

GIST OF KURUKSHETRA

INCLUSIVE RURAL GROWTH



DELHI CENTRE:

Vivekananda House: 6-B, Pusa Road, Metro Pillar No. 111, Near Karol Bagh Metro, New Delhi-110060 | Phone: 8081300200

Mukherjee Nagar: 1422, Main Mukherjee Nagar Road, Near Batra Cinema, New Delhi-110009 | Phone: 8081300200

JAIPUR CENTRE: Plot No. 6 & 7, 3rd Floor, Sree Gopal Nagar, Gopalpura Bypass, Jaipur-302015 | Ph. 9358200511

PRAYAGRAJ CENTRE: 31/31 Sardar Patel Marg, Civil Lines, Prayagraj, Uttar Pradesh - 211001 | Phone: 9958857757

CHAPTER 1- COOPERATIVES AND FOOD SECURITY

Food security is integral to national development and is directly linked with poverty alleviation, nutritional outcomes, and rural livelihoods. Defined by the FAO as the physical, social, and economic access to sufficient, safe, and nutritious food, food security is one of the core components of the Sustainable Development Goals (SDG 2 – Zero Hunger).

- In India, food security is challenged not only by agricultural productivity but also by inadequate **post-harvest storage, supply chain inefficiencies, and high food wastage**.
- Cooperatives—particularly **Primary Agricultural Credit Societies (PACS)**—have emerged as a key vehicle for inclusive food grain storage and procurement, especially after the launch of the **World's Largest Grain Storage Plan in the Cooperative Sector (2023)**.

The Storage Paradox: High Output, Low Capacity



The infographic features a collage of images: a grain elevator, a large grain storage silo, a grain storage bin, and a grain storage bin. The text is in a bold, sans-serif font. The title is 'Grain Storage Plan Ensuring Food Security'. Below the title is a list of five bullet points, each preceded by a gold circle icon. At the bottom right is a QR code and a social media share button.

**Grain Storage Plan
Ensuring Food Security**

- Farmers will be able to store their produce in **godown constructed at PACS**
- They can also **avail bridge finance** for the next cycle of crop
- Farmers can **sell the produce at a time** of their choice
- They can also choose to sell their **whole crop to the PACS at MSP**
- Farmers can also get **various agri inputs & services** at the Panchayat/ village level itself

Scan the QR code

India ranks among the top producers of food grains globally. However, a major bottleneck lies in **inadequate storage infrastructure**, which undermines food security and farmers' incomes:

- **India's Share of Global Cultivable Land:** 11% (16 crore hectares out of 138 crore hectares)
- **India's Share of Global Population:** 18% (140 crore out of 790 crore)
- **Total Food Grain Production (2021):** 311 Million Metric Tonnes (MMT)
- **Existing Storage Capacity:** 145 MMT
- **Storage Shortfall:** 166 MMT
- **Storage Gap (%):** 47% (Compared to countries that are 131% self-sufficient)
- **Post-Harvest Losses:** 10–15% annually
- **Economic Losses:** ₹90,000 crore per annum (Gulati et al., 2024)

This mismatch between production and storage leads to **distress sales, food grain wastage, low price realization for farmers**, and increased burden on the Food Corporation of India (FCI), whose godowns are often over-utilized, deteriorating grain quality and inflating carrying costs.

The World's Largest Grain Storage Plan (2023)

To address the storage deficit and food wastage, the Government of India launched the **World's Largest Grain Storage Plan in the Cooperative Sector**:

- **Launched by:** Ministry of Cooperation on 31st May 2023
- **Investment Proposed:** ₹1.25 lakh crore
- **Storage Capacity Target:** 700 Lakh Tonnes (70 MMT) in 5 years
- **Implementation Partner:** 67,000 functional PACS across India

Progress as of 2025:

- Godowns constructed in **11 PACS** across 11 states
- **Foundation stones** laid in **500 PACS**
- **576 PACS** initiated construction
- **Computerization of PACS:** Completed in 67,930 PACS
- **Operational PACS:** 43,658

This initiative is **decentralized** and aims to build **local godowns**, enabling farmers to store produce closer to home, reducing both **transportation costs** and **post-harvest losses**, and promoting **community-level food security**.

The Role and Potential of PACS

PACS are grassroots institutions in India's cooperative credit structure. They serve as **first points of contact for rural farmers**, offering **credit, inputs, procurement, and storage**.

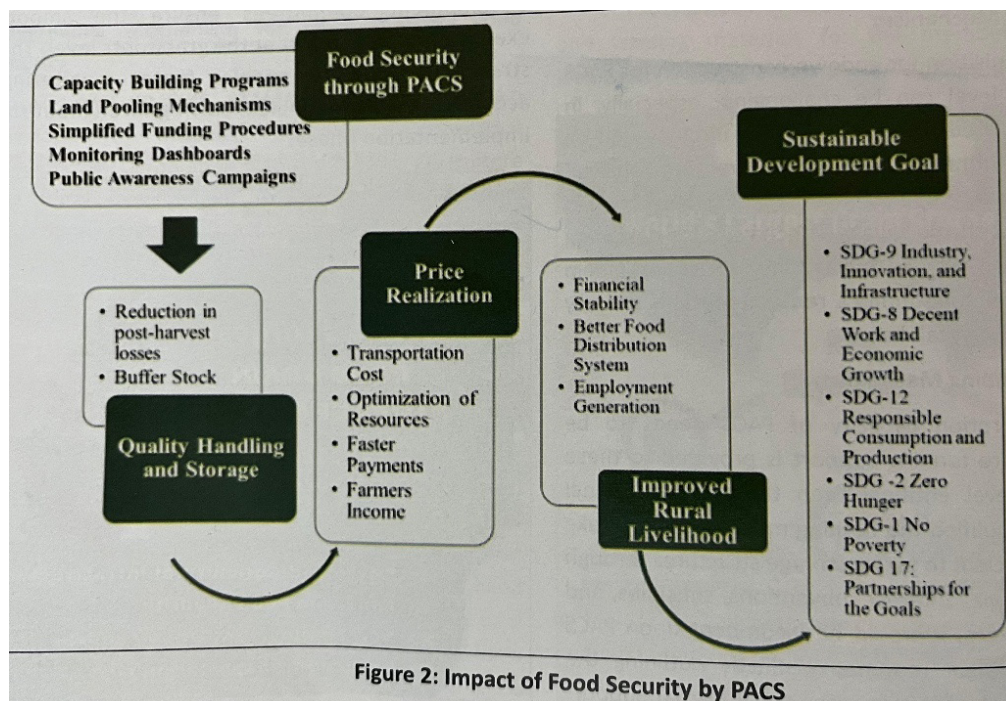


Figure 2: Impact of Food Security by PACS

- **Number of PACS in India:** Over 1.1 lakh
- **Membership:** ~130 million farmers

Functions of PACS in Food Security:

- Direct procurement of grains at MSP
- Provision of agri-inputs and advisory services
- Localized grain storage, reducing reliance on FCI
- Empowering small & marginal farmers with price security
- Enabling online trading via e-NAM platforms

Success Stories of Cooperatives:

- **Tamil Nadu:** Cooperatives manage 94% of Fair Price Shops
- **Amul:** Cooperative model revolutionized India's dairy sector
- **Mother Dairy:** Supplies milk/vegetables at regulated prices
- **Maharashtra Grain Banks:** Loan-in-grain model for tribal areas
- **NAFED:** Maintains national buffer stocks (e.g., pulses, onions)

Convergence with Government Schemes

The grain storage initiative is supported through **convergence of multiple GoI schemes**, ensuring optimal resource utilization and institutional synergy:

Scheme	Objective
Agricultural Infrastructure Fund (AIF)	Rs. 1 lakh crore corpus, 3% interest subvention (Rs. 2 crore limit, 7 years), launched May 2020
Agri Marketing Infrastructure (AMI)	33% subsidy for PACS godown construction
PMFME (PM Formalisation of Micro Food Processing Enterprises)	Capacity building & support for PACS-level processing
SMAM (Sub-Mission on Agricultural Mechanization)	Equipment support for PACS storage & processing
National Cold Chain Development Scheme	Strengthening perishables' value chain
NABARD	Additional 1% interest subvention for PACS
Grameen Bhandaran Yojana	Rural godown development

Challenges in Implementation

Despite its transformative potential, the initiative faces several **operational and institutional challenges**:

- **Multi-agency Coordination:** Overlap and delays between cooperative societies, state departments, and financial institutions.
- **Land Availability:** Especially in densely populated rural areas; requires **land pooling with Panchayats**.
- **Timely Fund Disbursal:** Essential to prevent project delays.
- **PACS Absorptive Capacity:** Need for assessing capacity before funding.
- **Manpower and Training Deficit:** Lack of trained staff for inventory, quality, digital procurement.
- **Operational Governance Risks:** Issues around transparency, accountability, and sustainability.

Governance and Monitoring Mechanism

To address these challenges, a multi-tiered governance framework has been established:

- **National Level:** Inter-Ministerial Committee (IMC) for strategic oversight
- **State Level:** State Cooperative Development Committees
- **District Level:** District Cooperative Development Committees



Digital Dashboard Monitoring:

- **Computerization of PACS** allows real-time tracking
- **AI integration** for inventory management, procurement analytics
- **e-NAM:** Enables transparent and direct trading

Capacity Building & Awareness Generation

- **Training Needs:** Digital literacy, inventory control, storage techniques, regulatory compliance
- **Awareness Campaigns:** To involve farmers and build trust in PACS-managed godowns

Impact on Food Security

Food security includes **buffer stocks** and **public distribution**. This initiative strengthens both:

- Controlled storage facilities at the grassroots
- Reduced wastage, improved grain quality
- Better price realization and income stability for farmers
- Integration with PM-KISAN (income support), PMFBY (crop insurance), and e-NAM (transparent pricing)

Contribution to Sustainable Development Goals (SDGs)

SDG	Contribution
SDG 1 - No Poverty	Enhances rural income through better price realization
SDG 2 - Zero Hunger	Strengthens local storage and food access
SDG 9 - Industry, Innovation, Infrastructure	Builds decentralized storage infrastructure
SDG 12 - Responsible Consumption & Production	Reduces post-harvest losses and promotes efficiency

Conclusion

The **World's Largest Grain Storage Plan** through PACS represents a transformative step in India's food security strategy by **decentralizing storage, empowering cooperatives, and leveraging digital tools**. Timely fund flow, inter-agency coordination, land access, and capacity building are crucial for success. Aligned with the "**Sahkar se Samridhhi**" vision, this community-led model offers a **sustainable and replicable framework** for post-harvest management and rural development.

CHAPTER 2- BUILDING A RESILIENT COOPERATIVE SECTOR

India's cooperative sector is the backbone of its rural economy, comprising over **8.5 lakh societies** with **29 crore members** across diverse sectors like dairy, fisheries, housing, marketing, and agriculture.

- As cooperatives face the dual challenge of competing in markets while serving member interests, skill development emerges as a crucial enabler for making cooperatives competitive, resilient, and self-reliant.

Need for Skilling for Cooperatives

- Cooperatives are **user-owned enterprises** with a dual mandate: protect member interests and remain business-viable.
- They aggregate small producers, traditional skills, and local services — requiring **entrepreneurial, managerial, governance, and technical skills**.
- To address this, India's skill policies like **PMKVY, SANKALP, STRIVE**, and **Skill India Mission** are complemented by schemes under the **Ministry of Cooperation**.
- The 2025 Budget announced the creation of **five National Centres of Excellence for Skilling**, underlining the government's commitment.



Global Context and ICA Insights

- Globally, cooperatives provide jobs to **280 million people** (10% of global workforce) and represent over **12% of the population**.
- As per **ILO**, over **50% of agricultural output** globally is marketed through cooperatives.
- The **ILO's Recommendation 193** advocates cooperative education and vocational training, including tools like **OUR.COOP** packages.
- The **ICA** and its regional arms (e.g., ICA-AP) promote cooperative start-ups, research, and educational standards.
- Global challenges: skill mismatch, digital illiteracy, and poor governance practices—requiring lifelong learning and digital skilling.

Institutional Innovation: Sahkari University (Tribhuvan University Act, 2025)

- The **Tribhuvan Sahkari University Act, 2025** transforms IRMA into India's first national cooperative university to provide multidisciplinary education, skilled manpower, and promote grassroots entrepreneurship.
- Aligned with NEP 2020, it aims to address training gaps, support digital transformation, and set global standards in cooperative education.

Challenges and Opportunities in Building a Resilient Cooperative Sector

Challenges

- **Fragmented Skilling Infrastructure:** India's cooperative training ecosystem is fragmented, lacking standardization, quality monitoring, and coordination. Existing education does not adequately cover entrepreneurial, governance, or digital skills.
- **Low Youth Participation & Succession Gaps:** Limited engagement of youth in cooperatives hampers leadership renewal and innovation. No formal succession planning mechanisms exist, risking continuity in management.
- **Skill Mismatch & Informal Workforce:** India Employment Report 2024 shows that most low-skilled workforce found in trade, transport, storage, education, etc. There is a skill gap between members' traditional expertise and market needs limits cooperative productivity.
- **Digital Backwardness:** Majority of cooperatives lack digital infrastructure and trained personnel. This inhibits integration with e-platforms (e-NAM), use of AI tools, and participation in formal markets.
- **Weak Governance & Transparency:** Political interference, poor financial practices, and low member awareness affect accountability and performance. Governance inefficiency leads to many cooperatives becoming defunct or financially stressed.

Opportunities

- **Policy Convergence and Skilling Ecosystem:** Schemes such as PMKVY, STRIVE, SANKALP, NAPS, NSDM, PM-YUVA, etc. can be tailored for cooperative-specific needs: governance, supply chains, financial literacy, entrepreneurship.
- **Digital Transformation Initiatives:** Computerization of 67,930 PACS completed (as of 2025); digital dashboards improve transparency. Integration of AI, online procurement (e-NAM), and smart monitoring systems strengthens competitiveness.
- **Institutional Innovations:** Sahkari University (Tribhuvan University Bill 2025), NCEL, NCOL, BBSSL, M-PACS are major reforms which will improve education, export readiness, standardization, and promote agri-cooperative innovation.

- **Youth & Women Empowerment via Cooperatives:** 8.5 lakh cooperatives with 29 crore members (many from marginal sections). Focused skill programs and incubation can boost cooperative entrepreneurship in dairy, crafts, processing, etc.
- **Multistakeholder & Global Backing:** Support from ICA, ILO, COPAC, MoC, NABARD, and NEP 2020.
- ICA: 12% of world's population in cooperatives; 280 million employed; \$2409 billion turnover by top 300 cooperatives.
- Global push for skill-based, green, and inclusive cooperatives under IYC 2025 and SDG framework.

Way Forward

- Foster **lifelong learning** and align skilling with **industry demands**.
- Strengthen coordination between **central & state governments** (cooperatives are a state subject).
- Leverage **digital platforms, AI, and data-driven management** in cooperatives.
- Promote **cooperative entrepreneurship** among youth and women.
- Ensure **standardized and certified skill frameworks** tailored to cooperative functions.

Conclusion

Skilling is not merely a technical intervention but a strategic tool to build a **resilient, competitive, and inclusive cooperative sector**. The establishment of India's first cooperative university and the renewed policy thrust under "**Sahkar se Samridhhi**" mark a transformative opportunity. With the right policy alignment, institutional support, and capacity building, India can lead the global cooperative movement into a future of **sustainable development and rural empowerment**.

CHAPTER 3- CROP RESIDUE BURNING IN INDIA

Background and Emergence:

- Crop residue burning began post-1986 with **mechanized harvesting**, leaving behind stubble unsuitable for re-use without manual removal.
- **Seasonal trends:** Rice stubble is burned in October-November (before wheat sowing); wheat in April-May; sugarcane post-harvest varies regionally.
- Initially prevalent in **Punjab**, the practice spread to **Haryana, Uttar Pradesh**, and other north Indian states.
- India generates approx. **686 million tonnes** of crop residues annually, with cereals accounting for 368 million tonnes; rice alone contributes 34%.

Challenges Posed by Residue Burning:

1. Environmental and Soil Health Hazards:

- Loss of ~80% of key soil nutrients (N, P, K, S, organic carbon).
- Depletion of beneficial soil organisms and topsoil fertility.
- Increases surface temperature and deteriorates soil structure.

2. Air Pollution and Public Health:

- Emits **CO₂, CH₄, N₂O, NO_x**, and carcinogenic particulates (PM_{2.5}/PM₁₀).
- Major cause of **toxic smog** episodes in Delhi-NCR during winter.
- Triggers **respiratory ailments** and other health issues.



3. Greenhouse Gas Emissions:

- o Rice straw burning emits ~70% of its carbon as CO₂, 7% as CO, and 0.66% as CH₄; ~2.09% nitrogen as N₂O — all potent greenhouse gases.

Why Farmers Continue Burning Residue:

- **Short sowing windows** in rice-wheat cropping system.
- **High cost** of manual removal or alternative technologies.
- **Low awareness** and poor adoption of sustainable practices.
- **Limited infrastructure** for collection, storage, and processing.
- **Inadequate incentives/subsidies** for small/marginal farmers.
- **Weak enforcement** of anti-burning regulations.

Sustainable Crop Residue Management (CRM) Options:

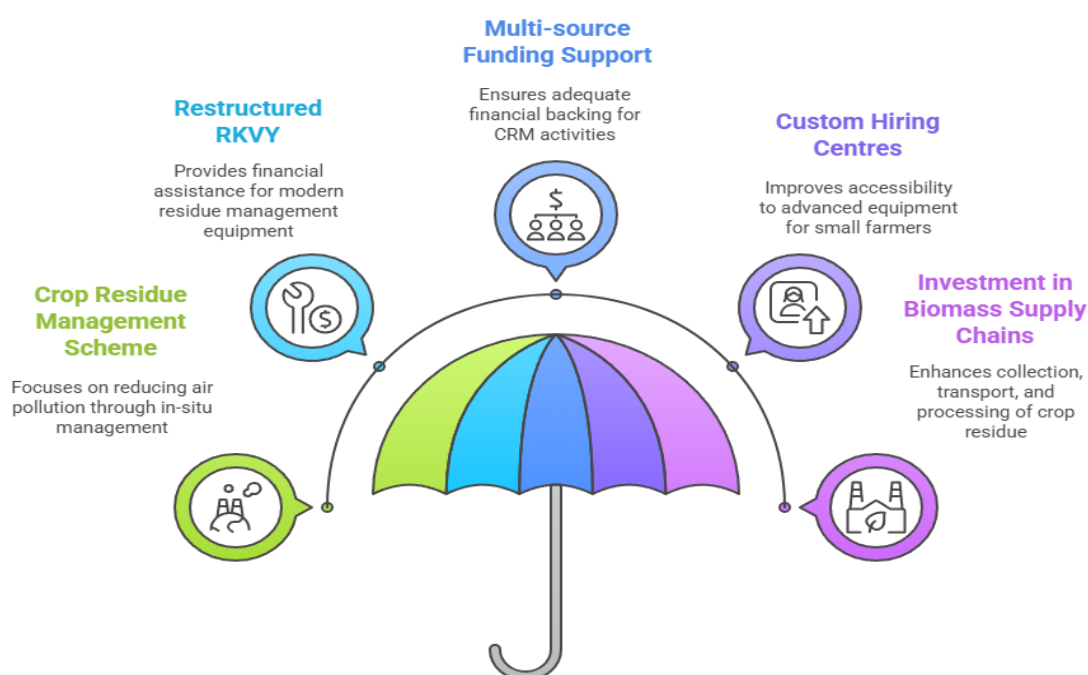
In-situ Management:

- **Happy Seeder, Super Seeder, Rotavator** for stubble incorporation.
- **Mulching** to conserve soil moisture.
- **No-till and strip-till farming** to reduce residue disturbance.
- **Cover cropping and crop rotation** to enrich soil naturally.

Ex-situ Utilisation:

- **Biomass power plants** (e.g., straw-to-energy).
- **Composting and organic manure** production.
- **Biochar** for carbon sequestration and soil enhancement.
- **Industrial use:** Paper, packing material, and boards.

Comprehensive Crop Residue Management Initiatives



Made with Napkin

Challenges & Gaps:

- **High cost of machinery** despite subsidies.
- **Limited awareness and adoption** of eco-friendly alternatives.
- Inadequate **decentralised infrastructure** for residue collection, transport, and processing.
- **Fodder shortage**: National deficit of 23.4%, peaking at **43.5% in western India**.

Way Forward

- **Financial and Technological Support**: Increase subsidies for CRM implements, promote co-ownership and rental models through FPOs, SHGs, and CHCs, and encourage the adoption of short-duration crop varieties to allow timely residue management.
- **Strengthening Infrastructure**: Invest in decentralised collection systems, baling units, and transport mechanisms, while supporting biomass-based power plants through fiscal incentives to boost ex-situ residue utilisation.
- **Innovative Use of Residues**: Promote the conversion of crop residues into biofuels like ethanol and biodiesel, and encourage industrial applications such as cement (from rice husk ash), paper (from banana peel and sugarcane waste), and mushroom cultivation (using bagasse ash).
- **Fodder Security**: Address the fodder deficit by transferring surplus straw from surplus to deficit regions, and compressing it into bales for easier transport, storage, and use.
- **Environmental Benefits**: Improve soil health by enhancing organic carbon levels from 0.3% to 0.5%, thereby boosting soil fertility, moisture retention, and long-term climate resilience.

CHAPTER 4- INCLUSIVE RURAL GROWTH THROUGH COOPERATIVES

The Indian rural economy, anchored in agriculture, faces systemic challenges—low productivity, small holdings, limited access to inputs, and poor market linkages. Empowerment, participation, and inclusion must be central to resolving these issues. **Cooperatives and farm collectives**, with deep roots in India, present a transformative model for inclusive and sustainable rural development.



The Cooperative Spirit

Definition
A cooperative is an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise.

Cooperative Values
Cooperatives are based on the values of self-help, self-responsibility, democracy, equality, equity, and solidarity. In the tradition of their founders, cooperative members believe in the ethical values of honesty, openness, social responsibility and caring for others.

Cooperative Principles

- ✓ Voluntary and Open Membership
- ✓ Democratic Member Control
- ✓ Member Economic Participation
- ✓ Autonomy and Independence
- ✓ Education, Training, and Information
- ✓ Cooperation among Cooperatives
- ✓ Concern for Community



Why Cooperatives Matter:

- **Agricultural Backbone:** Agriculture employs the majority in rural India but is constrained by fragmented holdings and resource deficits.
- **Collective Strength:** Cooperatives offer economies of scale, ensure better access to credit, inputs, infrastructure, and markets, and improve farmers' bargaining power.
- **Holistic Development:** They promote **community-based natural resource management, biodiversity conservation, and nature-based solutions** for sustainable agriculture.
- **Democratic Ethos:** Cooperatives are grounded in democratic participation, fostering social capital, shared responsibility, and inclusive growth.

Institutional and Policy Support:

- **Supply-Leading Model Limitations:** The traditional top-down model has failed due to lack of farmer-controlled institutions.
- **Need for Transformation:** Rejuvenating cooperatives is key to enabling food security, employment, climate resilience, and rural prosperity.
- **Creation of Ministry of Cooperation (2021)** signals the government's intent to mainstream cooperatives in national development strategy.

Vision for Cooperative-Led Rural Economy:

- **Village-Level Cooperatives:** Every village should have a multifunctional agriculture cooperative managing all economic activities.
- **Higher-Tier Cooperatives:** Cluster-based multipurpose cooperatives with facilities for storage, processing, marketing, energy, education, and health.
- **Digital Cooperative Network:** 7 lakh village cooperatives linked with 3.5 lakh higher-tier cooperatives to create a **National Cooperative Food Network**.
- **Role in Governance:** Cooperatives can be entrusted with implementing food security programmes, reducing fiscal burden on the government.

Economic and Social Impact:

- **Reduced Costs & Wastage:** Direct procurement by cooperatives will eliminate food loss, ensure fair prices, and lower production costs.
- **Employment Generation:** Creation of decentralized value chains will create rural jobs and revive village economies.
- **Empowered Farmers:** Farmers will gain **voice, choice, and price** through collective marketing and services.
- **Preserving Social Harmony:** Cooperatives build trust and shared purpose, vital for sustaining communal peace and resilience.

Challenges and the Way Forward:

- **Reviving Cooperative Conscience:** Restore democratic character and accountability in cooperative functioning.
- **Vertical Integration Needed:** Shift from fragmented, horizontal models to integrated systems for greater synergy and impact.
- **Innovative & Responsive Cooperatives:** Cooperatives must evolve with market demands and member expectations, adopting new financial strategies and digital tools.
- **Unified Institutional Framework:** Integration of the vast cooperative network (~8 lakh units) into a common digital and management platform.

Conclusion:

Cooperatives are not just economic entities—they are **instruments of collective empowerment**, ecological stewardship, and social harmony. Strengthening the cooperative model is essential for achieving a **self-reliant, inclusive, and sustainable Bharat**. As Gandhiji envisioned, **India's development must flow from its villages**, and cooperatives are the most natural and effective vehicles for this transformation.

UPSC Mains Practice Questions-(Around 250 words)

- Q1. **Cooperatives are key instruments for participatory governance and inclusive rural development in India.”** Examine the role of cooperatives in empowering rural communities and promoting decentralized development.
- Q2. **Crop residue burning continues to be a major contributor to air pollution in northern India despite several policy interventions.”** Critically examine the causes, consequences, and evaluate the effectiveness of current management strategies.

