoration work.
- The restored pavilion brings back an important part of the temple's original grandeur.

Kakatiya Sandbox Technology

- The Kalyana Mandapam was not built on a conventional foundation.
- It used **sandbox technology**, an important Kakatiya engineering method.
- In this method, a sand pit was used to stabilise the heavy stone structure.
- During restoration, the foundation was strengthened by:
  - Digging a deep sandbox
  - Using granular piles of sand and gravel
  - Consolidating the base with heavy vibratory rollers
  - Injecting liquid lime mortar
  - Replacing rusted iron dowels with stainless steel dowels
- This shows the advanced engineering knowledge of medieval Kakatiya builders.

Architectural Features

- The temple is famous for its black granite and dolerite pillars.
- It contains smooth, richly carved pillars and perforated screens.
- Sculptures include dance forms, animals and divine figures.
- The Nandi is a major artistic and spiritual centrepiece of the temple.
- The temple has both:
  - **Ranga Mandapam** for sacred performances
  - **Kalyana Mandapam** for ceremonial occasions
- The structure reflects the skill of Kakatiya craftsmen in stone carving, symmetry and modular architecture.

UNESCO Heritage

- In 2014, India submitted **The Glorious Kakatiya Temples and Gateways** as a serial nomination for UNESCO World Heritage status.
- The Thousand Pillar Temple was initially part of this wider Kakatiya heritage context.
- Later, it was not included in the final nomination due to issues related to **authenticity and integrity**.
- The modified dossier with **Ramappa Temple** alone received the **UNESCO World Heritage Site** tag in 2021.
- The restoration of the Thousand Pillar Temple is therefore important for strengthening the conservation value of Kakatiya heritage.

Cultural and Social Importance

- The temple is not only an architectural monument but also a living cultural space.
- In earlier times, temple mandapams acted as centres of community life.
- Cultural performances, religious events and social gatherings were held in temple spaces.

CHRONOLOGY OF A RESURRECTION

Reconstruction of the Thousand Pillar Temple Kalyana Mandapa, Hanamkonda

January 11, 1163 — Kakatiya king Rudradeva constructed the temple for Rudra, Vasudeva and Surya with a Kalyana Mandapa.

1323–24 — Ulugh Khan laid siege to Warangal, desecrated the temple, and soldiers defaced the sculptures.

1888 — Raja Deen Dayal photographed people living near the pillars of the Kalyana Mandapa.

1929 — The archaeology department of the Nizam's Dominion cleared the pathway around the temple and carried out basic stabilisation work.

2012 — ₹5 crore was sanctioned for widening the road leading to the Thousand Pillar Temple in Hanamkonda, and ₹3 crore was distributed among 30 families to clear houses built in front of the temple.

2013 — Andhra Pradesh Endowments Minister C. Ramachandraiah proposed restoring the Thousand Pillar Temple by reinstalling the lost idols of Surya and Vishnu in the main sanctum sanctorum.

2017–18 — ₹68,00,000 was approved for ongoing reconstruction of the Kalyana Mandapa, with an additional ₹10,00,000 and ₹10,00,000 approved for repairs to the main temple.

2018–19 — ₹25,00,000 was approved by ASI for the remaining reconstruction work at the Kalyana Mandapa, Hanamkonda; ₹10,00,000 for repairs to the main temple; and ₹10,00,000 for stone flooring, granite signages, drinking water and washing area.

2021 — Work gathered pace for reconstruction of the Kalyana Mandapa.

The restoration reflects a long historical journey from medieval construction and destruction to modern conservation efforts.

- After the formation of Telangana, the temple stepwell became a centre for **Bathukamma celebrations** in the district.
- The temple continues to remain a site of devotion, tourism and local memory.

Significance

- Revives an important monument of **Kakatiya architecture**.
- Highlights Telangana's rich temple-building tradition.
- Shows the importance of scientific conservation by the ASI.
- Restores the damaged Nandi sculpture and Kalyana Mandapam.
- Demonstrates the engineering value of **sandbox technology**.
- Strengthens cultural tourism in Hanamkonda and Warangal region.
- Helps reconnect people with local history and heritage.
- Supports the idea of preserving both monuments and living cultural traditions.

Challenges

- Restoring damaged stone sculptures requires high craftsmanship.
- Matching the new stone with the old sculpture is technically difficult.
- The original structure had suffered from centuries of damage and neglect.
- Several pillars and beams were broken or missing.
- Conservation work must balance restoration with historical authenticity.
- Public expectations are high because the temple is a living place of worship.
- Past issues of encroachment and poor site management affected the monument's integrity.

Way Forward

- Continue restoration using scientific conservation principles.
- Preserve authenticity while repairing damaged parts.
- Use trained traditional craftsmen for stone carving and reconstruction.
- Improve visitor management around the restored areas.
- Provide proper signage explaining Kakatiya architecture and sandbox technology.
- Protect the temple from encroachments and vandalism.
- Promote heritage education among students and local communities.
- Integrate the temple with Telangana's heritage tourism circuit.

Conclusion

The restoration of the Nandi and Kalyana Mandapam at Hanamkonda's Thousand Pillar Temple is a major step in conserving Kakatiya heritage. The temple reflects the artistic skill, engineering knowledge and cultural vision of medieval Telangana.

Its revival is not merely a repair of stone structures. It is also a recovery of historical memory, cultural pride and community identity. Scientific conservation, public participation and responsible tourism can help preserve this monument for future generations.

Telangana Agriculture Department Warning Against Stubble Burning

Source: Deccan Chronicle

Relevance: TGPSC Group 1: Paper IV – Telangana Economy and Development – Agriculture, Environment and Sustainable Development.

Important Keywords

Prelims Keywords:

- Stubble Burning, Crop Residue, Soil Nutrients, Carbon Monoxide, Methane, Vermicompost, Mulching, Earthworms, Rythu Nestham, Air Pollution.

Mains Keywords:

- Sustainable Agriculture, Soil Health, Farmer Awareness, Crop Residue Management, Air Pollution, Public Health, Organic Farming, Climate-resilient Agriculture

Why in News?

- The **Telangana Agriculture Department** urged farmers not to burn crop stubble. Agriculture Commissioner **Dr. B. Gopi** warned that stubble burning causes **air pollution**, destroys **soil nutrients** and affects public health. Farmers practising stubble burning may face penalties up to **₹5,000** as per law.

What is Stubble Burning?

- **Stubble burning** is the burning of crop residue left in fields after harvesting.
- It is often used as a quick method to clear fields for the next crop.
- However, it causes serious damage to **soil fertility, air quality, public health and climate systems**.

Why Farmers Practise Stubble Burning

- **Short cropping window:** Farmers often have only **15–20 days** between paddy harvest and wheat sowing, leaving little time for residue management.
- **High cost of machines:** Machines like **Happy Seeders** may cost around **₹4,500–5,000 per acre** on hiring, which is difficult for small farmers.
- **Combine harvesting:** Combine harvesters leave **25–30 cm tall stubble**, making ploughing difficult.
- **Policy-induced monocropping:** MSP-driven rice-wheat cycles discourage crop diversification and increase paddy straw accumulation.
- **Low market value of paddy straw:** Paddy straw has high silica content, making it less suitable as fodder.
- **Infrastructure gaps:** Biomass plants may be **20–50 km away**, making transport and storage costly.

Impact on Soil Health

- Stubble burning destroys important soil nutrients such as **nitrogen, phosphorus and potassium**.
- It kills beneficial organisms such as **earthworms, bacteria and fungi**.
- High soil temperature damages microbes that help in nutrient cycling.
- It reduces **soil organic carbon** and long-term fertility.
  This can affect crop growth and productivity in the next season.

Impact on Air Quality and Climate

- Burning one tonne of crop residue can release nearly:
  - **1,400 kg carbon dioxide**

  - **58 kg carbon monoxide**
  - **11 kg particulate matter**
  - **4.9 kg nitrogen oxides**
- Farm fires increase **PM2.5 concentration**, especially during peak burning season.
- Emissions mix with winter fog and industrial pollution, forming dense **smog**.
- It reduces visibility and affects sunlight availability.
- Methane and carbon dioxide emissions also contribute to climate change.

Impact on Public Health

- Stubble burning releases smoke, dust and toxic gases.
- It can severely affect:
  - Elderly persons
  - Pregnant women
  - Children
  - People with asthma or respiratory diseases
- Exposure can increase:
  - Respiratory infections
  - COPD aggravation
  - Eye irritation
  - Breathing difficulties
  - Cardiovascular stress

Alternatives to Stubble Burning

- **Mulching:** Crop residue can be mixed back into the soil to improve organic matter.
- **Vermicomposting:** Residue can be converted into useful compost with the help of earthworms.
- **Biofertiliser preparation:** Crop waste can be processed into organic manure.
- **Pusa Decomposer:** A microbial solution can convert stubble into compost within **20–25 days**.
- **Biomass power:** Straw can be used as pellets in power plants.
- **Ethanol and Bio-CNG:** Paddy straw can be converted into second-generation ethanol and biogas.
- **Paper and packaging:** Crop residue can replace wood pulp in paper and packaging industries.
- **Cattle feed processing:** Treated straw can be used as fodder in some regions.
- **Gauthans model:** Community-level collection and composting can convert residue into organic fertiliser.

Government Initiatives

- **Air Act, 1981** and **Environment Protection Act, 1986** provide legal powers to control pollution.
- **National Green Tribunal** has issued directions to prevent stubble burning.
- **Commission for Air Quality Management** coordinates action in Delhi-NCR and adjoining States.
- **Crop Residue Management Scheme** supports machines such as Happy Seeders, Super SMS, mulchers and balers.
- **Pusa Decomposer**, developed by IARI, helps convert stubble into compost.
- **Financial incentives** such as Haryana's ₹1,200 per acre support farmers who avoid burning.
- **SMAM** supports farm mechanisation through Custom Hiring Centres for small and marginal farmers.

Telangana Agriculture Department's Advisory

- Farmers should avoid burning crop stubble.
- Field-level officers have been directed to

educate farmers through weekly **Rythu Nestham** programmes.

- Farmers will be informed about:
  - Dangers of stubble burning
  - Soil nutrient loss
  - Health impacts
  - Benefits of recycling crop residue
- Alternatives such as **mulching, vermicomposting and biofertilizer preparation** should be promoted.

Challenges

- Farmers need quick field clearance before the next sowing season.
- Small farmers may not afford residue-management machinery.
- Crop residue collection and transport remain costly.
- Paddy straw has low fodder value due to high silica content.
- Awareness about composting and bio-decomposers is still limited.
- Enforcement alone may not work without practical alternatives.
- Infrastructure for biomass, ethanol and Bio-CNG use remains uneven.

Way Forward

- Promote crop residue as a resource, not waste.
- Provide affordable access to machinery through Custom Hiring Centres.
- Expand use of **Pusa Decomposer** and other bio-decomposers.
- Strengthen village-level composting and vermicomposting units.
- Link crop residue with biomass power, Bio-CNG, ethanol and packaging industries.
- Encourage crop diversification to reduce residue pressure.
- Provide incentives for farmers who avoid burning.
- Use Rythu Nestham and field visits for continuous farmer education.
- Combine legal penalties with awareness, subsidies and market support.

Conclusion

Stubble burning is not only an environmental issue but also a soil health, public health and climate concern. It destroys nutrients, kills useful soil organisms and releases harmful gases such as carbon monoxide, methane and particulate matter. A sustainable solution requires practical crop residue management. Farmers need access to affordable machines, decomposers, composting support, market linkages and awareness. A balanced approach of **education, incentives, technology, enforcement and farmer participation** can protect soil fertility, public health and the environment.

SOCEYE: Hyderabad Police's AI-Powered Social Media Surveillance Platform

Source: The Hindu

Relevance: **TGPSC Group 1: Paper III – Indian Society, Constitution and Governance:**

Important Keywords

Prelims Keywords:

- SOCEYE, Social Media Observation and Cyber Intelligence, Artificial Intelligence, Hyderabad City Police, Cyber Surveillance, Preventive Policing, Open-Source Intelligence, Dial-100, Cyberbullying, Child

Sexual Abuse Material, AI-based Monitoring.

Mains Keywords:

- AI in Policing, Digital Governance, Public Order, Cyber Safety, Women and Child Safety, Preventive Policing, Social Media Regulation, Privacy, Algorithmic Accountability, Digital Evidence.

Why in News?

- The **Hyderabad City Police** launched **SOCEYE**, an artificial intelligence-based social media surveillance platform.
- SOCEYE stands for **Social Media Observation and Cyber Intelligence**.
- It has been developed to monitor harmful online content, track cyber troublemakers, analyse social media trends and support investigations.

What is SOCEYE?

- SOCEYE is an **AI-powered application** for cyber intelligence and social media monitoring.
- It enables automated monitoring of multiple social media platforms.
- It helps police detect online narratives that may disturb public order.
- It reduces the need for extensive manual scrutiny.
- It supports real-time analysis and technology-driven preventive policing.

Major Features of SOCEYE

- Automated monitoring of harmful online content.
- Tracking of social media handles flagged for communal or disruptive content.
- Integrated dashboard for real-time situational awareness.
- Inputs from:
  - **Dial-100 calls**
  - Intelligence alerts
  - Ongoing city events
  - Other operational feeds
- AI-based classification of posts into:
  - High-risk
  - Medium-risk
  - Low-risk
- Monitoring of issues related to:
  - Communally sensitive content
  - Cyberbullying
  - Stalking
  - Narcotics
  - Women's safety
  - Child sexual abuse material
- Escalation of harmful content to social media platforms for action.
- Record maintenance of takedown requests.
- Sharing network analysis to identify accounts repeatedly amplifying sensitive content.

Pilot Phase Results

- During its pilot phase, SOCEYE identified **85 hateful and communally sensitive posts** related to the **Puranapul X Road incident**.
- It also identified **126 posts** linked to the **Gudimalkapur issue**.
- Timely takedown measures helped maintain peace and identify those responsible for spreading objectionable content.

Role in Preventive Policing

- SOCEYE helps police detect online threats before they create law-and-order problems.
- During protests, public gatherings and religious processions, it can create event-specific monitoring frameworks.

SOCEYE

Hyderabad City Police's AI-Powered Social Media Surveillance Platform

SOCEYE = Social Media Observation and Cyber Intelligence

1 WHY IN NEWS?

- Launched by Hyderabad City Police
- AI-based social media surveillance platform
- Monitors harmful online content
- Supports investigations and trend analysis

2 WHAT IS SOCEYE?

- AI-powered cyber intelligence tool
- Monitors multiple social media platforms
- Detects narratives that may disturb public order
- Reduces manual scrutiny
- Enables real-time analysis and preventive policing

3 KEY FEATURES

- Automated monitoring of harmful content
- Tracks flagged communal/disruptive handles
- Integrated real-time dashboard
- Inputs: Dial-100, alerts, events, operational feeds
- AI risk classification: High / Medium / Low
- Monitors cyberbullying, stalking, narcotics
- Monitors women's safety and child abuse content
- Escalates harmful content for platform action
- Maintains takedown records
- Network analysis identifies repeat amplifiers

4 WHY IT MATTERS

- Faster threat detection
- Better public order management
- Stronger cyber investigations
- Technology-driven preventive policing

HYDERABAD CITY POLICE
SMART POLICING. SAFE HYDERABAD.

- It can track keywords and related online activity in real time.
- This supports early warning, quick response and public order management.

Role in Cybercrime Investigation

- SOCEYE includes analytical tools and open-source intelligence utilities.
- Its global search engine can scan public profiles and collect posts linked to specific keywords.
- It helps officers understand emerging online narratives.
- It can assist in cases involving digital evidence.
- It strengthens both cybercrime investigation and conventional policing.

Grievance Monitoring

- SOCEYE also monitors complaints received through official Hyderabad City Police social media handles.
- Complaints are automatically categorised.
- Each complaint receives a tracking number.
- The system monitors complaints until disposal.
- This can improve accountability and help identify recurring issues and locations.

Challenges

- AI-based surveillance may raise privacy and civil liberty concerns.
- Wrong classification of posts can affect innocent users.
- Algorithmic bias may distort risk assessment.
- Data security and safe storage of digital records are important.
- Excessive surveillance may affect public trust.
- Human verification is necessary before legal or takedown action.
- Clear legal safeguards are needed to prevent misuse.

Way Forward

- Prepare clear Standard Operating Procedures for AI-based monitoring.
- Ensure human verification before enforcement action.
- Conduct regular audits of AI models to reduce bias and error.
- Protect citizen privacy and data security.
- Train police personnel in cyber law, digital evidence and ethical AI use.
- Use the platform mainly for public safety, women's safety, child protection and prevention of violence.
- Maintain transparency in grievance tracking and disposal.
- Balance technology-based policing with constitutional rights.

Conclusion

SOCEYE is an important step towards technology-driven policing in Hyderabad. It can help detect harmful online content, support investigations, reduce police workload and strengthen preventive policing.

- However, AI-based surveillance must be used with caution. Its success will depend on privacy safeguards, human oversight, legal accountability and responsible use of technology. If implemented carefully, SOCEYE can become a useful model for cyber governance and urban public safety.

Bonded Labour Rescue at Nizamabad Brick Kilns

Source: The Hindu
Relevance: **Paper-III – Indian Society, Constitution and Governance**

Important Keywords

Prelims Keywords:

- Bonded Labour, Bonded Labour System (Abolition) Act 1976, Child and Adolescent Labour Act, Article 23, Human Trafficking, Brick Kilns, Migrant Workers, Release Certificate, Rehabilitation, Minimum Wages.

Mains Keywords:

- Labour Exploitation, Forced Labour, Migrant Vulnerability, Informal Sector, Child Labour, Social Justice, Human Dignity, Labour Rights, Rehabilitation, Inter-State Migration.

Why in News?

- More than **400 labourers**, including nearly **100 children**, were rescued from alleged bonded labour conditions at brick kilns in **Armoor mandal of Nizamabad district**, Telangana. The workers were reportedly from **Telangana, Andhra Pradesh, Tamil Nadu and Odisha**. The rescue operation was carried out after authorities received information from relatives of one of the labourers.

What Happened in Nizamabad?

- The operation was conducted at **four brick kilns** in **Degam village**, also known as Degaon.
- Three special police teams, with nearly **30 personnel** from the Armoor division, were deployed.
- Around **200 persons** were formally counted by evening, while identification and verification continued.
- Several rescued persons included **women and children**, and many showed signs of **malnourishment**.

Nature of Exploitation

- Workers were allegedly kept in **bondage-like conditions**.
- They were denied regular wages.
- Instead of direct wages, they were reportedly given **vouchers** that could be exchanged only for essential goods.
- One labourer from Tamil Nadu alleged that he worked for nearly **four years** without direct wages and survived on a grocery voucher worth **₹200 per week**.
- Labourers also alleged:
  - Restrictions on movement
  - Denial of minimum wages
  - Inability to change employment freely

- No freedom to negotiate wages
- Intimidation
- Physical violence
- Sexual abuse

Constitutional Framework Against Bonded Labour

Legal Framework in India

Bonded Labour System (Abolition) Act, 1976

- This Act abolishes bonded labour, frees bonded labourers from obligations and criminalises bonded labour practices.

Child and Adolescent Labour Act, 1986, amended in 2016

- This law prohibits employment of children below **14 years** and restricts adolescents aged **14–18 years** from hazardous occupations.

Juvenile Justice Act, 2015

- This Act provides for care, protection, rehabilitation and reintegration of children in need, including rescued children.

Bharatiya Nyaya Sanhita, 2023

- The BNS addresses offences related to **unlawful compulsory labour** and provides legal provisions to punish forced labour practices.

Human Trafficking Provisions

- If workers were transported, confined or exploited through coercion or deception, human trafficking-related provisions may also apply after investigation.

International Obligations

India is bound by international commitments to prevent forced labour and child exploitation.
Important instruments include:

- **United Nations Convention on the Rights of the Child, 1989:** Article 32 protects children from economic exploitation and hazardous work.
- **ILO Convention 182:** It deals with the worst forms of child labour and has been ratified by India.

These obligations strengthen India's duty to protect children and vulnerable workers from exploitation.

Vulnerability of Migrant Labourers

- Migrant labourers are often vulnerable due to poverty, lack of local support and dependence on employers.
- Many work in informal sectors such as brick kilns, construction and agriculture.
- They may not have proper wage records, identity support, social security or access to legal help.
- Children of migrant workers are at risk of malnutrition, lack of schooling and child labour.

Rehabilitation Measures

- Authorities are expected to:
  - Record testimonies
  - Identify vulnerable persons
  - Issue release certificates to bonded labour survivors
  - Facilitate financial assistance
  - Support repatriation of inter-State migrant workers
  - Ensure rehabilitation under relevant schemes
- Rehabilitation is essential because rescue alone does not end economic vulnerability.

Challenges

- Bonded labour is often hidden behind informal work arrangements.
- Migrant workers may lack documents, awareness and local support.
- Wage payments through vouchers make exploitation difficult to track.
- Fear of employers may prevent victims from speaking openly.
- Children in such families may remain outside school systems.
- Verification of records and proof of bondage may take time.
- Rehabilitation becomes difficult if workers return to poverty without livelihood support.

Way Forward

- Conduct regular inspections of brick kilns and high-risk worksites.
- Maintain proper registration of migrant workers.
- Ensure direct wage payment into bank accounts.
- Strengthen enforcement of minimum wages and labour laws.
- Provide education, nutrition and protection for children of rescued families.
- Issue release certificates quickly after verification.
- Ensure financial assistance, housing support and livelihood rehabilitation.
- Improve coordination among police, labour, revenue and child welfare departments.
- Create helplines and awareness programmes for migrant workers.
- Monitor rescued workers after repatriation to prevent re-bondage.

Conclusion

The rescue of over 400 labourers from brick kilns in Nizamabad shows that bonded labour remains a serious social justice concern. Such exploitation violates human dignity, constitutional rights and labour laws.

- A strong response requires more than rescue operations. It needs regular monitoring, strict prosecution of offenders, protection of children, direct wage systems and long-term rehabilitation. Protecting migrant workers from bondage is essential for inclusive development and constitutional governance

Bharat Future City: Telangana's Global-Standard Urban and Investment Plan

Source: The Hindu

Relevance: Paper IV – Economy and Development

Important Keywords

Prelims Keywords:

- Bharat Future City, Invest Telangana, Global Capability Centres, Data City, T-Fiber, Net Zero City, STPs, Health Cluster, Bullet Train, CURE Area, Telangana Rising 2047.

Mains Keywords:

- Sustainable Urbanisation, Investment Promotion, Regional Development, Digital Infrastructure, Industrial Corridors, Net-Zero Planning, Ease of Doing Business, Tier-II Growth, Data Economy.

Why in News?

Telangana Chief Minister **A. Revanth Reddy** directed officials to ensure that the design and facilities of the upcoming **Bharat Future City** are of **global standards**.

- He stated that the city should be planned as a **Net Zero city**, based on a careful study of internationally reputed cities. Officials were also directed to prioritise **trunk infrastructure** before land allotment for industries and other facilities.

About Bharat Future City

Bharat Future City is being planned as a major urban, industrial and technological growth hub in Telangana. It is linked with the State's long-term development vision under **Telangana Rising 2047**.

- The project aims to attract global companies, develop modern infrastructure, promote clean urban development and create new centres of employment beyond the traditional Hyderabad core.

Major Proposals

- Bharat Future City will be developed with **global-standard design and facilities**.
- The city will follow **Net Zero principles**.
- Trunk infrastructure will be developed before land allotment.

- Industries receiving land must start construction immediately after allotment.
- Foundation stones for interested industries are to be laid in a time-bound manner.
- The government plans to allot **500 acres** in the Future City for public representatives, civil services officers and journalists.
- Officials were asked to study **Gujarat and Tamil Nadu models** for attracting investments.
- Telangana will try to secure a **Health Cluster / regional medical hub** announced by the Union government for Bharat Future City.

Invest Telangana

The Chief Minister directed officials to create an exclusive investment promotion agency called **Invest Telangana**.

Its proposed functions include:

- Attracting domestic and global investors.
- Preparing an attractive logo and website.
- Acting as a special unit for investment promotion.
- Providing end-to-end support to investors.
- Creating a governance structure for faster clearances.
- Involving officials from departments such as energy, finance, IT and industries.

An **escort officer system** will be introduced to support firms interested in investing in the Future City. Officers not below **Group-I rank** may be nominated for this role.

GCCs and Data City Push

Telangana plans to promote **Global Capability Centres (GCCs)** beyond Hyderabad's core urban area.

Important proposals include:

- A policy to encourage GCCs in **Tier-II cities**.
- Identification of lands near roads leading to **Karimnagar, Warangal and Vijayawada**.
- Promotion of areas beyond the **Outer Ring Road** along northern and eastern growth corridors.
- Setting up of a **1,500-acre Data City**.
- Use of treated water from **sewage treatment plants** for Data City needs.

This approach aims to decentralise investment and promote balanced regional development.

Sustainable and Global-Standard Planning

The Future City will be planned with sustainability as a core principle.

Important components include:

- Net Zero urban design.
- Global-standard engineering and infrastructure.
- Trunk infrastructure before industrial allotment.
- Use of treated water from STPs.
- Data-driven infrastructure planning.
- Study of best global practices in AI and digital infrastructure.
- Development of AI City-related facilities inside Bharat Future City.

The aim is to avoid unplanned growth and build a future-ready urban ecosystem.

Health Cluster and Social Infrastructure

- The Chief Minister directed officials to work for the sanction of a **Health Cluster** to Bharat Future City.
- The State may approach the Prime Minister, if necessary, to seek allocation of the health cluster to Telangana. This proposal is important because the Union Budget

announced regional medical hubs, and Telangana wants one of them to be located in the Future City.

- A health cluster can support medical institutions, hospitals, med-tech firms, research facilities and employment generation.

Bullet Train and Connectivity

- Officials were directed to begin work on land acquisition for the proposed **bullet train project** sanctioned to the State.
- Connectivity will play a key role in the success of Bharat Future City. Road, rail, data and digital networks are expected to support investment attraction.
- The Chief Minister also directed officials to connect all government offices to the **T-Fiber network** within a fixed timeline, reducing dependence on private internet operators.

Challenges

- Large-scale land acquisition may face delays and local concerns.
- Global-standard infrastructure needs high investment.
- Net Zero planning requires strong technical capacity and monitoring.
- Immediate construction after land allotment needs strict enforcement.
- GCCs beyond Hyderabad require talent availability and urban amenities.
- Data City will need reliable power, water, cooling systems and cyber security.
- Coordination among multiple departments may be difficult.
- Investment promotion must avoid becoming only a branding exercise.

Way Forward

- Prepare a detailed master plan based on global best practices.
- Complete trunk infrastructure before allotting industrial land.
- Ensure transparent land allotment and strict implementation rules.
- Make Invest Telangana a professional and investor-friendly agency.
- Link GCC and Data City development with skilling and certification programmes.
- Promote Tier-II cities with transport, housing, education and health facilities.
- Ensure treated water use and renewable energy integration.
- Use T-Fiber to strengthen digital governance and connectivity.
- Monitor project progress through clear timelines and accountability.

Conclusion

Bharat Future City represents Telangana's attempt to create a future-ready urban and industrial hub. Its focus on global standards, Net Zero design, GCCs, Data City, health cluster and investment promotion can support regional development and employment generation.

- However, the success of the project will depend on timely infrastructure creation, transparent governance, investor confidence, environmental sustainability and effective coordination among departments. If implemented carefully, Bharat Future City can become an important pillar of **Telangana Rising 2047**.

Centre Approves Foreign Loans for Young India Schools in Telangana

Source: Deccan Chronicle

Relevance: Paper-III: Indian Society, Constitution and Governance

Important Keywords

Prelims Keywords:

- Young India Integrated Residential Schools, YIIRS, Asian Development Bank, Asian Infrastructure Investment Bank, Department of Economic Affairs, FRBM Act, 50-year Interest-Free Loans, Human Resource Development, SC/ST/BC/ Minority Education.

Mains Keywords:

- Education Infrastructure, Socially Inclusive Development, Multilateral Funding, Fiscal Federalism, Capital Expenditure, Human Capital Formation, Educational Empowerment, State Finances, Welfare and Development

Why in News?

The Centre has approved Telangana's proposal to secure external multilateral funding from the **Asian Development Bank** and the **Asian Infrastructure Investment Bank** for two major education infrastructure projects. The approval is significant because the projects are aimed at strengthening school infrastructure, improving educational access and supporting the educational empowerment of **SC, ST, BC and minority communities** in Telangana.

What has the Centre Approved?

The **Department of Economic Affairs** under the Union Finance Ministry cleared external funding for two major projects.

- **₹4,049.11 crore** for the **Young India Integrated Residential Schools** project through **ADB assistance**.
- **₹4,903.44 crore** for the **Telangana Education Infrastructure Upgradation Mission** through **AIIB support**.

Deputy Chief Minister **Mallu Bhatti Vikramarka** met Union Finance Minister **Nirmala Sitharaman** in New Delhi and thanked the Centre for granting the approvals.

About Young India Integrated Residential Schools

- **Young India Integrated Residential Schools** are planned as major educational institutions for providing quality education.
- The project aims to provide **world-class education** to students.
- It is especially linked with the educational empowerment of:
  - SC communities
  - ST communities
  - BC communities
  - Minority communities
- The project is part of Telangana's broader focus on **human resource development** and inclusive growth.

Telangana Education Infrastructure Upgradation Mission

- This mission aims to strengthen education infrastructure across Telangana.
- It is expected to support:
  - School infrastructure development
  - Better learning facilities
  - Improved access to quality education
  - Long-term human capital formation

- The project is supported through **AIIB funding**.

Role of ADB and AIIB

Asian Development Bank

- ADB is a multilateral development bank.
- It supports development projects in areas such as infrastructure, education, health and poverty reduction.
- In this case, ADB assistance will support the **YIIRS project**.

Asian Infrastructure Investment Bank

- AIIB is a multilateral financial institution focused mainly on infrastructure and sustainable development.
- Its support will be used for the **Telangana Education Infrastructure Upgradation Mission**.

FRBM Exemption Demand

- The Telangana government urged the Centre to exempt the ADB and AIIB loans from the State's borrowing limits under the **Fiscal Responsibility and Budget Management Act**.
- The State argued that these loans are not routine expenditure. They are **long-term capital investments** in education, human resource development and social empowerment.
- The demand is important because FRBM limits restrict how much a State can borrow.

Excluding these education loans from the borrowing limit would give Telangana more fiscal space for development spending.

Asian Infrastructure Investment Bank (AIIB)

- **AIIB** is a **multilateral development bank**.
- It started operations in **2016**.
- Its headquarters is in **Beijing, China**.
- Its mission is **"Financing Infrastructure for Tomorrow."**
- It funds infrastructure projects in **Asia and beyond**.
- It promotes infrastructure that is **sustainable, green, technology-enabled and regionally connected**.
- **Approved members:** 111
- **Credit rating:** AAA-rated by major international credit rating agencies.

50-Year Interest-Free Loans to States

- The deputy Chief minister thanked the Centre for extending **50-year interest-free loans** to States.
- Telangana has already received **₹4,208 crore** during the **2025–26 financial year** under this support.
- The State sought more financial support to continue development works and welfare programmes.

Link with Human Resource Development

The Telangana government is also undertaking major initiatives such as:

- Establishing new medical colleges district-wise.
- Expanding rural healthcare services.
- Strengthening educational infrastructure.
- Investing in education, healthcare and rural infrastructure.

These initiatives are expected to contribute to **sustainable and socially inclusive development**.

Fiscal Context of Telangana

Telangana has stated that it is one of the fast-growing newly formed States.

However, the State is facing financial pressure due to:

- Debts raised through **Special Purpose Vehicles** between 2014 and 2023.
- Repayment obligations.
- Continued spending needs for welfare and development programmes.

Despite this, the government is continuing investments in education, healthcare, rural infrastructure and human resource development.

Challenges

- External loans need proper utilisation and repayment planning.
- FRBM limits may restrict the State's borrowing space.
- Project implementation must avoid delays and cost escalation.
- Quality of infrastructure must match educational outcomes.
- Residential schools need trained teachers, good management and student support systems.
- Coordination between State departments, Centre and multilateral agencies may be complex.
- Financial pressure from past liabilities may affect future spending capacity.

Way Forward

- Ensure transparent utilisation of ADB and AIIB funds.
- Prepare strong project monitoring

mechanisms.

- Link infrastructure investment with learning outcomes.
- Focus on teacher recruitment, training and student welfare.
- Ensure timely completion of school buildings and facilities.
- Use technology and digital learning tools in residential schools.
- Provide special support for SC, ST, BC and minority students.
- Maintain fiscal discipline while protecting development expenditure.
- Strengthen Centre-State coordination for education and infrastructure financing.

Conclusion

The Centre's approval of **ADB and AIIB funding** will strengthen Telangana's education infrastructure. The **Young India Integrated Residential Schools** and infrastructure mission can promote quality education and social inclusion. These projects can support human resource development and long-term growth. Success will depend on timely execution, transparent fund use and strong academic support.

Infants in Telangana have better survival odds, IMR at 17 against national average 24

Source: Deccan Chronicle

Relevance **: Telangana Development, Health, Human Resource Development, Social Sector Indicators.**

Important Keywords

Prelims Keywords:

- Infant Mortality Rate, Sample Registration System, Birth Rate, Death Rate, Total Fertility Rate, Replacement Level Fertility, Natural Growth Rate.

Mains Keywords:

- Public Health, Maternal and Child Health, Rural-Urban Gap, Gender Gap, Low Fertility Phase, Human Development, Health Infrastructure

Why in News?

Telangana reduced its **Infant Mortality Rate** to **17 deaths per 1,000 live births in 2024**, according to the latest **Sample Registration System report**.

The State performed better than the national average of **24** and continued its decade-long improvement in infant survival. Telangana has remained below the national average every year since 2014.

What is Infant Mortality Rate?

- **Infant Mortality Rate** means the number of deaths of infants below one year of age per **1,000 live births** in a year.
- It is an important indicator of:
  - Public health
  - Nutrition
  - Maternal care
  - Child survival

- Quality of healthcare services
- A lower IMR generally shows better health services, immunisation, nutrition and institutional care.

Telangana's Performance

- Telangana's IMR in **2014** was **35**, while India's IMR was **39**.
- In **2024**, Telangana's IMR fell to **17**, while the national average declined to **24**.
- Telangana recorded an **18-point reduction** in 10 years.
- India recorded a **15-point reduction** during the same period.
- This shows that Telangana has improved faster than the national average.

YEAR	IMR in Telangana	IMR in India
2014	35	39
2015	34	37
2016	31	34
2017	29	33
2018	27	32
2019	23	30
2020	21	28
2021	20	27
2022	18	26
2023	18	25
2024	17	24

Comparison with Other States

- Telangana performed better than many large States.
- Higher IMR was recorded in:
  - Chhattisgarh – 36
  - Uttar Pradesh – 35
  - Assam – 29
  - Rajasthan – 28
  - Odisha – 28
- Better-performing large States include:
  - Kerala – 8
  - Delhi – 11
  - Tamil Nadu – 11

Rural-Urban Difference

- Telangana's rural IMR stood at **19**.
- Urban IMR stood at **14**.
- This shows that urban areas have better infant survival than rural areas.
- At the national level, the rural-urban gap was wider:
  - Rural India – 27
  - Urban India – 17
- Telangana's rural-urban gap is smaller than the national rural-urban gap.

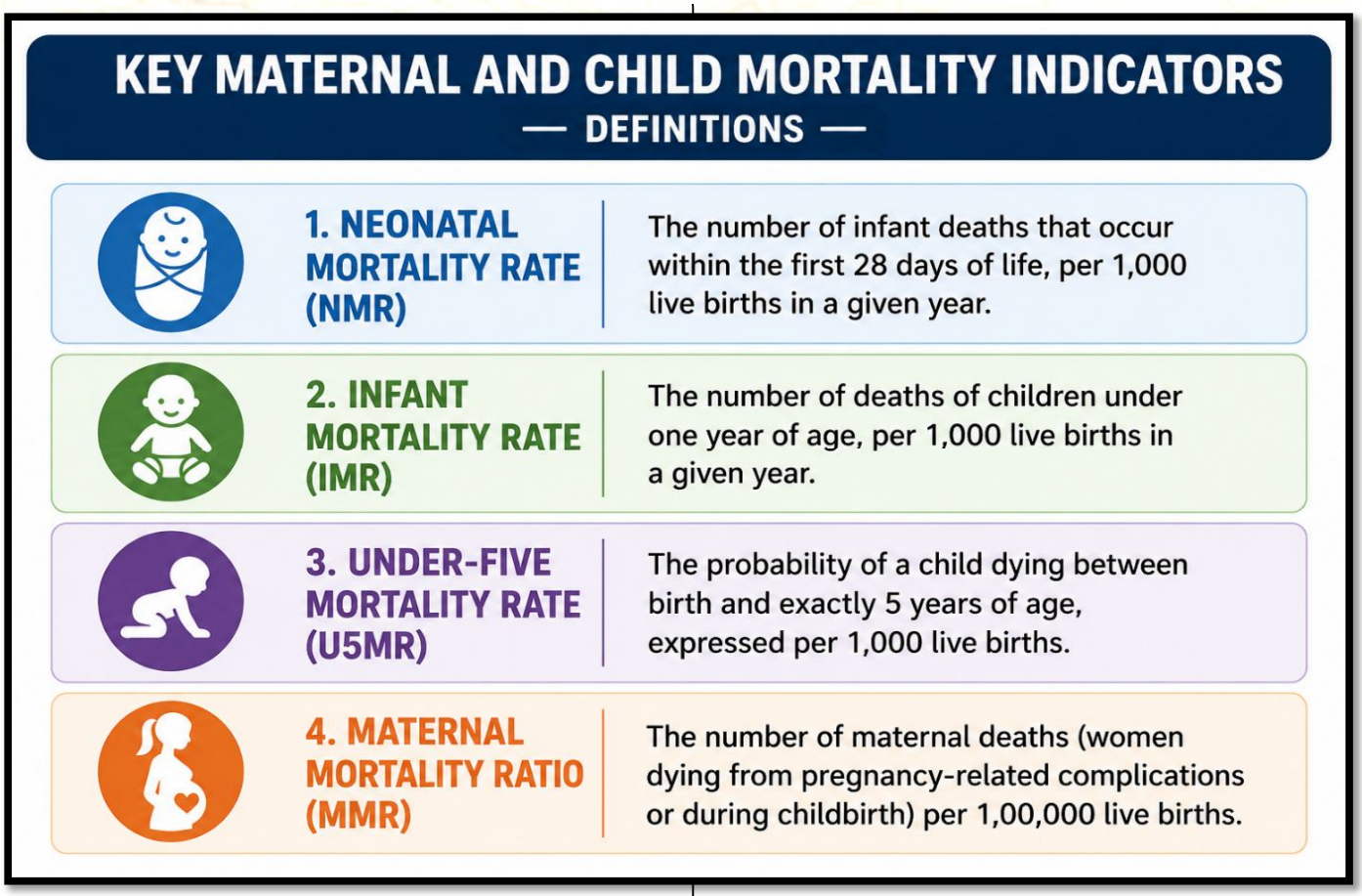
Gender Difference

- In rural Telangana:
  - Female IMR – 20
  - Male IMR – 18
- In urban Telangana:
  - Male IMR – 16
  - Female IMR – 12
- The rural female IMR being higher shows that special attention is needed for girl children in rural areas.

Other Demographic Indicators

- Telangana has entered a **low-fertility phase**.
- Birth rate:
  - Telangana – 15.7 per 1,000 population
  - India – 18.3
- Total Fertility Rate:
  - Telangana – 1.5
  - India – 1.9
  - Replacement level – 2.1
- Death rate:
  - Telangana – 6.5
  - India – 6.4
- Natural growth rate:
  - Telangana – 9.1
  - India – 11.9

These indicators show that Telangana has lower



fertility and slower population growth compared to the national average.

Challenges

- Rural IMR is still higher than urban IMR.
- Rural female infant mortality needs special attention.
- Malnutrition and anaemia can affect infant health.
- Quality of primary healthcare must be improved in remote areas.
- Neonatal deaths require stronger care during the first 28 days after birth.
- Tribal and backward regions may need targeted health interventions.
- Low fertility also requires planning for future ageing and workforce changes.

Way Forward

- Strengthen primary health centres and rural health services.
- Improve maternal nutrition and antenatal care.
- Expand institutional deliveries and skilled birth attendance.
- Focus on neonatal intensive care and early newborn care.
- Improve immunisation coverage.
- Give special attention to girl children in rural areas.
- Strengthen ASHA, Anganwadi and community health worker systems.
- Use district-level data to identify high-risk areas.
- Improve nutrition programmes for mothers and infants.

Conclusion

Telangana's reduction of IMR to **17** is an important achievement in public health and human development. It shows progress in infant survival, maternal care and health service delivery.

- However, rural-urban and gender gaps still need attention. The next stage of progress should focus on rural healthcare, nutrition, neonatal care and targeted support for vulnerable groups.

Karimnagar Silver Filigree Art Under Stress

Source: The Hindu

Relevance: TGPSC: Telangana Culture, Handicrafts, GI Tags, Regional Economy,

Important Keywords

Prelims Keywords:

- Karimnagar Silver Filigree, Tarkashi, GI Tag, SIFKA, Nakkashi Metalcraft, Qutb Shahis, Asaf Jahis, Handicrafts, Artisan Livelihoods.

Mains Keywords:

- Cultural Heritage, GI-Tagged Crafts, Artisan Economy, Traditional Knowledge, Market Crisis, Heritage Preservation, Livelihood Security, Craft Tourism.

Why in News?

The **Karimnagar Silver Filigree industry**, a GI-tagged traditional craft of Telangana, is facing a serious crisis due to a steep rise in silver prices. Silver prices have increased by nearly **260% over five years**, reducing sales and affecting artisan incomes.

- Customers are increasingly buying silver as **bullion, coins and ingots** for investment rather than purchasing handcrafted filigree items. As a result, business has reportedly fallen by nearly **50%**, making it difficult for artisans to sustain their livelihoods.

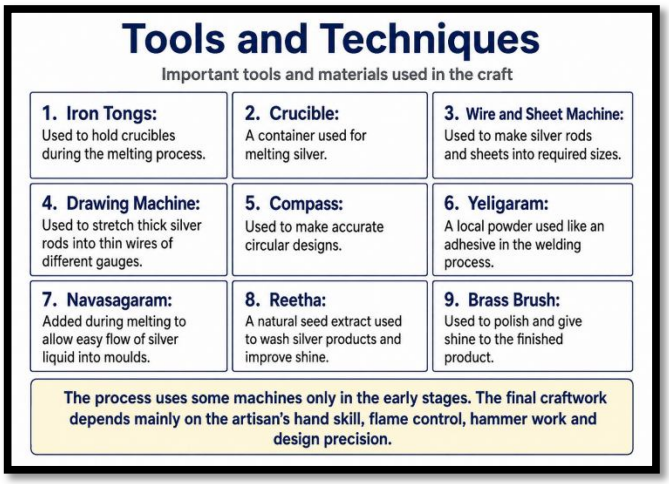
What is Karimnagar Silver Filigree?

- **Karimnagar Silver Filigree** is a traditional silver craft of Telangana.
- It is also known as **Tarkashi**.
- The craft involves making delicate designs using thin silver wires.
- Artisans create items such as:
  - Peacocks, Deer, Elephants, Ships, Veenas, Kumkum Bharani, Jewellery boxes Decorative gift items
- The craft is known for its fine **jali work**, lightness, detailing and artistic finish.

Historical Background

- Filigree work has a long global history.
- Archaeological findings show that filigree was used in **ancient Mesopotamia around 3000 BC**.
- It reached a high level of perfection in **Greek and Etruscan filigree** between the 6th and 3rd centuries BC.

- In India and Central Asia, filigree has been practised for a long time with continuity in designs and techniques.
- Karimnagar Silver Filigree is believed to be around **400–450 years old**.
- The craft is linked with:
  - **Mughals**
  - **Qutb Shahis**
  - **Asaf Jahis**
  - **Nizams**
- **Elgandal Fort**, near Karimnagar, was historically connected with metal craft traditions and armoury-related skills.
- Skilled craftsmen from different regions settled in the area and taught metal craft to local artisan



GI Tag and Cultural Importance

- Karimnagar Silver Filigree received the **Geographical Indication tag in 2007**.
- The GI tag recognises its regional identity and traditional craftsmanship.
- The craft represents:
  - Telangana's cultural heritage
  - Traditional metalwork knowledge
  - Artisan skill
  - Regional identity
  - Handmade luxury craft tradition
- Silver filigree items are often passed down as **heirlooms** across generations.

Present Crisis

- The sharp rise in silver prices has made filigree products very expensive.
- Example:
  - A silver filigree **veena** weighing 467 grams now costs around **₹1.58 lakh with GST**.
  - A year earlier, it cost around **₹90,000**.
  - A handcrafted **peacock** that earlier cost around **₹38,900** later rose to nearly **₹96,800**.
- Buyers are avoiding handcrafted items because the cost has become too high.
- Many customers prefer silver coins and ingots because they see them as better investments.

Impact on Artisans

- Sales have fallen sharply.
- Artisans are struggling to get regular work.
- Making charges have reduced, affecting profit margins.
- Larger artistic pieces are becoming difficult to produce because of high raw material cost.
- Smaller and lighter items take more time but offer lower returns.
- Traditional artisans are forced to reduce margins to keep the craft alive.

Link with Nakkashi Metalcraft

- The crisis has also affected **Nakkashi metalcraft makers** from the same region.
- Nakkashi is another traditional craft associated with Telangana.
- It recently gained visibility when Prime

Minister Narendra Modi gifted a **Nakkashi box** to UAE Queen Mother **Sheikha Fatima bint Mubarak Al Ketbi**.

- This shows the diplomatic and cultural value of Telangana's traditional crafts.

Challenges

- Sharp rise in silver prices.
- Decline in customer demand.
- Buyers shifting from artistic products to bullion investment.
- Reduced profit margins for artisans.
- Lack of consistent market support.
- Difficulty in producing larger artistic pieces.
- High GST-inclusive retail prices.
- Limited awareness among younger consumers.
- Risk of younger generations leaving the craft.

Way Forward

- Promote smaller and affordable filigree products for wider markets.
- Create special craft clusters and marketing support for artisans.
- Provide working capital support during raw material price rise.
- Promote Karimnagar Silver Filigree through tourism circuits and museums.
- Expand online marketing and GI branding.
- Encourage corporate gifting and government procurement of GI-tagged crafts.
- Provide design training without affecting traditional techniques.
- Support artisans through social security, credit access and skill transmission.
- Organise exhibitions in India and abroad to attract premium buyers.

Conclusion

Karimnagar Silver Filigree is not only a craft but also a living cultural tradition of Telangana. The sharp rise in silver prices has created a serious livelihood crisis for artisans and reduced demand for handcrafted items.

- To protect this GI-tagged heritage, there is a need for market support, design innovation, affordable product lines and stronger promotion. Preserving the craft means protecting both Telangana's cultural identity and the livelihoods of artisan families.

Telangana MSME Greening Summit – A RAMP Initiative

Source: Deccan Chronicle

Relevance: **TGPSC Telangana Economy, Industrial Policy, MSMEs, Sustainable Development, Innovation Ecosystem.**

Important Keywords

Prelims Keywords:

- RAMP Initiative, MSMEs, Telangana MSME Greening Portal, MSME Assessment Toolkit, RICH, Hyderabad S&T Cluster, Green Manufacturing, Resource Efficiency.

Mains Keywords:

- Sustainable Industrial Transformation, MSME Competitiveness, Cleaner Technologies, Technology-driven Governance, Cluster Development, Green Economy, Industrial Resilience.

Why in News?

Telangana organised the **"Telangana MSME Greening Summit – A RAMP Initiative"** at HITEX Exhibition Centre, Hyderabad.

- The summit aimed to promote **sustainable industrial transformation** among MSMEs in Telangana. During the event, the State launched the **Telangana MSME Greening Portal** and the **MSME Assessment Toolkit** to help MSMEs understand and participate in the RAMP programme.

RICH
Research and Innovation Circle of Hyderabad

About the Summit

- The summit was organised by:
  - **Research and Innovation Circle of Hyderabad**
  - **Hyderabad S&T Cluster**
  - Department of Industries and Commerce, Government of Telangana
- It brought together:
  - Policymakers
  - Senior government officials
  - MSMEs
  - Industry associations
  - Financial institutions
  - Technology providers
  - Startups
  - Ecosystem partners
- The main focus was to help MSMEs shift towards **cleaner, resource-efficient and sustainable industrial practices**.

What is the RAMP Initiative?

- **RAMP** refers to a programme aimed at strengthening MSMEs through better institutional support, technology adoption, market access and competitiveness.
- In Telangana, the RAMP initiative is being used to promote the **greening of MSMEs**.
- It focuses on helping MSMEs:
  - Adopt cleaner technologies
  - Improve resource efficiency
  - Reduce environmental impact
  - Improve competitiveness
  - Strengthen sustainability practices
  - Become better prepared for future markets

Digital Tools Launched

Telangana MSME Greening Portal

- The portal will act as a **single-point touchpoint** for MSME industries in Telangana.
- It will help MSMEs:
  - Learn about the RAMP programme
  - Register or associate with the initiative
  - Access information on green practices
  - Connect with the MSME greening ecosystem

MSME Assessment Toolkit

- The toolkit will help MSMEs assess their current level of preparedness for green transition.
- It can support industries in identifying:
  - Resource use patterns
  - Technology gaps
  - Sustainability needs
  - Areas for improvement

Sectoral Technology Compendiums

- Senior officials from the Directorate of

Industries, TGSPDCL, MSME DFO and TGIIC launched sectoral technology compendiums.
- These compendiums can guide MSMEs on suitable technologies for greener production.

Role of RICH and Hyderabad S&T Cluster

- **RICH** is a Telangana innovation ecosystem enabler under the Department of Industries and Commerce.
- It helps connect research institutions, startups, industry and government.
- The **Hyderabad S&T Cluster**, under the Office of the Principal Scientific Adviser to the Government of India, supports science and technology-based innovation.
- Their involvement shows the importance of linking **industry, science, finance and technology** for MSME transformation.

Focus Areas of the Initiative

- Institutional capacity building
- Market access improvement
- Technology adoption
- Quality improvement
- Sustainability promotion
- Cluster development
- MSME competitiveness
- Digital monitoring and ecosystem coordination
- Cleaner production and green manufacturing

Many MSMEs may lack awareness Challenges

- about green technologies.
- Smaller units may face financial constraints in adopting cleaner systems.
- Technology adoption may require training and technical support.
- MSMEs may need easy access to credit and subsidies.
- Digital tools must be simple and accessible to small entrepreneurs.
- Coordination among multiple agencies can be difficult.
- Greening should not become only a compliance exercise; it must improve real industrial practices.

Way Forward

- Provide affordable green technology solutions to MSMEs.
- Link MSMEs with financial institutions for easy credit.
- Offer technical handholding through industry associations and startups.
- Use the Greening Portal for continuous monitoring and guidance.
- Promote cluster-based support for common facilities.
- Train MSME owners and workers in resource-efficient practices.
- Encourage energy efficiency, waste reduction and cleaner production.
- Build partnerships between government, industry, research institutions and technology providers.

Conclusion

The Telangana MSME Greening Summit marks an important step towards sustainable industrial development in the State. The launch of the MSME Greening Portal, Assessment Toolkit and sectoral technology compendiums can help MSMEs adopt cleaner technologies and improve competitiveness. For the initiative to succeed, MSMEs need financial

support, technical guidance, simple digital access and strong institutional coordination. A green MSME ecosystem can help Telangana combine industrial growth with environmental responsibility.

T-Fiber Push: High-Speed Internet for Every Telangana Village

Source: The Hindu

Relevance - TGPSC Group II: Telangana Economy, Rural Infrastructure, Digital Governance and Inclusive Development.

Important Keywords

Prelims Keywords:

- T-Fiber, Amended BharatNet Programme, Digital Bharat Nidhi, Universal Service Obligation Fund, Telangana Fiber Grid Corporation Ltd., Ring Architecture, FTTH, FTTE, Mission Bhagiratha, Optical Fiber Cable.

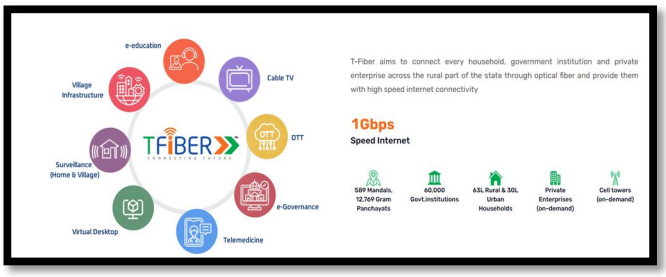
Mains Keywords:

- Digital Inclusion, Rural Connectivity, Last-Mile Connectivity, Digital Divide, E-Governance, Telemedicine, Digital Education, Rural Digital Economy, Digital Telangana.

Why in News?

Telangana is preparing to expand **high-speed internet connectivity to every village** through the **T-Fiber project** under the **Amended BharatNet Programme**.

- Chief Minister **A. Revanth Reddy** held discussions with Union Communications Minister **Jyotiraditya Scindia** on the implementation of the project. The State is planning to strengthen its digital backbone through a **Special Purpose Vehicle**, Centre-State agreement and support from **Digital Bharat Nidhi**.



What is T-Fiber?

- **T-Fiber** is Telangana's optical fibre-based broadband connectivity project.
- It aims to connect:
  - Every household
  - Government institutions
  - Private enterprises
  - Gram Panchayats
  - Schools and health centres
  - Cell towers on demand
- It will provide high-speed internet through **optical fibre** and support inclusive digital growth.
- The project is designed to deliver **Fiber-to-the-Home** and **Fiber-to-the-Enterprise** services.

Link with BharatNet and Digital Bharat Nidhi

- Telangana is using T-Fiber as part of the **Amended BharatNet Programme**.
- The State has requested:
  - Early signing of agreement with the Centre
  - Speedy release of pending funds
  - Clear policy on transfer of ring network assets

- Support through **Digital Bharat Nidhi**
- **Digital Bharat Nidhi** was earlier known as the **Universal Service Obligation Fund**.
- It supports universal broadband coverage in rural and underserved areas.

Coverage and Network Capacity

- T-Fiber aims to connect more than **90 lakh households**.
- It will cover over **1 lakh public and private enterprises, government offices and institutions**.
- The network will span:
  - **10 zones**
  - **33 districts**
  - **589 mandals**
  - **12,769 Gram Panchayats**
- Speed capacity:
  - **4 Mbps to 1 Gbps** for households
  - **20 Mbps to 1 Gbps** for institutions and enterprises

Major Services Enabled by T-Fiber

T-Fiber can support several digital services in rural Telangana:

- **E-Education:** Online classes, digital learning content and remote education.
- **E-Governance:** Online certificates, welfare services, applications and grievance redressal.
- **Telemedicine:** Online medical consultation and rural health access.
- **Village Infrastructure:** Digital monitoring and management of local services.
- **Surveillance:** Home and village-level safety monitoring.
- **Virtual Desktop:** Digital access to work and administrative systems.
- **Cable TV and OTT:** Access to digital entertainment and information services.
- **Private Enterprises:** Online business, digital payments and e-commerce support.

Ring Architecture Model

- T-Fiber will connect Gram Panchayats through **ring architecture**.
- In this system, the fibre network works through alternative routes.
- If one section of the network is damaged, internet services can continue through another path.
- This ensures:
  - Continuous broadband services
  - Better reliability
  - Faster restoration
  - Strong rural digital infrastructure

Use of Mission Bhagiratha Infrastructure

- T-Fiber will use infrastructure created under **Mission Bhagiratha**.
- Optical fibre cables are being laid along mapped water pipeline routes.
- This helps in:
  - Reducing costs
  - Saving time
  - Using existing Right of Way
  - Avoiding duplication of infrastructure

First Phase Connectivity Restoration

- In the first phase, Telangana will restore digital connectivity in around **3,080 villages**.
- These villages are located in the erstwhile districts of:
  - Nizamabad
  - Rangareddy
  - Khammam
- These areas currently face problems due to damaged network infrastructure.

- Builds a strong foundation for **Digital Telangana**.

Challenges

- Restoration of damaged fibre infrastructure may take time.
- Timely release of funds is essential.
- Centre-State coordination must remain smooth.
- Rural network maintenance can be difficult.
- Last-mile household connectivity needs strong execution.
- Digital literacy gaps may limit the use of services.
- Reliable power supply is necessary for continuous broadband.
- Internet services must remain affordable for rural households.

Way Forward

- Finalise the Centre-State agreement quickly.
- Strengthen the SPV for professional implementation.
- Ensure speedy release and transparent use of funds.
- Prioritise schools, health centres and Gram Panchayats.
- Promote digital literacy in rural areas.
- Provide affordable broadband plans.
- Maintain service quality through regular monitoring.
- Use T-Fiber for e-governance, telemedicine, education and livelihoods.

Conclusion

T-Fiber can become the digital backbone of Telangana by connecting households, Gram Panchayats, government institutions and enterprises through high-speed optical fibre.

With services such as **e-education, e-governance, telemedicine, OTT, surveillance and enterprise connectivity**, it can transform rural service delivery. Its success will depend on strong implementation, affordable access, proper maintenance and digital literacy.