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Conference Special Issue - 45

April, 2026

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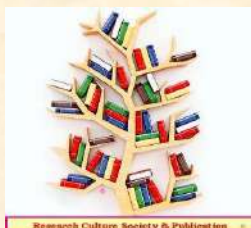
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ADARSH COLLEGE OF ARTS, COMMERCE AND SCIENCE

Kulgaon- Badlapur (East), Dist. Thane, Maharashtra, India

and

Research Culture Society



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**One-Day Multidisciplinary National Conference on
'From Local to Global: Cooperative Gateways to
a Sustainable Future'**

(ODMNC– 2026)

Date: 11th April 2026 (Saturday)

Conference Special Issue - 45

The Managing Editor:

Dr. C. M. Patel

(Research Culture Society & Publication)

Jointly Organized by:

Internal Quality Assurance Cell (IQAC)

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**ADARSH COLLEGE OF ARTS, COMMERCE AND
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One-Day Multidisciplinary National Conference on 'From Local to Global: Cooperative Gateways to a Sustainable Future'

(ODMNC– 2026)

Date: 11th April 2026 (Saturday)

(Conference Special Issue / Proceedings)

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Research Culture Society and Publication

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About the organizing Institutions:

Adarsh Vidya Prasarak Sanstha is one of the premier institutions in the fast-growing Badlapur city of Thane District in Maharashtra. It is providing educational facilities to the residents of Badlapur from Kindergarten to Post Graduation.

Adarsh College of Arts, Commerce and Science was established in 1995, by Adarsh Vidya Prasarak Sanstha, with the objective of facilitating quality Higher Education to the students in and around Badlapur. The College is situated in the lush green campus of Adarsh Vidya Prasarak Sanstha which comprises approximately 13 acres of land. It imparts higher education via. Traditional undergraduate programmes as well as offers a number of self-financing professional courses. The college also offers post-graduate courses in the faculty of Commerce and Arts. Over the years, many students of the college have represented the University of Mumbai, the State of Maharashtra, and India at Inter-University, National, and International sports tournaments, respectively.

The college has adopted a ‘man-making philosophy’ and has always strived to impart quality educational services as per changing needs of time, make education all-inclusive for students in and around Badlapur, to encourage the students to learn in a competitive learning atmosphere and transform them into good citizens of India having deep rooted Indian culture. The college organizes various academic programs like workshops, seminars and conferences on the contemporary issues to provide opportunities to participate in the deliberations and discussions as well as to develop a learning acumen, research ability, writing and presentation skills of teaching faculties, research scholars and students.

‘Research Culture Society’ is a Government Registered Scientific Research organization. This organization is working for research community at National and International level to impart quality and non-profitable services. ‘Research Culture Society’ conducts conferences, seminars, symposiums, workshops, training and development programmes on different themes and has successfully organized 250+ educational programmes at national and international level in association with different reputed institutions. <https://researchculturesociety.org/>

About the Conference:

The One-Day Multidisciplinary National Conference on 'From Local to Global: Cooperative Gateways to a Sustainable Future' is organized by IQAC of Adarsh College of Arts, Commerce & Science, in association with Research Culture Society, to highlight the crucial role of cooperatives in bringing about sustainable socio-economic development as a pathway to realizing the national vision of 'Viksit Bharat @ 2047'.

Objectives of the Conference:

- To Highlight the Role of Cooperatives in Youth Empowerment.
- To analyze how conventional co-operative movements contributed to equality in social, economic, and environmental contexts.
- To explore the relationship between co-operative movements and sustainability.
- To Highlight Successful Cooperative Models.
- To Share Success Stories and Best Practices.
- To highlight the Significance of Cooperatives in Nation-Building.
- To understand the Alignment with 'Viksit Bharat @2047' Goals.
- To analyze current cooperative laws, policies, and government schemes.
- To create a platform for collaboration among academia, government, industry, & cooperative leaders.

At the onset of the year 2025, the global community is celebrating the 'International Year of Cooperatives' to reaffirm the role of cooperatives in fostering all- inclusive growth and development. This conference is not being convened as merely a part of celebration associated with 'the International Year of Cooperatives', but is a deliberate call for action. India's journey towards becoming a developed nation by 2047, rests on the pillars of inclusivity, sustainability, mutual responsibility and collective prosperity through cooperation. This conference is organized with the objective of advancing the research ability, writing and presentation skills of academicians, research scholars; and to provide a suitable platform to encourage constructive discussion on the innovative ideas and research findings related to the conference theme. The conference is convened in the hybrid mode to facilitate both- in person and virtual participation thereby ensuring wider participation and engagement.

By exploring the cooperative movement through historical, economic, legal, social, scientific, cultural, and philosophical lenses, this conference will offer insights and recommendations to reimagine cooperatives for the 21st century. The outcome of this conference will continue to be a message that 'cooperation is the key to collective prosperity'.

Prof. Dr. Sangeeta Pande

Conference Chairperson and Convenor

Principal, Adarsh College of Arts, Commerce and Science

Conference Committee

Patrons:

❖ Dr. Uday Suresh Kotwal	President, Adarsh Vidya Prasarak Sanstha
❖ Shri. Jandardan Bhagaji Ghorpade	Chairman, College Governing Council
❖ Shri. Tushar Sharad Apte	Secretary, Adarsh Vidya Prasarak Sanstha
❖ Shri Vivek Prabhakar Mule	Jt. Secretary, Adarsh Vidya Prasarak Sanstha
❖ Shri. Ramchandra Pandharinath Shete	Treasurer, Adarsh Vidya Prasarak Sanstha

Seminar Advisors:

1. Prof. Dr. Anil Singh, OFFG. Dean, Faculty of Humanities, University of Mumbai
2. Dr. Madhav Rajwade, Principal- Sathaye College (Autonomous), Mumbai
3. Prof. Dr. Suresh Maind, Chairman, BOS in Economics, University of Mumbai
4. Prof. Dr. Priya Vaidya, HOD – Department of Philosophy, University of Mumbai
5. Dr Vinayak Raje, Principal- K B College of Arts and Commerce for Women, Thane
6. Dr. Vijay Kanchi, Librarian and Director, Knowledge Resource Centre, Moolji Jaitha Autonomous College, Jalgaon

Conference Speakers:

Keynote Address	Dr. Suva Kanta Mohanty (Keynote Speaker) Director ,Vaikunth Mehta National Institute of Cooperative Management, Pune
Technical Session 1	Shri. Shreekant Patwardhan (Resource Person) Sahakar Bharati,National Committee Member and Head of Office of Maharashtra Pradesh Smt. Ashwini Bulakh (Chairperson) Sahakar Bharati, Head of Maharashtra State Housing Cell
Technical Session 2	Shri.Anant Kulkarni (Resource Person) CEO, Kalyan Janata Sahakari Bank Ltd Dr. Mandar Paranjape (Rapporteur) Asso. Prof., Dept. of Commerce, Adarsh College of Arts, Commerce and Science, Badlapur
Technical Session 3	Dr. Shivaji Pawar (Resource Person) I/C Principal, Mulund College of Commerce Shri. Mandar Thakur (Rapporteur) Asso. Prof., Dept. of History, Adarsh College of Arts, Commerce and Science, Badlapur
Valedictory Function	Shri. Satish Marathe (Chief-Guest) Director on the Central Board of the Reserve Bank of India

Organizing Committee Members:

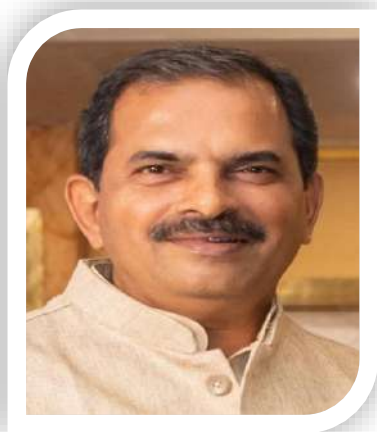
Convenor: Dr. Sangeeta Pande (Principal)

Coordinator: Mr. Laxmikant Satpute (IQAC Coordinator)

Co-coordinator: Dr. Snehal Deshmukh (Asst. Prof., Dept. of Economics)

Other Members:

Mr. Mandar Thakur, Ms. Daksha Halkare, Dr. Sandip Bhele, Dr. Mandar Paranjape, Mr. A.L. Bandal, Dr. Anjali Ghosh, Mr. Manoj Jadhav, Ms. Nivedita Shete, Ms. Raina Hinger, Ms. Nikita Tare, Ms. Devashree Apte, Ms. Purva Patankar, Ms. Priya Ruke, Ms. Dhvani Babaria, Ms. Priyanka Jaiswar, Mr. Prashik Sonawane, Mr. Sachin Dedhia, Ms. Kanchan Muley, Ms. Kanchan Karkhanis, Ms. Manisha Sable, Ms. Tanaya Sardesai, Dr. Savita Kale, Ms. Neelam Sabnis, Ms. Shruti Chandanshive, Ms. Maitreyee Singh, Mr. Milind Johore, Mr. Bharat Torane, Mr. Ambarish Kote, Mr. Anand Pandey, Ms. Tanaya Sardesai, Mr. Samir Tambe, Ms. Manasi Oak, Mr. Dilip Ghorpade, Ms. Swati Patil, Ms. Sarika Mali, Mr. Santosh Kadali, Ms. Prachi Joshi, Mr. Pandhari Nirguda, Mr. Manohar Fulavare, Mr. Anil Singraiya, Mr. Sunil Nakhate, Mr. Ketan Gole, Mr. Harish Pawar, Ms. Yogita Bhopi, Ms. Sita Chavan, Mr. Rupesh Pathare, Mr. Kunal Dayare, Mr. Sanju Pawar



Dr. Uday Suresh Kotwal
President, Adarsh Vidya Prasarak Sanstha

Message

from the President of Adarsh Vidya Prasarak Sanstha
and
Patron of the Conference.

It gives us immense pleasure to organise the conference on the theme 'From Local to Global: Cooperative Gateways to a Sustainable Future'. On behalf of me and all the trustee members of the management of Adarsh Vidya Prasarak Sanstha, we would like to congratulate all the team members of the organising committee for the organisation of this conference.

The theme of the conference is both timely and significant. The Indian cooperative sector, with a history spanning over a century, has continuously evolved in response to a dynamic and changing environment. Whether in banking, agriculture, or other sectors, cooperative frameworks have adapted to emerging challenges and opportunities, demonstrating resilience and relevance in contemporary times. In an era marked by rapid globalization, environmental challenges, and socio-economic disparities, the cooperative model stands out as a powerful instrument for inclusive growth and sustainable development. The discussions and research presented during the conference highlighted how local initiatives, guided by cooperative principles, can create meaningful global impact.

In the state of Maharashtra & Gujarat, the cooperative sector played the major role in the field of banking, agriculture, dairy farming, sugar cane industry etc. Some of the banks in Maharashtra like Kalyan Janata Sahakari Bank, Dombivli Nagari Sahakari Bank and Thane Zilla Sahakari Bank, made remarkable progress. In this conference, the experts who worked in this field and who are well-known authorities in the field of cooperative sector are going to guide the delegates. The discussions held during the conference will definitely help in finding the solution for the challenges emerging due to the use of artificial intelligence.

I extend my sincere appreciation to all contributors for their valuable research work, the organizing committee for their dedicated efforts, and the editorial team of IJRCS for their support in bringing out this publication. I am confident that this Special Issue will serve as a significant academic resource and inspire further research and collaboration in the field of sustainable development through cooperative pathways. Let us continue to strengthen the bridge between local actions and global outcomes, fostering a future that is equitable, resilient, and sustainable.

Dr. Uday Suresh Kotwal
President-Adarsh Vidya Prasarak Sanstha



Prof. Dr. Sangeeta Pande

ODMNC-2026

Message

From Conference Chairperson and Convenor.

Principal,

Adarsh College of Arts, Commerce and Science,
Kulgaon, Badlapur East, Dist: Thane, Maharashtra.

Dear Readers,

It's our great pleasure to present this special issue of journal which is compilation of the research papers presented during One Day National Conference on 'From Local to Global: Cooperative Gateway to Sustainable Future' organised on 11th April 2026.

The value of cooperation is deeply ingrained in our tradition. Government of India recognises the power of cooperative efforts leading towards Development and prosperity i.e. 'Sahakar se Samruddhi', as a result on 6th July 2021 a separate 'Ministry of Cooperation' (MoC) was created by the Union Government. This has helped in strengthening the cooperative movements in India. At Global level UN general assembly declared 2025 as the International Year of Cooperation under the theme 'Cooperatives build a better world'.

This conference aims at exploring the relationship between cooperative movements and sustainability. It also aims at exploring the cooperative movement through historical, economic, legal, social, scientific and cultural lenses. This conference is organised with the objective of advancing the research ability, writing and presentation skills of academicians, research scholars and to provide a suitable platform to encourage constructive discussions.

This conference provides an opportunity to bring together the academicians and the experts who are working at the grass root level in the cooperative sectors which will be definitely an enriching experience. It also provides the platform to reflect, retrospect and re-evaluate the cooperative sector and its significance for resolving the challenges faced in this sector.

We would like to express our gratitude to research culture society, all the faculty members, all research scholars for contributing for this publication.

Prof. Dr. Sangeeta Pande



Mr. Laxmikant Satpute
(ODMNC-2026 Conference Coordinator)

IQAC Coordinator,
Adarsh College of Arts, Commerce and Science,
Kulgaon, Badlapur East, Dist: Thane, Maharashtra

Message

Dear Readers,

It is a great honour and privilege to serve as coordinator for this National Conference, “From Local to Global: Cooperatives as a Gateway to a Sustainable Future.” This gathering underscores how cooperatives can transform local efforts into global impact. More than economic structures, they are communities rooted in trust, inclusion, and shared success. By empowering individuals and strengthening local economies, cooperatives play a vital role in advancing sustainable development.

As we come together, we recognize the value of elevating local knowledge, talent, and enterprises onto international stages. In today’s interconnected world, ‘cooperatives’ act as bridges that help ensure progress is fair and responsible.

One of the most important insights gained through this process has been the critical role of clear communication and mutual support. When people align around a common goal and acknowledge each other’s contributions, even demanding tasks become achievable.

I am deeply grateful for the commitment and teamwork demonstrated by everyone involved. Each effort, regardless of size, contributed meaningfully to our shared success. Looking ahead, I aim to draw on these experiences to grow further and help sustain a constructive and collaborative atmosphere.

My sincere thanks to all trustee members, Principal, participants, speakers, and organizers whose dedication has brought this conference to life. Your perspectives and expertise will fuel meaningful conversations, spark innovation, and help shape practical solutions. Let us use this opportunity to share ideas, form alliances, and renew our dedication to a future where cooperation leads the way toward sustainability and shared advancement.

Thank You

Mr. Laxmikant Satpute

Dr.C. M. Patel

Director, RESEARCH CULTURE SOCIETY

Web: www.researchculturesociety.org

Email : director@researchculturesociety.org



Dear Esteemed Scholars, Researchers, and Delegates,

It is with immense pleasure that we are associated with Adarsh College of Arts, Commerce and Science, Kulgaon, Badlapur East, Dist: Thane, Maharashtra to conduct a One-Day Multidisciplinary National Conference on 'From Local to Global: Cooperative Gateways to a Sustainable Future.'

On behalf of the Research Culture Society, I extend my warmest greetings. Today's most pressing global challenges—from environmental crises to socio-economic disparities—demand innovative, interconnected solutions. The theme of this conference reflects a profound truth: meaningful global transformation must be rooted in local, cooperative action.

By bringing together minds from diverse disciplines, this gathering serves as a vital catalyst for intellectual exchange. It provides a unique platform to share grassroots innovations and scale them into global strategies. True progress requires us to break down academic silos and foster collaborative networks that transcend traditional boundaries.

I encourage each of you to engage deeply, challenge existing paradigms, and build lasting partnerships during the conference sessions. May your discussions be fruitful, igniting new ideas and actionable research that will resonate far beyond this venue.

Wishing you all a highly successful and inspiring conference.

Warm regards,

Dr.C. M. Patel

Director Research Culture Society.

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From Sanskara to Sahakara: A Philosophical Reconstruction of Cooperative Ethics in Indian Thought and Its Implications for AI Ethics

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Abstract: We live in an era of unprecedented technological acceleration. The crisis of genuine cooperation in modern society along with the rapidly evolving domain of Artificial Intelligence (AI), is fundamentally a philosophical crisis. It's a deficit of inner disposition rather than outer design. Drawing upon the classical Indian philosophical concept of Sanskara the deep impressions that shape moral character, value orientation, and relational identity this paper proposes a philosophical reconstruction of cooperative ethics from within the Indian tradition. Contemporary cooperative movements are predominantly designed through structural, legal, and economic frameworks that treat cooperation as an institutional arrangement rather than an ethical imperative rooted in human consciousness. The paper traces the conceptual journey from Sanskara (value formation) to Sahakara (cooperation), arguing that authentic cooperative consciousness is not legislated but cultivated. It examines how foundational principles of Vasudhaiva Kutumbakam, Paropakara and Sarvodaya. They constitute a coherent philosophical architecture for cooperative living. Crucially, the paper extends this framework to AI Ethics, arguing that current AI governance models, being predominantly Western in origin, replicate the same structural bias and require enrichment through Indian philosophical thought.

Key Words: Sanskara, Sahakara, Cooperative Ethics, Vasudhaiva Kutumbakam, AI Ethics, Indian Philosophy, Moral Consciousness, Sarvodaya, Decolonisation of Ethics, Samskara Engineering.

1. INTRODUCTION:

The twenty-first century presents humanity with two defining challenges. They appear structurally distinct but are philosophically intertwined: the crisis of cooperative living and the ethical governance of Artificial Intelligence. Existing responses to both challenges are shaped by Western liberal frameworks, contractarian, utilitarian, and rights-based. They privilege the individual over the collective, the rational over the relational, and the structural over the dispositional.

This paper argues and establishes that Indian philosophical tradition offers a deeper and more sustainable foundation for both cooperative ethics and AI governance. The concept of *Sanskara*, the cumulative impressions and value-formations that shape the moral self which provides the philosophical ground. This paper terms **Samskara Engineering**: the deliberate cultivation of consciousness toward cooperation as a natural ethical disposition. When extended to AI, Samskara Engineering proposes that AI systems must be embedded not merely with procedural rules but with the philosophical spirit of *Sahakara* (cooperative) intent, collective benefit, and relational accountability.

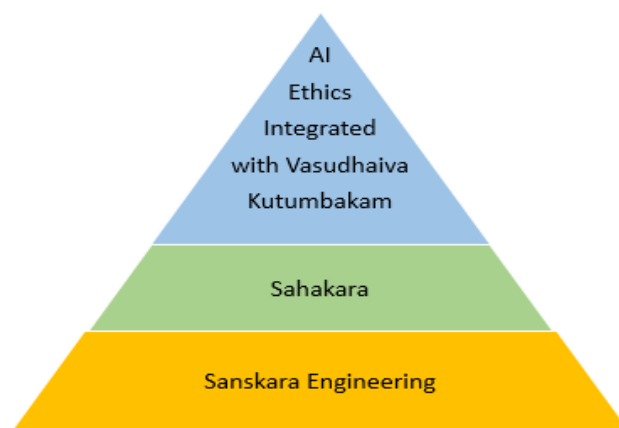


Figure 1- AI Ethic proposed Pyramid

2. OBJECTIVES :

Aim: The present study aims to reconstruct cooperative ethics through the Indian philosophical concept of Sanskara and to extend this framework toward the development of an ethically grounded approach to Artificial Intelligence (AI) governance, conceptualized as Samskara Engineering.

Objectives: The study is guided by the following objectives:

- To examine the concept of Sanskara as a foundational mechanism of moral and relational value formation within Indian philosophical traditions.
- To analyse the conceptual transition from Sanskara (inner disposition) to Sahakara (cooperative action).
- To interpret Vasudhaiva Kutumbakam, Paropakara, and Sarvodaya as an integrated philosophical framework for cooperative ethics.
- To propose Samskara Engineering as a normative framework integrating inner moral formation with AI system design and governance.

3. HYPOTHESES:

The study is structured around the following hypotheses:

Sanskara woven into consciousness transforms Sahakara from imposed obligation to intrinsic ethical expression thereby compelling AI Ethics to move beyond compliance toward embodied cooperation.

Sanskara: The Philosophical Concept of Value Formation:

In traditional Indian language, the term *Sanskara* (संस्कार) carries multiple meaning. It appears like 'making perfect', 'refining', or 'purification'. In the Vedanta and Bharatiya philosophical tradition, Sanskara refers to ritual impressions left upon an individual consciousness (*citta*). It determines the path of moral and relational behaviour. Unlike Western notions of character formation, Sanskara operates at the sub-rational and pre-reflective level, it is the philosophical depth at which values are not chosen but curated purposely and inhabited.

A consciousness shaped by samskaras of *seva* (service), *ahimsa* (non-violence), and *paropakara* (welfare of others) will naturally tend toward cooperative action. Conversely, a consciousness shaped by samskaras of individualism, competition, and acquisitiveness will tend toward fragmentation.

Sanskara is foundational to the argument of this paper: real cooperation cannot be engineered or forcefully applied externally through policy alone. It must be cultivated internally through the deliberate formation of value-laden consciousness. This is what the paper terms Samskara Engineering.

4. RESEARCH METHOD:

Research Design:

This study adopts a qualitative and interpretative research design with philosophical inquiry, conceptual analysis, and interdisciplinary synthesis.

Methodological Framework:

- **Hermeneutic Analysis:** Indian philosophical texts (Classical), including the related verses from Gita, Upanishads and Vedanta literature are interpreted to derive conceptual insights related to Sanskara, Sahakara, and relational ethical ideas.
- **Comparative Philosophical Analysis:** A comparative evaluation is conducted between Indian philosophical frameworks and contemporary Western AI ethics models proposed by UNESCO, OECD, and the European Union.
- **Conceptual Reconstruction:** The study reconstructs cooperative ethics by inking the progression from inner value formation (Sanskara) to social group expression (Sahakara).
- **Normative Analysis:** The research develops a normative ethical framework (Samskara Engineering) to articulate how AI systems ought to be designed, governed, and evaluated.
- **Interdisciplinary Approach:** The study integrates perspectives from philosophy, AI ethics, and cooperative studies to provide a comprehensive analytical framework.

Sources of Data

Primary Sources:

Foundational Indian philosophical texts, Upanishads and works of expert thinkers such as Swami Vivekananda, Mahatma Gandhi, and Rabindranath Tagore.

Secondary Sources:

Modern AI ethics frameworks (e.g., UNESCO Recommendation on the Ethics of AI, OECD AI Principles), academic literature, and policy reports such as the Stanford AI Index.

Analytical Levels:

The analysis is conducted across three interconnected dimensions:

- **Ontological Level:** Examination of the nature of reality and interconnectedness.
- **Epistemological Level:** Analysis of sources and forms of knowledge.
- **Ethical Level:** Evaluation of normative principles guiding human and technological action.
- ❖ **From Sanskara To Sahakara: The Philosophical Journey:**

The Sanskrit root of **Sahakara** (सहकार) is **saha** (together) and **kara** (doing/action). Cooperation is not merely joint activity, it is ontologically relational action which presupposes the self-in-relation-to-other as its basic unit. This stands tall in philosophical contrast to Western contractarian models where cooperation emerges from the convergence of individual self-interests.

The journey from Sanskara to Sahakara is thus a journey from inner formation to outer expression. An individual whose consciousness is shaped by the samskaras of **Vasudhaiva Kutumbakam** (the world is one family) will naturally extend cooperative intent beyond the immediate community to the global family including, in the contemporary context, to the ethical design of AI systems that affect all of humanity.

This philosophical movement from cultivated inner disposition to cooperative outer action constitutes the core value of Samskara Engineering as an ethical methodology. It proposes three stages:

- **Pratishtha (Grounding):** Establishing foundational values of interconnectedness, mutual responsibility, and collective flourishing through philosophical education.
- **Pariposhana (Nurturing):** Sustaining and deepening these values through lived practice, cultural reinforcement, and institutional reflection.
- **Prasar (Extension):** Extending these cultivated values to new domains of human active participation including digital spaces, algorithmic governance, and AI systems.

Example 1: Amul Cooperative, Gujarat:

- The Amul model succeeded not merely because of its design but because it had a strong cultural foundation of collective identity among rural dairy farmers. It was a lived expression of Sahakara rooted in shared values of mutual dependence, trust, and community welfare. (samaaj kalyan)

Example 2: Kerala Cooperative Sector:

- Kerala's cooperative movement is one of the most successful in Asia. It demonstrates how communities with deeply embedded cultural values and collective responsibility (reflecting Sarvodaya) sustain cooperation far beyond what legal enforcement alone could achieve.

Example 3: AI Ethics (negative case):

- The Facebook–Myanmar (2017) crisis reflect the cost of cultural core value-absent AI designs. An algorithm optimised purely for individual engagement metrics amplified hate speech at scale. It's precisely occurred because its designers operated without the relational ethical framework that Samskara Engineering proposes.

❖ **Vasudhaiva Kutumbakam As A Cooperative Architecture:**

The Maha Upanishad declares: *Vasudhaiva Kutumbakam* “the world is one family”, is a celebrated principle of Indian philosophy. It is frequently cited as a cultural slogan but infrequently examined as a philosophical architecture for cooperative ethics. This paper urges that *Vasudhaiva Kutumbakam* in its philosophical depth is a complete relational ontology that makes cooperation the natural way of self-understanding.

Vasudhaiva Kutumbakam presents the philosophical justification for cooperative structures which transcend the limitations of individual interest, local community, society. It even crosses the national boundary. Its universal dimension makes it relevant to global challenges. The governance of AI is no longer a matter of policy, but of planetary stewardship, an ethical commitment to ensure that as we automate the mind, we do not empty our soul or exhaust the Earth that sustains us.

AI Ethics: Current Frameworks & Their Philosophical Limitations:

The rapid mushrooming of Artificial Intelligence has generated an urgent global parley on AI ethics. Major frameworks like the European Union's AI Act, UNESCO's Recommendation on the Ethics of AI, and the OECD AI Principles have sought to establish normative guardrails for AI development and deployment. These frameworks are significant achievements, yet they share a common philosophical limitation: they are predominantly Western in their conceptual foundations.

Western AI ethics frameworks are typically grounded in four core principles:

1. **Beneficence**
2. **Non-maleficence**
3. **Autonomy**
4. **Justice**

These principles have genuine value. They privilege individual rights, procedural compliance, and institutional accountability. They address the question of how AI should behave but not the deeper question of what philosophical dispositions should shape the consciousness of those who design, deploy, and govern it. AI systems are trained predominantly on Western data, governed and thus shaped by Western ethical frameworks. They are primarily deployed without sensitivity to non-Western values and patterns of cultural exclusion at scale. This is not merely an academic concern, it is an ethical and socio-political one.

The Indian philosophical tradition, with its rich resources of relational ontology, consciousness studies, and cooperative ethics, offers a culturally inclusive supplement and in some respects, an alternative to these dominant frameworks.

Samskara Engineering: An Indian Philosophical Framework for AI Ethics:

The paper proposes Samskara Engineering as a philosophical framework for AI ethics through the Indian tradition. Samskara Engineering does not reject Western frameworks as a whole. Samskara Engineering seeks to deepen and diversify them by introducing the dimension of inner moral formation as foundational to AI governance.

The framework operates at three levels:

1. **Ontological Level:** Samskara Engineering draws on the Advaita Vedanta philosophical principle of non-duality. *Vasudhaiva Kutumbakam* philosophy proposes that AI systems should be designed with a foundational recognition of interconnectedness. This means moving beyond anthropocentric

AI ethics toward a framework that considers the impact of AI on all sentient beings and on ecological systems. It is a shift from individual rights to relational responsibilities.

2. **Epistemological Level:** Indian philosophical epistemology recognizes multiple valid sources of knowledge

- **Pratyaksha** (perception).
- **Anumana** (inference).
- **Shabda** (testimony/tradition).

Applied to AI, this multi-layered epistemology challenges the assumption that AI trained on quantitative data alone captures the fullness of human knowledge. It demands the inclusion of qualitative, traditional, and experiential (*Anubhav*) forms of knowledge in AI training and evaluation.

3. **Ethical Level:** *Satya* (truthfulness) and *Ahimsa* (non-harm) offer a robust ethical vocabulary for AI governance that extends beyond Western bioethical principles. These *samskaras*, when embedded as foundational values in AI design processes and institutional cultures. *Samskaras* shape the moral dispositions of AI practitioners, not merely the procedural rules of AI systems.

❖ **Cooperative AI: Reimagining Artificial Intelligence Through Sahakara:**

Cooperative AI with *samskaras* is designing and integrating AI systems to work with humans and other AI for collective benefit. It has gained traction at institutions like CHAI, Berkeley. Yet current models rely on game theory and mechanism design, focusing on structure and strategy rather than addressing the deeper philosophical questions.

The *Sahakara* framework proposed in this paper offers a philosophically richer model. Cooperative AI, from the perspective of *Sahakara*, is not merely AI that cooperates instrumentally with humans to achieve defined objectives. It is AI whose entire design philosophy is oriented toward *loka-kalyana*, the welfare of all (*सर्वजन हिताय, सर्वजन सुखाय*) as a foundational value, not an instrumental output. This requires:

- **Inclusive data governance:** AI training datasets that represent the full diversity of human knowledge, including oral traditions, indigenous knowledge systems, and non-Western philosophical texts.
- **Participatory design:** AI development processes that include diverse cultural, philosophical, and community voices embodying the cooperative principle of shared ownership.
- **Relational accountability:** AI governance structures that assess AI impact not on individual metrics alone but on relational and ecological dimensions, consistent with the Vasudhaiva Kutumbakam principle.
- **Consciousness-sensitive evaluation:** AI evaluation frameworks that assess not only the outputs of AI systems but the values, assumptions, and cultural biases embedded in the consciousness of their designers.

A concrete application of *Sahakara*-based Cooperative AI design can be seen in the proposal for relational impact assessment. It's an evaluation tool that measures AI systems not only on individual user satisfaction metrics, but on community-level well-being, ecological impact, and cultural inclusivity. This directly mirrors the Vasudhaiva Kutumbakam principle: the unit of ethical concern is not the individual user but the global family. Such an assessment framework would require AI developers to answer not just "does this system help the user?" but "does this system serve *loka-kalyana*, the welfare of all?" and only thereafter move ahead.

5.CONCLUSION:

This paper has openly demonstrated that the crisis of cooperation in human institutions, in AI governance is not structural but philosophical. Through the conceptual framework from *Sanskara* to *Sahakara*, it has showcased that authentic cooperative consciousness must be cultivated from within, not merely regulated from external application. *Samskara Engineering* emerges as an original normative framework that fills a critical gap in both contemporary cooperative theory and AI ethics. It visibly highlights the absence of inner ethical AI design principle. Existing frameworks ask what rules should AI follow, *Samskara Engineering* asks what values should shape those who build, govern, and evaluate

AI. The principle of *Vasudhaiva Kutumbakam* provides the ontological ground for this AI framework. If the world is truly perceived as one family, cooperation is not a policy option but a philosophical necessity. Applied to AI, this principle demands that AI systems be designed, governed, and evaluated not merely through the lens of individual rights, rules and procedural compliance, but through the relational wisdom of the Indian philosophical tradition. Indian philosophy transcends self into a wisdom that sees all humans as interconnected members of a single global family, not as isolated users of a technological system for profit alone.

6.FUTURE DIRECTION:

Future research should study models like Amul and Kerala's cooperatives to empirically validate the link between Samskara-based values and cooperation, and examine their applicability to AI ethical frameworks across diverse contexts.

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The Universal Prayer Pasaydan in the Dnyaneshwari: A Philosophical Inquiry into Service through Cooperation

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Abstract: This paper presents a qualitative and interpretative philosophical inquiry into the concept of “Service through cooperation” as articulated in the *Pasaydan*, the concluding universal prayer of the Dnyaneshwari by Saint Dnyaneshwar Maharaj. Situating the discussion within the interdisciplinary theme “From Local to Global: Cooperative Gateways to a Sustainable Future”, this paper explores how Dnyaneshwar Maharaj’s vision offers a profound Indian philosophical framework for collective well-being rooted in spiritual unity and social harmony. Moving beyond exegetical analysis, the paper interprets selected verses to reveal a comprehensive ontology grounded in *Chidvilasvad* (divine play of the consciousness), branch of Advaita philosophy. Central to this vision is the principle of “*Karme Ishu Bhajava*”, wherein every action, when performed selflessly, becomes an act of devotion and a mode of cooperation and harmony.

Through key ideas such as “*.maitra jeevanche*” (universal friendship) and the transformation of the wicked into virtuous agents, *Pasaydan* articulates a cooperative social philosophy based on interdependence, compassion, and shared responsibility. This framework aligns with the Indian philosophical ideal of *lokasangraha*, the welfare of all beings, while also extending toward a global ethic of sustainability and coexistence. Furthermore, the concept of *Dnyanottar Bhakti* (continued devotion post vedantic realization) redefines liberation not as withdrawal but as continued engagement in selfless service, thereby grounding cooperation in spiritual realization. By bringing these insights into dialogue with contemporary concerns, the paper argues that *Pasaydan* offers a timeless and transformative pathway from individual action to collective flourishing.

Key Words: *Pasaydan*, *Karme Ishu Bhajava*, *Dnyanottar Bhakti*.

1.INTRODUCTION:

The question of how individuals relate to one another, whether through competition, coexistence, or cooperation, has been central to both Eastern and Western philosophical traditions. Modern socio-economic systems often emphasize individualism and self-interest, framing cooperation as a strategic or utilitarian necessity. However, Indian philosophical thought, particularly as expressed in the Dnyaneshwari, offers a radically different perspective: cooperation as an ontological and spiritual imperative.

Pasaydan, the concluding universal prayer of the Dnyaneshwari, is not merely devotional, but deeply philosophical. *Pasaydan* articulates a cosmological inclusivity beyond any particular sect or religion, where the sphere of concern is not anthropocentric but ontologically universal. It articulates a vision of a world rooted in universal friendship, transformation, and collective well-being. Unlike traditional prayers that seek personal gain, *Pasaydan* transcends individual concerns and invokes a state of universal harmony.

2. Methodology: Qualitative and Interpretative Approach

This paper adopts a qualitative and interpretative philosophical methodology, aiming to uncover the deeper experiential and conceptual dimensions of the *Pasaydan* within the Dnyaneshwari. Rather than relying on a strictly exegetical or textual-critical framework, the study employs a hermeneutic approach that emphasizes meaning-making through reflective interpretation. The focus is not merely on what the text says, but on what it reveals about human existence, consciousness, and the possibility of living through cooperation. The methodology operates across three interrelated dimensions as below.

First, textual interpretation involves a selective engagement with key verses of the *Pasaydan*, especially those that articulate themes such as universal friendship (“*..maitra jeevache*”), transformation of the individual, and collective well-being. These verses are treated not as isolated poetic expressions but as philosophically rich insights into the nature of reality and human conduct.

Second, philosophical analysis is undertaken through the lenses of *Bhakti* and *Chidvilasvad*, where devotion is understood not as ritualistic practice but as an ontological disposition. In this framework, action (*karma*) becomes devotion (*bhakti*), expressed through the principle of “*Karme Ishu Bhajava*”, thereby grounding cooperation in the very structure of being.

Finally, conceptual synthesis integrates metaphysical insights, ethical implications, and practical living praxis, demonstrating how cooperation emerges not merely as a moral ideal but as a lived expression of non-dual reality rooted in Vedanta philosophy.

3. Metaphysical Foundation: Non-Duality and Chidvilasvad

The opening verse of *Pasaydan* establishes a non-dual metaphysical foundation. It says that - Now, may the Supreme God who is the soul of the entire universe be satisfied by this discourse (The Dnyaneshwari) and grant me grace.

“आतां विश्वात्मके देवे | येणे वाग्यजे तोषावे | तोषोनि मज द्यावे | पसायदान हे || (Dnyaneshwari, 18-1793)||”

Here, the invocation to *Vishwatmaka Deva* (the Universal immanent divine) signifies that all beings are manifestations of a single, unified consciousness, and that ultimate reality is not external to the universe but inherent within it. This ontological unity forms the foundation not only for an ethics of cooperation but, more fundamentally, for a lived praxis grounded in cooperative action.

Dnyaneshwar Maharaj advances this ontological exposition in a systematic manner, initiating with the doctrine of *karma* as mentioned in Chapter 8, Shloka 3 of the Bhagavad Gita, wherein Bhagavan Shri Krishna defines *karma* as the primordial generative principle that governs and conditions the manifestation of the empirical cosmos

“श्रीभगवानुवाच । अक्षरं ब्रह्म परमं स्वभावोऽध्यात्ममुच्यते । भूतभावोद्भवकरो विसर्गः कर्मसंज्ञितः ॥ (Bhagavad Gita 8.3) ॥”

Dnyaneshwar Maharaj elaborates this insight in the Dnyaneshwari, interpreting *karma* not merely as action but as the very process through which the unmanifest takes form:

“ऐसा करितेनवीण गोचरु । अव्यक्तीं हा आकारु । निपजे जो व्यापारु । तया नाम कर्म ॥ (Dnyaneshwari 8.29)”

Here, *karma* becomes the dynamic principle through which the invisible (*avyakta*) expresses itself as the visible universe. This interpretation moves beyond a dualistic separation between creator and creation, pointing instead toward a non-dual (*Advaita*) understanding of reality, where the world is not separate from the ultimate.

This insight culminates in Dnyaneshwar’s doctrine of *Chidvilasvad*, where the universe is understood as the joyful manifestation of consciousness (*Chit*):

“म्हणौनि जग परौतें । सारुनि पाहिजे मातें । तैसा नोव्हें उखितें । आघवें मीचि ॥ (Dnyaneshwari 14.127)”

This verse affirms that reality is not to be sought beyond the world, but realized as the world itself. This is an expression of the same universal consciousness. Thus, multiplicity is not denied but understood as the divine playful unfolding (*vilas*) of the one non-dual reality.

Within this framework, *karma* is no longer a binding force but a mode of participation in the divine expression of existence. Every action becomes an expression of consciousness itself. When performed with this awareness, action transforms into devotion, where doing becomes devotion.

Dnyaneshwar further clarifies this integration of action, devotion, and non-dual awareness:

हैं विहित कर्म पांडवा । आपुला अनन्य वोलावा । आणि हेचि परम सेवा । मज सर्वात्मकाची ॥
(Dnyaneshwari 18.906)”

Here, action performed selflessly for others becomes the highest form of service to the all-pervading Self (*Sarvatmaka*) is also referred as *Vishwatmaka* in the first verse of *Pasaydan* as above. This is reinforced by the vision of an all-encompassing consciousness:

“जेणें जग हें समस्त । आंत बाहेरी पूर्ण भरित । जालें आहे दीपजात । तेजें जैसैं ॥ (Dnyaneshwari 18.916)”

Thus, at the heart of Dnyaneshwar Maharaj’s philosophy lies a non-dual ontology where all beings are expressions of one consciousness, and *Chidvilasvad* affirms the world as its living manifestation. In such a reality, action is not separate from being, and cooperation emerges naturally as the expression of shared existence. It is not merely an ethical choice, but an ontological necessity, arising from the recognition that the self and the other are not fundamentally different, but manifestations of the same divine consciousness.

4. Transformation of the Individual Self and Ethical Emergence

Next verse in *Pasaydan*, begins not with perfected or enlightened beings, but with individuals who are morally and psychologically conditioned:

“जे खळांचि व्यंकटी सांडो । तया सत्कर्मी रती वाढो । भूतां परस्परे जडो । मैत्र जीवांचे ॥ (Dnyaneshwari, 18-1794) ॥”

May the wicked abandon their distorted tendencies, may they develop an inclination toward virtuous action, and may all beings be bound together in mutual friendship.

This opening is philosophically profound because it shifts the focus from judgment to transformation. The term *khal* (wickedness) does not denote an essential or permanent identity but rather a contingent state shaped by ignorance (*avidya*), habit, and misdirected understanding. Dnyaneshwar Maharaj, therefore, does not advocate the elimination of such individuals but the transformation of their inner disposition.

Ethical transformation, therefore, is not imposed externally through rules or punishment, but unfolds as a process of inner awakening. As ignorance recedes, the individual gradually reorients from self-centeredness toward an expanded awareness that includes others. In this movement, ethics emerges not as obligation but as a natural expression of understanding. Cooperation, then, is not merely a social arrangement but the lived consequence of this inner purification.

The phrase “*maitra jeevanche*” (friendship among all beings) captures this transition beautifully. It signifies more than emotional goodwill. It points toward an ontological relationality, where the self is not an isolated entity but is fundamentally constituted through its connection with all forms of life.

A meaningful parallel may be drawn with Emmanuel Levinas, who situates ethics in the responsibility toward the Other. However, while Levinas maintains a distinction between self and Other as ethically significant, Dnyaneshwar Maharaj’s vision extends further by grounding this responsibility in non-dual metaphysics. In his framework, the call to care for the Other arises not only from ethical demand but from the realization that the Other is not fundamentally separate from oneself. Thus, ethical emergence in the *Pasaydan* is inseparable from ontological insight, where transformation of the individual self becomes the foundation for a cooperative and harmonious existence.

5. Epistemology of Cooperation: From Ignorance to Awareness

The movement from inner transformation to collective harmony in *Pasaydan* is further deepened through its epistemological insight i.e. by linking cooperation directly with knowledge. The following verse articulates this transition:

“दुरितांचे तिमिर जावो | विश्व स्वधर्म सूर्य पाहो | जो जे वांछील तो ते लाहो | प्राणिजात || (Dnyaneshwari, 18-1795)||”

May the darkness of wrongdoing disappear, may the world be illumined by the sun of righteous duty (*swadharma*), and may all beings attain what they truly seek.

This verse suggests that the roots of disorder, conflict, and non-cooperation lie not merely in ethical failure but in a deeper epistemic condition *avidya*, or ignorance. This ignorance is not simply a lack of information, but a fundamental misperception of reality thereby giving rise to selfishness, competition, and discord.

Dnyaneshwar Maharaj proposes a metaphor of the “*swadharma surya*” (the sun of one’s righteous duty) is significant, for it indicates not an externally imposed moral law, but an inner illumination through which one recognizes one’s place within the larger order of existence. Therefore knowledge is transformative and it does not merely inform action but reconstitutes the very way in which the self perceives and engages with the world. Every action naturally flows toward harmony, mutual support, and collective flourishing.

A useful contrast can be drawn with Immanuel Kant, who grounds morality in rational duty and universal law. While Kant emphasizes adherence to moral principles derived through reason, Dnyaneshwar Maharaj integrates knowledge with lived and experiential realization. In his vision, it is the direct insight into non-dual reality that enables an effortless alignment with the welfare of all beings. Cooperation, in this sense, is not merely a social virtue but the natural expression of an awakened consciousness, rooted in the realization of the fundamental unity of all life.

6. Cooperative Community as Spiritual Ecosystem with Ideal Human and Ethical Beings

Within the philosophical framework of the Dnyaneshwari, the following verses present a profound image of society as a spiritual ecosystem, where individuals are not isolated agents but living centers of consciousness that nourish and uplift one another.

“वर्षत सकळ मंगळी | ईश्वरनिष्ठांची मांदियाळी | अनवरत भूमंडळी | भेटतु भूता || (Dnyaneshwari, 18-1796)||”

May the assemblies of God-centered beings, who shower auspiciousness, continuously move across the earth and meet all creatures.

“चला कल्पतरूंचे आरव | चेतनाचिंतामणींचे गाव | बोलती जे अर्णव | पीयूषांचे || (Dnyaneshwari, 18-1797)||”

These beings are like moving wish-fulfilling trees, conscious wish-fulfilling gems, and oceans of nectar that speak.

The community envisioned here is not transactional or utilitarian; rather, it is sustained by an overflowing abundance that arises from inner realization. Each individual, grounded in the awareness of non-dual reality, becomes a source of well-being for others like a *kalpataru* (wish-fulfilling tree) or *chintamani* (wish-fulfilling gem). In this context, ‘giving’ or ‘service of others’ is not an act of sacrifice but a natural expression of one’s being.

This redefines cooperation in a fundamental way. It is no longer based on exchange, obligation, or mutual benefit, but on the spontaneous sharing. Society, therefore, functions as a living organism, where each part contributes to the flourishing of the entire system. This ideal of community is further deepened through the description of the each realized individual in this society as below:

“चन्द्रमंजे अलांछन | मार्तंड जे तापहीन | ते सर्वाही सदा सज्जन | सोयरे होतु || (Dnyaneshwari, 18-1798)||”

May such beings, pure like the spotless moon and gentle like the non-scorching sun, become the kin of all.

Here, the ethical individual is not defined merely by adherence to virtues but by the embodiment of a transformed consciousness. Purity, like the moon, signifies freedom from ego and distortion, while the sun without heat symbolizes power that does not harm. In this way, the *Pasaydan* envisions a cooperative world sustained by spiritually realized individuals, where community, ethics, and ontology converge into a unified mode of existence grounded in shared consciousness and mutual flourishing.

7. *Karme Ishu Bhajava*: Cooperation as Praxis

The philosophical culmination of this trajectory articulated above is in the Dnyaneshwari through profound principle of “*Karme Ishu Bhajava*” i.e. the offering of all action as devotion. Here, cooperation and service of others are no longer merely ethical ideals or social arrangements; they are elevated into a lived spiritual praxis grounded in non-dual awareness. The Dnyaneshwari expresses this transformative insight with remarkable clarity:

“जे देहवाचामानसैं । विहित निपजे जैं जैसैं । तैं एक ईश्वरोद्देशैं । कीजे म्हणितलैं ॥ (Dnyaneshwari 18-1442) ॥”

“हैंचि ईश्वरी कर्मयोगें । भजनकथनाचें खागें । आदरिलें शेषभागें । चतुर्थाचेनी ॥ (Dnyaneshwari 18-1443) ॥”

“तैं विश्वरूप अकरावा । अध्यावो संपे जंव आघवा । तंव कर्म ईशु भजावा । हैं जैं बोलिलें ॥ (Dnyaneshwari 18-1444) ॥”

These verses articulate a radical reconfiguration of the relationship between *karma* (action) and *bhakti* (devotion). Action performed through body, speech, and mind, when oriented toward the divine, ceases to be merely instrumental or outcome-driven. It becomes an act of worship in itself. This is not ritualistic *bhakti*, bound by formal structures, but a natural (*akritrim*) and continuous offering. Dnyaneshwar Maharaj calls ‘*karma* to be continued even after realization’ as *Dnyanottar Bhakti*. This culmination finds a powerful echo in the *Pasaydan* itself:

“किंबहुना सर्वसुखीं । पूर्ण होऊनि तिहीं लोकीं । भजिजो आदिपुरुखीं । अखंडित ॥ (Dnyaneshwari, 18-1799) ॥”

In above verse, the aspiration for universal well-being (*sarva-sukhi*) is not separate from devotion to the *Adipurusha* (the primordial consciousness). Rather, it is precisely through continuous engagement in action (*karma*) for the welfare of all beings that devotion becomes “*akhandit*” (unbroken or continuous). This represents a decisive philosophical shift i.e. liberation (*moksha*) is no longer conceived as withdrawal from action but as liberation into action. This is a state in which one continues to act, but without ego, attachment, or separation.

Thus, with “*Karme Ishu Bhajava*”, service of others is not an ethical add-on to spiritual life but it is its very fulfillment. In this vision, every cooperative act (*karma*) including every gesture of care, support, and shared responsibility becomes a site where non-duality is not merely understood but lived. In this sense, Dnyaneshwar Maharaj’s philosophical contribution is profound, he transforms *karma* into *bhakti*, *bhakti* into cooperation, and cooperation into the very condition of liberated existence.

8. CONCLUSION

This philosophical inquiry into the *Pasaydan* reveals a deeply integrated vision of human existence in which ‘service through cooperation’ is not merely an ethical ideal but the very expression of reality itself. Beginning from the non-dual foundation of *Vishwatma Deva*, Dnyaneshwar Maharaj establishes that all beings are manifestations (*Chidvilas*) of a single, immanent consciousness. Within this ontological unity, the separation between self and other dissolves, and cooperation emerges not as a choice but as an inevitable mode of being.

The progression of the *Pasaydan* from the transformation of the individual, through the removal of ignorance, to the emergence of a spiritually vibrant community demonstrates that cooperation is rooted

in inner awakening. Ethical life, therefore, is not imposed externally but unfolds naturally as consciousness recognizes its own universality. The idea of “..maitra jeevanche” embodies this shift, where relationality is no longer social but ontological, grounding all interaction in shared being.

This trajectory culminates in the profound principle of “*Karme Ishu Bhajava*”, where action itself becomes devotion. Here, Dnyaneshwar Maharaj introduces the transformative concept of *Dnyanottar Bhakti*, redefining liberation not as withdrawal from the world but as continued participation in it through selfless action. In this state, cooperation becomes praxis which is a lived realization of non-duality where every act of service is simultaneously an act of worship.

Thus, the *Pasaydan* offers a holistic philosophical framework that unites metaphysics, epistemology, ethics, and praxis into a philosophy of cooperative being. It invites us to reimagine human life not as isolated striving but as interconnected participation in a shared reality. In this vision, the highest realization lies not in transcendence away from others, but in ‘serving others as oneself’, where cooperation becomes the very fulfillment of spiritual existence.

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Gandhian Ideas on Village Cooperatives: Formation of A.I.S.A. and A.I.V.I.A. to Achieve Goal of Swadeshi

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Abstract: During the freedom movement against British rule, the Swadeshi Movement played a key factor in shaking the roots of British imperialism which was based on economic exploitation of India. The British rule ruined the age old Indian traditional industries including handicrafts. The British Capitalist gained profit out of the Indian exploitation. The concept of Swadeshi became the influential principle to unite the masses against British imperialism. The pre Gandhian phase of the Indian National Movement witnessed the appeal to the masses on the basis of Swadeshi. This very concept was popularised by the nationalist leaders from the late 19th century. The concept of Swadeshi was corollary to the boycott of the foreign goods as a form of agitation against British rule. The partition of Bengal in 1905 gave a new dimension to Swadeshi. Mahatma Gandhi could see the self-reliance of the Indians through call for Swadeshi. He outlined the constructive ideas through development of the spinning through Charkha and traditional Indian handicrafts in challenge to machine based Industrial Revolution through the focus on the village industries. He visualised cooperative efforts on grassroot level for economic self reliance. This paper is an attempt to show the foundation of All India Spinners' Association (AISA) and the All India Village Industries Association.

Key words: Swadeshi, Charkha, Khadi, Spinners', Village Industry, Hand-Spun, Association.

1.INTRODUCTION:

1920s onwards the Indian National Movement marked the phase as the Gandhian Era. The struggle against imperialism was based on the Gandhian concepts of Satyagraha, Ahimsa (non-violence). The freedom struggle opened the movement on non-cooperation, civil disobedience and it converted the Indian masses into active political struggle. The slogan of boycott of foreign goods was given and the bonfires of the foreign clothes was the activity to agitate against British rule. That was not enough but to provide a channel for the revival of Indian traditional approach towards education, culture, preservation of fundamental values of the Indian society. This also linked with economic development of the country which was dominated by machine made goods and revival of the Indian economy which was ruined due to the Industrial revolution in England. The concept of Swadeshi had to be co-related with revival of traditional Indian industries based on age-old handicrafts for which India was famous before the arrival of the British. It was an effort to set up self-sufficiency for the thousands of the Indian villages and crores of the Indian masses living in the villages who had no option but were dependent on agriculture. The agricultural based economy could not satisfy the needs of the increasing population. The Gandhian concepts to develop the village industries not only from the spinning on the Charkha (hand spun) but to revive the age-old other industries through cooperation of the masses in the villages. It was an attempt to revive the self respect and honour of the masses.

2. Ruination of the Indian Economy under British Rule:

Before the advent of the British the Indian economy was based on agriculture and enjoyed self sufficiency. Apart from the rural economy, the commercially developed towns, the capital cities were known for their handicrafts. The artisans in commercial towns flourished under patronage of the wealthy merchants, aristocrats and royal houses. The town's handicrafts had reached "a high level of development and achieved great artistic quality and commanded a world market". The British conquest of India caused ruination of the Indian economy. The new rulers used Indian agriculture for their commercial benefits. The town industry or the Indian handicrafts declined greatly due to loss of royal patronage, the British trade policies which restricted imported Indian goods in England and other European countries. The development of the industrial revolution in England struck the Indian handicrafts badly in such a manner that "a foreign government together with the influx of the cheap products of foreign machine industry were the principal cause of decline and decay". R.C. Dutt in his *Economic History of India* Vol. I and II, Dadabhai Navroji in his *Poverty and Un-British Rule in India*, M. G. Ranade in *Essays on Indian Economics* and several other economic nationalist explained the causes of the ruination of the Indian economy and drain of wealth from India to England. The decline of the Indian handicrafts and village industry was a deliberate attempt by foreign rulers. There were no reforms made for its revival. Tara Chand observed that "No new industry was created to take the place of handicrafts, nor was any effort made as in Japan, to blend the old handicraft system into a new industrial order".

3. Swadeshi in Gandhian Ideas:

Swadeshi (Indian-made-piece-goods), a concept applicable in the Indian freedom movement had its own dynamism. It was the concept related to the revival of age-old Indian handicrafts and also the purchase of the Indian goods manufactured by the Indian capitalist class. Though there was least support from the foreign rulers, the second half of the 19th century witnessed the emergence of the Indian capitalist class. The production of the industries run by the Indian capitalists were also part of Swadeshi. The anti-partition movement in Bengal of 1905 gave impetus to the Indian capitalist class to challenge their foreign counterparts. Boycott of foreign goods and appeal for Swadeshi became the key factor of the movement. There were attempts made to promote modern industries by Indians. Here the Gandhian concept differs in terms of Swadeshi which had emphasis on the revival of traditional Indian handicrafts. Gandhi could see the evils of the modern civilization based on machine orientation. He was not totally against the use of machines but was against the enslavement of humans by machine. He disagreed on replacement of the traditional Indian handicrafts by machines made goods. Gandhiji wrote in 1909 that "If the machinery craze grows in our country, it will become an unhappy land..... I am bound to say that it were better for us to send money to Manchester and to use flimsy Manchester cloth than to multiply mills in India. By using Manchester cloth we only waste our money; but by reproducing Manchester in India, we shall keep our money at the price of our blood, because our very moral being will be sapped". He disagreed on life without machinery. Gandhiji further pointed out by giving an example that the Indians could make wicks, with home grown cotton and use handmade earthen saucers for lamps. It could save money and support Swadeshi which would lead to attain Home Rule.

In Gandhian ideals, the concept of Trusteeship is also important. Gandhiji could see the complete removal of capitalism was not possible. He did not want the concentration of wealth with few people. He wanted the rich or the capitalist to act as the trustees of the wealth and to see the welfare of the masses. In the Gandhian views the rich should use their additional wealth other than their honourable livelihood for the welfare of the community. According to Gandhiji in independent India there would be an opportunity for capitalists to act as statutory trustees of wealth. The statute would come from below when people understand the implications of trusteeship.

In 1920, the Non-Cooperation movement was started against British rule under Gandhiji's leadership. The object of the movement included the boycott of British goods and the encouragement to Swadeshi, especially Khadi or home-spun, home-woven cloth. The programme of the movement included

distribution of twenty lakh Charkhas as remedy to unemployment. The real concern of Gandhiji was to promote Khadi and cottage industry to provide employment to village masses. According to him the big industries could not provide employment to millions of Indians. The main concern is to establish A.I.S.A. and A.I.V.I.A. was to minimise use of machines. He had no objection to use of modern machines provided that the character of village industry was to be maintained. In concern with unemployed villagers, Gandhiji explained that “something is needed to keep their hands and feet engaged in order that they may earn an honest living. It is for them that Khadi and cottage industries are needed. These little things add substantially to the income of poor villagers.”

4.All India Spinners’ Association (AISA):

From 1924 onwards Gandhiji was preaching for Charkha-hand spun and Khaddar (Khadi) extensively. In his tour in India, Gandhiji spoke about propagating Charkha. In late May 1925, Gandhiji visited Shantiniketan in Bengal and met Gurudev Ravindranath Tagore. In his interview with Tagore, Gandhiji explained the length of his Charkha and Khaddar programme. Mr. Gandhi explained the necessity of hand-spins that spin for a very limited time every day by educated classes in order to represent in a living way, would reflect their sympathy with the poor and the oppressed, and the brotherhood of man. In his speech at Shantiniketan, Gandhiji said that Charkha would help to resolve the provincial differences and help to ‘overcome narrowness’ for a united India. He appealed to the students that “if there is no khadi, the whole country will remain sunk in utter poverty”. In his speech at Calcutta on the occasion of the Lokmanya Tilak’s death anniversary, Gandhiji on achieving Swaraj for the masses, made appeal to people that “they must have to work for it through charkha and khaddar and thus identify them with the poor, starving millions of Hindustan..... they would discard foreign cloth and take to swadeshi homespun and hand-woven cloth.”

Gandhiji wanted to give organizational structure to the spinning activity. But he wanted the new organisation to be free from political association. On 22nd September 1925, in the meeting of All India Congress Committee passed a resolution to establish the All India Spinners’ Association. The Congress already established the All India Khadi Board. But it was facing difficulties. Gandhiji wanted to establish a new association in place of Khadi Board with no role of political organisation to shape its policy. The AISA would be a purely commercial body to look after the economic side of khaddar.

Gandhiji drafted the constitution of AISA. It is the best example of the novel ideas of the Gandhian thought process. At first the constitution of AISA declared that it was in need of ‘an expert organization for the development of hand-spinning and khaddar’ with independent existence and powers. The objectives of the AISA was described in form of powers of councils which included other than financial aspects were “to help or establish schools or institutions where hand-spinning is taught, to help or open khadi stores to establish a khaddar service, to act as agency on behalf of the Congress to receive self-spun yarn as subscription to the Congress and to issue certificates”. The membership of AISA was based on Gandhian principles. The membership was open to any eighteen year old person and the members were categorised into A and B class. The member who habitually was wearing khadi and could deposit regularly from month to month 1,000 yards of self-spun yarn well-twisted and uniform was considered as A class. The category of B class members consisted of persons above eighteen years of age habitually wearing khadi who pay an annual subscription of 2,000 yards of self-spun yarn, well-twisted and uniform.

5.All India Village Industries Association (AIVIA):

Gandhiji was worried about the loss of village industries or local products which were providing earnings to the villagers in the pre British era. The village industries could not compete with the machine oriented industries. In 1930’s Gandhiji paid his attention to the revival of the village industry in India which had lost its fervor as they could not raise competition to foreign goods or products from the industrial cities of India. He made his emphasis on the rehabilitation of the village industries who were neglected with the advance of the machineries. He made a plea that the village products “must be

preferred to the corresponding foreign products. If they were in danger of extinction from foreign competition they should receive the needed support..... What is needed is protection of the village crafts and the workers behind them from the crushing competition of the power-driven machinery, whether it is worked in India or in foreign lands". The revival of the village industries was connected with the moral, social principles of the Gandhian thoughts. Gandhiji made appeal that "If, therefore, we as individuals believe that revivification of India's villages is a necessity of our existence, if we believe that thereby only can we root out untouchability and feel one with all, no matter to what community or religion they may belong, we must mentally go back to the villages and treat them as our pattern, instead of putting the city life before them for imitation".

In mid 1934, Gandhiji was working on the establishment of village industries association at All India level. In his statement to the press, Gandhiji explained the village work was to be carried out. He stated four kinds of village work such as (i) to encourage and improve the known industries that are likely to perish for want of support; (ii) to take charge of and sell the products of those industries; (iii) to carry on the survey of such village industries as need to be revived and supported; and (iv) to attend to village sanitation and hygiene. Gandhiji made it clear that the proposed Association was to be entirely non-political and with the object of the economic, moral and hygienic uplift of the villages of India.

On 14th December 1934, AIVIA was formed. The constitution of the AIVIA has specified the objects, activities of the Association. AIVIA was translated as Akhil Bharat Gram Udyog Sangh. The constitution of the Association described its objective as "village reorganization and reconstruction, including the revival, encouragement and improvement of village industries, and the moral and physical advancement of the villages of India". The activities of the Association included fund raising to carry on research work, publish literature, organize propaganda, establish agencies, devise measures for the improvement of village tools, and do everything which was necessary for the furtherance of its object. The norms of membership included a pledge by which the member would fulfil the obligations to the villagers and should 'recognize no distinction between man and man'.

6.CONCLUSION:

The foundation of AISA and AIVIA was the nation building activity through the spread of cooperation among the village masses. It was an attempt at nation building based on the Gandhian principles of Swadeshi, trusteeship and moral values. The base of these Associations were Gandhian ideas and it had non-political orientation for economic upliftment of the villages. Through these Associations, Gandhiji wanted to revive the village industries distinguished from the Khadi. Gandhiji always made it clear that the village industries other than Khadi could make the plea for Swadeshi stronger. The goal of these village industries was unanimously economic. Gandhiji wanted to provide employment to impoverished villagers. According to him the Swaraj was to be achieved with economic equality. In the first two decades of the 20th century when the world was attracted towards machine made goods, Gandhiji was propagating less use of machines to produce daily livelihood. He wanted cooperation among the rural and urban areas for the development of the village industries. Gandhiji appealed to the urban citizens to promote the cause of the villages by supporting the village industries. Gandhiji advocated small units of village industries. The formation of the AISA and AIVIA was an experiment to give organised structure to Khadi, Charkha and other village industries as well as for their revival. These things were necessary to achieve Swaraj by gathering support of the masses under the banner of Swadeshi.

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Do Young Citizens Owe Participation? Rethinking Duty, Agency, and the Reluctant Citizen in Cooperative Societies

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Abstract: Picture young people today- scrolling through their social media feeds filled with climate protests and existential struggles of the war being told they owe their time to cooperatives and democracies. Contemporary systems treat youth participation as a moral and civic necessity to keep things running smoothly. But patterns of disengagement from formal structures, selective activism in issue-based causes, and deep distrust in unresponsive institutions raise a key question: do young citizens really owe participation in cooperative life as a moral duty?

This paper unfolds like a thoughtful discussion among scholars, examining why traditional deontological frameworks—from civic republicanism's emphasis on active citizenship, Kant's universal obligations, to Indian Philosophy's dharma as fulfilling one's righteous role—often fall short. These approaches overlook the lived realities of youth: structural inequalities that stack the odds, voices sidelined in decision-making, and trust eroded like well-worn paths after the rains.

Drawing on Carol Gilligan's ethics of care, participation emerges not as a rigid checklist of duties, but as cooperative agency, a natural spark of engagement rooted in genuine relationships, a real sense of belonging, and understanding one's place in the collective. The "reluctant citizen" isn't apathetic or irresponsible; they push back against imposed or inauthentic forms of cooperation, holding out for meaningful involvement.

Indian philosophy enriches this perspective with nishkama karma (selfless action without attachment to outcomes), lokasangraha (actions sustaining world harmony), and Vedanta's relational self—where the Atman connects all beings like an invisible thread. From these, the paper develops participatory selfhood: cooperation as an expression of interconnected awareness, arising freely rather than from external pressure.

Ultimately, sustainable cooperatives do not rely on enforced participation. They thrive by creating conditions like trust, equity, relevance that invite young people to engage because it feels authentic and right, not because it's demanded.

Keywords: Youth participation; Cooperation; Moral duty; Participatory selfhood; Ethics of care; Cooperative agency; Reluctant citizen; Indian philosophy; Civic engagement.

1.INTRODUCTION:

Picture a bustling community cooperative in a Mumbai neighbourhood, where elders gather to discuss shared resources, and young voices are expected to chime in. It's a common scene in housing societies,

student unions, and local governance bodies across India and beyond. Democratic and cooperative systems, at their core, thrive on this kind of active involvement, especially from the youth. It's not just about casting votes or attending meetings; participation breathes life into collective decision-making, builds trust in institutions, and weaves a tapestry of shared responsibility that holds societies together.

Yet, if you talk to young people today- those scrolling through social media feeds amid economic pressures and climate anxieties, you'll hear a different story. Formal participation, like showing up to vote or joining political parties, is waning. In India, voter turnout among 18-25-year-olds hovers around 50-60% in many elections, far below older groups, while membership in traditional organizations plummets. But let us not mistake this for apathy. These same youth are driving digital campaigns, organizing flash protests for climate justice, or building grassroots mutual aid networks during crises like the COVID-19 lockdowns. It's as if they're saying, "We will show up, but on our terms."

This paradox sparks a profound question: Do young citizens *owe* participation in cooperative life? Is it a moral debt they must pay, or does demanding it miss the mark? Traditional views treat it as a non-negotiable duty, but they often ignore the gritty realities—distrust in corrupt institutions, barriers of inequality, and a hunger for engagement that feels real. This paper steps into that tension, arguing that participation isn't a universal obligation. Instead, it's best seen as *cooperative agency*: a natural outgrowth of genuine connection, a sense of belonging, and an honest grasp of one's place in the collective. By rethinking it this way, we move from merely criticizing the "reluctant" youth to understanding their quiet revolution.

2.The Normative Claim: Participation as Duty in Cooperative Life

Let us start with the classic narrative: participation is a moral duty. In democratic theory, thinkers like Carole Pateman have long argued that without citizens actively involved, the whole system crumbles. It's the glue of self-governance- everyone pitching in to keep the machine humming. Kant, that stern Prussian philosopher, would nod approvingly: moral life demands we act from duty, not whim. Skip the voting day, and you're not just lazy; you're shunning a universal imperative.

In Indian thought, this echoes *dharma*—that profound idea of righteous duty. The Bhagavad Gita urges Arjuna to act according to his role in the cosmic order, not for personal gain but for the welfare of all. In a cooperative society, your duty might mean attending meetings or contributing to the common fund, sustaining the group's harmony like threads in a woven cloth.

This duty-argument has a strong appeal. It creates stability; imagine a cooperative where no one participates- bills unpaid, decisions stalled. Yet, here's where it frays. Walk into any college campus or urban slum, and you'll find young people being skeptical about the structures. Studies like Flanagan and Levine's show why: institutions often feel rigged, unresponsive to youth voices on jobs, education, or the environment. When a local cooperative ignores demands for transparent elections, why owe it your time? Duty starts to feel like a one-way street, hollowed out by lived betrayal.

The bottom line is -obligation without legitimacy is like a promise whispered to the wind—it evaporates. For participation to sustain, it must have its roots in reality, not just abstract morals.

3.The Reluctant Citizen in Cooperative Contexts

Consider Rahul, 22, from Pune—he ignores invitations to the local political constituency's citizen engagement forum, branded 'apathetic' by council representatives. Yet this same Rahul led a viral social media campaign for improved public transit and crowdfunded emergency aid during last year's monsoon. Is he reluctant, or just picky?

This very "reluctant citizen" haunts discussions on youth engagement. Pundits decry it as moral laziness, a ticking bomb for democracy. But let's humanize it. Research from Checkoway reveals it is not simply rejection, but a conscious discernment. Young people distrust systems tainted by nepotism

or elite capture, like many Indian cooperatives where older members dominate. They are interested in impact and not rituals.

If we reframe reluctance as critical engagement: a "no" to hollow gestures, a "yes" to what works, we realize, Rahul is not opting out; he is redesigning cooperation, from digital petitions to neighbourhood clean-ups. This isn't failure, it's evolution.

Understanding Apathy: From Disengagement to Agency

What appears as youth "apathy" is too often dismissed as moral laziness or generational indifference—which is a simplistic label that discounts for deeper structural, psychological, and experiential currents. Let us remember Rahul skipping his ward committee meeting isn't from lack of care, but because years of watching the same councillors dominate discussions, development contracts awarded to relatives, and youth suggestions dismissed have eroded any faith in the political process. This perceived apathy is less a character flaw than a rational response to systemic disconnection.

Institutional distrust forms the bedrock of this attitude. Today, young people encounter political and cooperative structures—municipal ward committees, student political wings, local constituency forums that consistently fail to deliver. Decisions drag without tangible impact, leadership rotates among familiar party faces, and genuine influence feels illusory. When Rahul sees his public transport complaints ignored while the councillor's relative secures the road contract, trust dissolves. Data bears this out: Indian youth voter turnout lags 15-20% behind older cohorts, with studies citing "perceived inefficacy" as primary.

Relevance gap compounds this. Formal participation mechanisms feel disconnected from immediate realities—skyrocketing rent prices, precarious hand to mouth jobs, climate anxiety, and mental health struggles. A two-hour ward councillor meeting debating streetlight placement or shopkeeper parking disputes cannot compete with the urgency of negotiating with landlords or organizing digital rent strikes. Youth concerns like affordable housing, digital inclusion, and mental health resources rarely grace agenda papers, rendering participation feel like box-ticking exercises.

Information overload completes the triad. Contemporary youth inhabit a 24/7 digital firehose: climate collapse headlines, political scandals, global conflicts, economic precarity, war— all demanding attention simultaneously. This cognitive overload triggers **decision fatigue** and **moral desensitization**. When every crisis competes for limited emotional bandwidth, withdrawal becomes protective, not pathological. The constant "something must be done" drumbeat without clear action paths leads to paralysis, not mobilization.

The aforementioned trifecta— distrust, irrelevance, cognitive overload, creates **disconnection and disempowerment**. Apathy isn't absence of values; it's absence of viable channels aligning values with impact. Rahul doesn't lack civic spirit; he lacks evidence that his spirit matters.

The pivot from apathy to agency requires three conditions:

1. **Meaning:** Participation must resonate with lived realities. When ward committees tackle actual youth concerns—mental health support, affordable rentals, job placement networks, reliable public transport, and gig worker protections—engagement surges.
2. **Belonging:** Youth need visible evidence their voices shape outcomes. When Rahul sees his suggestion implemented or his digital petition sparks real discussion, belonging takes root.
3. **Empowerment:** Concrete capacity to act— training, resources, decision-making authority transforms intent into impact. SEWA's youth pre-cooperatives demonstrate this: skill-building along with real leadership roles transform disengagement into ownership.

Agency cannot be compelled through moral lectures or mandatory attendance. It emerges when systems become **responsive, relevant, and reciprocal**. Apathy transforms not through obligation, but through

environments where cooperation feels like natural extension of one's values and capabilities. When these conditions align, participation flows organically youth don't need to be told to show up; the system earns their presence.

4.The Limits of Obligation in Cooperation

Duty sounds reasonable until you notice the inequality. Imagine two young women- Priya, from a well-off family with time, resources and networks, breezes into a leadership role. Sneha, a daily-wage worker with two children and long shifts, cannot afford to participate politically or otherwise, there are so many structural hurdles for her-class, gender, education, etc.

Ballard and colleagues highlight how participation often amplifies these divides, turning cooperatives into echo chambers. Imposing duty here is as unjust as demanding someone with a broken leg to run a marathon. Obligation assumes a level field; without it, it is coercion dressed as ethics.

In India, where caste and economic gaps persist, this rings true. Youth from the marginal sections are not reluctant; they're rationally absent, protecting energy for survival.

5.Is Cooperation Always Good? A Critical Reflection

Cooperation gets romanticized: hands joined in solidarity, everyone winning. But let's peel back the glow. We have all seen cooperatives where endless meetings drain volunteers, leading to a state of burnout—like the overworked youth committee in a Delhi society that fizzled after token projects.

Or tokenism is also evident: a young voice invited to "participate," only to be nodded at politely. Worse, cooperation can entrench power; marginalized groups sidelined, inequalities baked in. During India's farmer protests, some cooperatives excluded dissenting youth, fracturing solidarity.

Cooperation is not purely good—it is messy, and also capable of harm. If so, why accept that we owe it blindly and universally? This ambivalence demands we question participation's moral pedestal.

6.From Obligation to Cooperative Agency

It is also important to note that the youth aren't withdrawing in entirety. In Mumbai's Dharavi, young entrepreneurs form digital cooperatives for waste recycling, bypassing formal structures. Globally, #FridaysForFuture mobilizes millions without ballots.

The real question shifts: What cooperation lights their fire? It is *cooperative agency*: engagement that is born of choice, tied to values and connection. It's not owed as duty; it blooms when systems feel welcoming, impactful.

7.Philosophical Reconstruction: Participation as Cooperative Selfhood

To transcend duty's constraints, we need a fresh lens: *participatory selfhood* in cooperation. This isn't mere involvement; it's when individuals experience themselves as woven into the collective fabric, their actions flowing from inner alignment rather than external pressure. Far from the idealistic frameworks, it draws vitality from relational ethics and Indian philosophy, offering a humane middle-path for the reluctant youth.

Let us start to understand this with Carol Gilligan's ethics of care, in which Gilligan (1982) roots in lived relationships over abstract rules. She argues that participation thrives in relationships where there is care for self, others, community, not when it is perceived as a cold duty. Care is not a universal norm; it deepens contextually, it is responsive. Care thus sees the self as inherently relational shaped by networks of family, community, and vulnerability. Moral action emerges contextually: not "what must I do?" but "how do I respond to this bond?" Contemporary Indian scholarship extends this; for example, Reshmi Parveen's analysis links Gandhian *ahimsa* and *satyagraha* to care ethics, portraying care as

transformative power amid injustice, not sentimental power amid injustice. It makes the case for a sentient defiant; who are withholding care from unresponsive systems, awaiting relational reciprocity.

Vedanta takes it further: your *Atman*- the true self is not some standalone ego. It's *Brahman*, that universal essence flowing through you, me, and everyone else like a single heartbeat in different bodies. Brihadaranyaka Upanishad speaks of the *sutra* that subtle thread holding 'this world, the other world, and all beings together.' This relational selfhood shows our deep interdependence; your actions ripple outward like a stone dropped in a pond. Isolation is just *maya* (illusion, or our ignorance about the true nature of the self) and true realization dawns when we see the unity in all beings. Modern Vedantic thinkers in inter-faith dialogue emphasize that this interconnectedness builds harmony across all divides, urging us to 'connect the ego to the infinite.'

The Bhagavad Gita brings this alive for participation. *Nishkama karma*—selfless action without attachment to results (BG 2.47, 3.19)—frees the youth from the heavy burden of moral compulsion. Krishna tells Arjuna: 'Act dutifully, but let go of the outcomes.' Ego changes the course of our efforts and inaction makes us lethargic. For reluctant citizens, this means engaging without resentment contribute to the fund, show up when called, but don't burn out chasing 'success.' It is empowering, it emphasizes on real agency through detachment.

Lokasangraha – philosophical and social idea of world sustaining harmony completes the frame. Sankara interprets it as cooperative spirit for collective welfare, recognizing interdependence. Actions aren't solitary; they are those that help to co-evolve systems. In modern terms, it is systems thinking: youth participation sustains *lokasangraha* when meaningful, like SEWA's Srujan program, where young women build digital cooperatives, blending personal growth with communal resilience.

The author, thus argues for participatory selfhood which synthesizes these: self-realization as cooperative expression. The Vedantic relational self meets care's humility—youth engage when cooperatives mirror interconnected existence, evoking belonging. There is no duty-shaming; instead, nurture conditions (trust, equity) for emergence of youth-engagement in co-operative societies. There is empirical backing to this- Indian studies show constitutional duties (Article 51A) inspire participation when tied to lived agency, as in Panchayati Raj youth initiatives. Let us revisit Rahul from Pune- His flood aid embodies *nishkama karma* in selfhood—natural, unattached cooperation. This reconstruction honours the lived realities of youth: reluctance as wisdom, agency as the ethic. It is what enhances and equips cooperatives for sustainability.

8.CONCLUSION:

We have, thus, journeyed from the rigid demands of duty to the living flow of agency. Young citizens don not owe participation as a moral duty, they offer it when conditions align- trust, equity, meaning. What we outwardly perceive as a reluctant citizen is in fact, a wise selector, demanding authenticity.

The analysis offered in this paper carries significant implications for cooperative systems, public policy, and moral education.

For cooperatives, the path forward lies in moving beyond obligation where participation is consensually accepted as a right, and not a cold duty. Rather than enforcing attendance through moral expectations, cooperative structures must prioritize trust-building and mutual recognition, and move toward inclusive, dialogical engagement by actively incorporating diverse voices to cultivate genuine belonging.

Public policy must respect youth autonomy while recognizing the limits of coercive measures. Mandating participation without addressing structural inequalities or institutional distrust only deepens alienation. Instead, policies should focus on creating enabling conditions—removing barriers, ensuring accessibility, and making engagement meaningful rather than punitive.

Moral education requires a fundamental shift from duty-based instruction to cultivating agency, critical thinking, and relational ethics. Young people need tools to engage thoughtfully with cooperative life, not just rules to follow.

At its core, this analysis reveals that youth disengagement represents not failure, but critical interrogation of participation's forms and expectations. Sustainable cooperation cannot depend on obligated citizens fulfilling external duties. It requires engaged, self-aware individuals who participate from within, from a place of understanding, authentic connection, and voluntary commitment. When these conditions exist, participation flows naturally; when they don't, no amount of moral suasion will suffice.

Cooperative societies endure not by mandates, but by nurturing participatory selfhood. Let's build those spaces.

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The Orange Economy Supports Socio Economic Progress Through Cooperation.

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Abstract: *The creative economy (also known as the orange economy) is an evolving concept based on the contribution and potential of creative assets to contribute to economic growth and development. And cooperation is our Indian culture. India's cooperative movement represents one of the world's largest socio-economic phenomena. This paper focuses on the orange economy and cooperation jointly embracing economic, cultural and social aspects interacting with technology, intellectual property and tourism objectives: it is a set of knowledge-based, and thus more localized, economic activities with a development dimension and cross-cutting linkages at macro and micro levels to the overall economy. A common characteristic is that the creative economy has a multitude of dimensions, making contributions to economic, social, cultural development and has a potential for contributing to achieving the sustainable development goals.*

Key Words: *Creative Economy, Cooperation, socio-economics development, culture, Sahkarita Mahakumbh.*

1.INTRODUCTION:

India is one of the most populous countries in the world, having surpassed China in 2023 to become the largest by population. With over 1.4 billion people, it has a young demographic profile, where a significant portion is 16 to 59 years old. This creates both opportunities and challenges. This creates a huge labor force that can drive economic growth. A large workforce, increased demand for jobs, and rapid digital adoption these three factors together show that India has immense growth potential, but it must manage resources, create jobs, and invest in development to fully benefit from its population advantage. A large workforce is one of India's greatest strengths, but it also creates a pressing need for employment opportunities. With a significant portion of the population in the working-age group, millions of people enter the job market every year. This growing labor force has the potential to drive economic growth and increase productivity. However, without sufficient job creation, it can lead to unemployment, underemployment, and social challenges. Therefore, generating adequate and meaningful employment across sectors—especially in emerging areas like services and creative industries—is essential to fully utilize this workforce and ensure sustainable development. The growing workforce in India makes it essential to focus on skills and creative jobs for sustainable development. To promote creative sectors like films, animation, gaming, design, digital money transaction, fintech and media, the term 'Orange Economy' was first used in India's budget in the Union Budget 2026–27, where the government highlighted creative industries as a new source of employment and economic growth. Indian culture is based on cooperation. Cooperation is a key feature of Indian culture and overall prosperity in society. So this research paper is based on the combination of effects of cooperation and the orange economy. The study suggests cooperatives contribute significantly to creative economic

growth in every sector yet face severe limitations related to governance and poor market access. Lasting impact is achieved when the policy meets the skills and innovative ideas.

2.OBJECTIVES OF THE STUDY:

1. To review the progress of the orange economy in India
2. To investigate how creative hubs and cooperativism provide essential management, administrative support, and career services to independent creators.

3.RESEARCH METHODOLOGY:

A descriptive and analytical research design was adopted by study using secondary data evaluating the role and impact of co-operatives in fostering economic growth across creative sectors.

4.LIMITATIONS OF THE STUDY

Study constraints exist largely due to reliance on existing literature and secondary data. Generalizability may be constrained by the diversity of cooperative models. Rapid changes in policy and digital technology may affect long-term findings.

5.Cooperation:

Ancient Indian culture includes working together, helping one another, and collective progress. From family life to festivals, community activities, and agriculture, cooperation is a central value that strengthens unity, harmony, and social well-being. Cooperatives have long been the backbone of rural self-reliance and self-sufficiency in India, particularly in agriculture, dairy and credit sectors. By leveraging collective action, these institutions empower marginalized communities through access to credit, markets and sustainable practices. This article analyzes the role of cooperatives in strengthening India's creative and innovative economy. Cooperatives play a significant role in enhancing Indian livelihoods by generating employment and improving standard of living.

6.Orange Economy/ Creative Economy:

India has always had a rich tradition of art, culture, creativity, classical music, dance, handicrafts and storytelling. With modernization and technology, these traditional strengths began transforming into economic opportunities. In India, the concept of the Orange Economy has gained importance alongside the country's large youth population and rapid digital growth. Although the term was introduced globally, its ideas are strongly reflected in India's expanding creative sectors. In India, the Orange Economy did not start as a single event but evolved from its deep cultural roots and rapidly growing digital ecosystem. Today, it plays a vital role in creating jobs, boosting innovation, and showcasing India's creative power to the world. The term 'Orange Economy' refers to economic activities that are based on creativity, culture, and intellectual property. It includes sectors like art, music, film, design, media, and digital content. There is not a single definition of creative economy and the different definitions usually overlap.

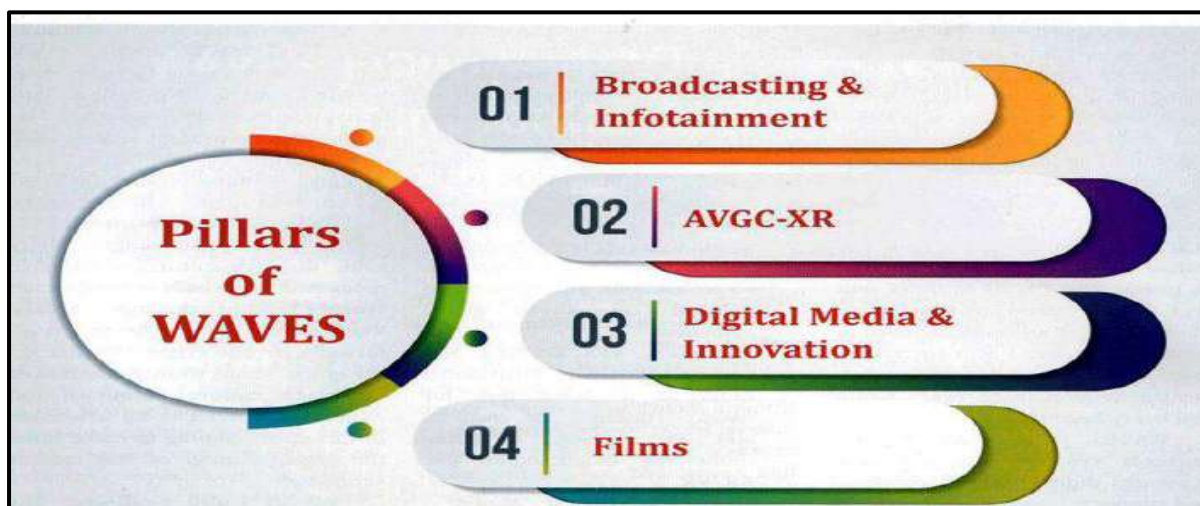
India is shifting from seeing culture as just 'heritage' to seeing it as a 'generative economy' where technology serves the community. Cooperation means moving from being 'job seekers' to 'value creators' for youth who have a vote in their own workplace. At the same time, creative jobs are becoming increasingly important in today's economy. Fields like media, design, animation, content creation, and fashion offer new opportunities, especially with the rise of digital platforms. These jobs encourage innovation, self-expression, and entrepreneurship, allowing individuals to generate income in flexible ways. The twenty-first century is being shaped as much by imagination as by industry. Economic strength is no longer measured only in factories and freight corridors, but in intellectual property, digital platforms, and cultural influence. Ideas travel faster than goods, narratives move markets, and creative ecosystems increasingly determine how nations are seen, heard, and partnered globally. In this environment, the creative economy has emerged as a defining arena of growth and strategic presence. The creative economy includes industries where value is generated primarily from creativity, culture, technology, and intellectual property. It includes media and entertainment, animation

and visual effects, gaming, live cultural experiences, and digital content platforms that operate across borders at scale. These are not peripheral cultural pursuits. They are technology-intensive, globally tradeable sectors embedded within modern services economies and international value chains.

Globally, creative industries have moved from cultural margins to the economic mainstream. Across countries, they contribute between 0.5 and over 7 percent of GDP, with live entertainment generating strong spillovers across tourism and urban services. Within this global transformation, India's creative economy is emerging as a major pillar of growth, employment, and value creation. Indian culture, creativity, technology, intellectual property and Government initiatives all are working together to achieve the goal of economic growth and development.

7. Presently India at Scale:

- 9 The media and entertainment sector was valued at approximately ₹2.5 trillion in 2024.
- 10 Digital media accounts for around one-third of sector revenues, reshaping production and distribution models.
- 11 High-growth segments are scaling rapidly:
- 12 Animation and visual effects: ~₹103 billion
- 13 Gaming: ~₹232 billion
- 14 Live entertainment: ~₹100 billion+
- 15 The sector supports over 10 million livelihoods, directly and indirectly.
- 16 Annual output stands at approximately ₹3 lakh crore.



Source: WAVES: Empowering India's Creative Economy for the Global Stage (May 2025)

Government Initiatives (Budget 2026-27)¹

- **WAVES 2025 (World Audio Visual & Entertainment Summit):** The first World Audio Visual and Entertainment Summit organised in Mumbai marks a significant stride positioning India at the heart of the global creative economy. This landmark event in Mumbai that brought together over 100 countries and 1 lakh participants.
- **WAVES Bazaar:** It was officially launched on January 27, 2025, at the National Media Centre, New Delhi. A year-round digital marketplace where creators pitch scripts, music, and comics directly to global investors and producers. It is a one-of-a-kind e-marketplace that brings together stakeholders from across the Media & Entertainment spectrum—including film, television, animation, gaming, advertising and more.

¹ <https://www.pib.gov.in/Aboutpib.aspx>

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2197101®=3&lang=2>

- **WaveX:** A startup accelerator with seven national incubation centers, including the flagship at the Indian Institute of Creative Technologies (IICT) in Mumbai.
- **Marketplace & Entrepreneurship Platforms-** Marketplace and entrepreneurship platforms are digital intermediaries that connect buyers and sellers, allowing entrepreneurs to list products or services without holding inventory or operating physical stores SHE-Marts is a 2026 initiative for Self-Help Entrepreneurs (SHE) that creates community-owned retail outlets. These platforms help rural women transition from small-scale work to owning formal branded enterprises.
- **The MyWAVES Platform** is a dedicated citizen-creator portal on the WAVES OTT platform. It allows rural talent to directly upload and monetize regional content, stories, and traditional arts for a global audience.
- The PM Vishwakarma Scheme provides a Central Sector Scheme launched on September 17, 2023, to provide holistic support to traditional artisans and craftspeople'. It also provides end-to-end' support for traditional artisans (engaged in 18 trades). This includes digital literacy training, modern toolkits, and onboarding onto e-commerce platforms to reach wider markets

Overcoming traditional limitations set by gender, caste, geography, class, and more, the internet empowers creators across social, regional, and economic divides. This opens immense possibilities in creative industries, enabling a revolutionary shift in India's economic landscape. The entry into fields like music, film, or publishing no longer requires social connections or urban access. As digital platforms like YouTube and Instagram democratise creative expression, talented individuals from rural areas, marginalised castes, or underrepresented genders can now produce, share, and monetise their content directly with global audiences. This is not only expanding the scope of the creative industry in the country but also creating a new layer of economic participation.

With nearly 1 billion smartphone users and around 900 million internet users, India offers a vast market for creative industries. The strong rural penetration of the internet allows content creation in vernacular languages, breaking linguistic barriers for both the audiences and creators. This further increases employment opportunities in creative fields while helping traditional arts and cultural forms in different regions find a global audience and market. However, the growth of creative industries in India is not without challenges. A significant portion of the population, especially in rural areas, still lacks access to the internet and digital literacy. Despite widespread internet penetration, only about 38% of Indians are digitally literate. The lack of digital literacy not only limits participation in digital creative spaces but also hinders the full growth potential of India's orange economy. Only through focused efforts and effective policy interventions to bridge this digital divide can India fully realise the promise of its orange economy.



Source: Press Information Bureau (PIB), Govt. of India, New Delhi.

8. Orange Economy and opportunities

Doubts are often raised about new changes in the economic system. New technological changes will bring many economic and social problems, confusion will come, development will not be achieved, etc. But the new creative economy has proven all these predictions false.

“It is better the devil you know than the devil you don’t.”²

The largest and most transformative business opportunities go to those who dare to innovate and adopt early. India's transition from "Make in India" to "Create in India" represents a strategic pivot toward becoming a global hub for Intellectual Property (IP), innovation, and the Orange Economy. This shift opens significant opportunities for creators, startups, and investors by focusing on value generated through creativity and technology rather than just physical manufacturing.

The "Create in India" challenge and WAVES (World Audio Visual & Entertainment Summit) aim to connect Indian creators with international partners for co-production and licensing, shifting from a service-provider model to an IP-owner model.

Public-Private Partnerships (PPP) refers to the government partnering with major players like Google, YouTube, and Netflix for training and skill development in AVGC (Animation, Visual Effects, Gaming, Comics) fostering a collaborative ecosystem for creators.

9. Economic Effects

- **Job Creation:** The sector supports over 10 million livelihoods in India. Projections indicate a need for 2 million new professionals by 2030 specifically in the AVGC (Animation, Visual Effects, Gaming, and Comics) sector. The creative industry currently employs roughly 8 to 10% of India's working population. About 1 in every 12 workers in India earns their living through
- **Creative work**—from local artisans and designers to filmmakers and digital creators. These sectors are noted for employing higher proportions of women and workers from marginalised or informal backgrounds. Low Entry Barriers, Flexible Work Models, Valuing Identity and Informal to Formal it helps people move into structured digital marketplaces where they can get fair pay and reach more customers.

10. Social Relevance (Rural & Local Empowerment)

1. **Mahakumbh Mela (2025):** Exemplified the "experience economy" by generating ₹2.5 lakh crore in revenue. It integrated traditional artisans with digital platforms, reaching over 400 million visitors and creating 80,000 jobs. The Kumbh Mela acts as a massive employment generator like Tourism and Hospitality, Transport Services, Retail and Food Vendors beverages, religious paraphernalia and Event Management and Support Services. It exemplifies how cultural and religious events can drive economic development on an extraordinary scale. The event remains a testament to India's ability to blend tradition with modern economic opportunities. The event saw over 5 million social media mentions, utilizing digital storytelling to attract 400 million visitors, including 1.5 million international tourists. In a strategic move, the Uttar Pradesh government dedicated 2025 as the "Sahkarita Mahakumbh" Year, marking a shift toward using cooperatives as a backbone for rural and creative economic growth.

● Social Progress -

The creative economy is uniquely good at bringing people from the informal sector (like street performers, folk singers, and village weavers) into the formal economy. By giving them digital tools and platforms, they gain:

² <https://www.pib.gov.in/Aboutpib.aspx>

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2197101®=3&lang=2>

John Taverner's Proverbs of Erasmus (1539)

In the context of the Orange Economy, cooperation involves building global and domestic networks to transform India's creative talent into a scalable economic force. India is increasingly using cultural diplomacy and strategic partnerships to move from being a service provider to a global leader in creative technology.

11. Orange Economy & Creative Impact

The Mela transformed traditional religious practice into a high-value "experience economy," integrating local artisans and modern startups.

- Handicrafts and ODOP: The One District, One Product (ODOP) exhibition, spanning 6,000 square metres, featured regional specialities like Banarasi brocade and Firozabad glass toys, with sales projected to reach ₹35 crore.
- Creative Branding: Meticulous branding of Mahakumbh-themed merchandise (diaries, calendars, and jute bags) led to a 25% surge in sales for local traders.
- Digital Entrepreneurship: The event sparked "creative innovation," such as photographers offering "Digital Snan" (digitally enhanced spiritual bath images) for ₹1,100 and local youth turning neem tooth sticks into a ₹40,000 business in less than a week.
- Employment Creation: The event generated over 1.2 million jobs, particularly in the tourism, hospitality, and handicraft sectors, which are central to the creative economy.
- Smart Management: Plans include AI-based crowd monitoring, real-time density checks via a mobile app, and integrated e-pass systems for Shahi Snan dates.
- Innovation Sandbox: The Kumbhathon Startup Festival has been established to allow startups to ideate and test new technologies for event management, sustainability, and digital public goods.
- Economic Projection: The event is expected to generate ₹30,000 crore in economic activity, providing a massive boost to local creative and hospitality sectors.

12. RECOMMENDATIONS:

(A) Recognize cultural and creative industries as a pillar of development and the nurturing of creativity as central to the building of national and regional systems of technological innovation.

(B) Reconceptualize the idea of the creative industries in ways that consider the unique national and regional realities of the developing countries, including the understanding that national and regional financing and enterprise development ecosystems must be designed to facilitate the emergence of ideas, content, creations, and solutions

(C) Form and support a cooperative body to promote and nurture the development of cultural and creative industries fueled by people's creative imaginations and emerging digital technologies

(D) Furthermore, emerging technologies such as Artificial Intelligence (AI) should be used to enhance the creative capacities of artists rather than replace them, thereby maintaining a balance between technological progress and human creativity.

13. FINDINGS:

In India, 'Orange Economy and Cooperation' this alignment is demonstrated by the 'Create in India, Create for the World' vision, which aligns the country's cultural depth with digital technology. There is a need to launch more projects that will serve to better understand digital creative goods and services in developing countries and in their contribution towards development. The process of digitalizing the economy opens the possibility of integrating MSMEs into developing economies to global value chains in the creative economy.

In the education sector, across classrooms, coding labs, film sets, concert arenas, and digital platforms, a new creative ecosystem is coming together. What connects these spaces is not just talent, but purpose.

Institutions are being strengthened, markets are being organised, and creators are being connected to capital and global audiences. Policy is no longer separate from practice; it is shaping the conditions that allow imagination to become livelihoods, enterprises, and international partnerships. The impact is already visible. Young artists are entering global production pipelines. Startups are building intellectual property that reaches audiences beyond borders. Cities are hosting events that attract international circuits. Creative industries are becoming channels through which India creates jobs, exports services, and strengthens its global presence.

Continued investment in skills, platforms, and institutions will determine how effectively creativity turns into lasting economic strength. As global competition increasingly moves through culture, content, and digital ecosystems, India is positioning its creative economy not as a side sector, but as a strategic capability. In doing so, it is ensuring that imagination is not only expressed, but organised and that creativity becomes a steady driver of growth and global engagement in the decade ahead.

The Orange Economy is an indispensable pillar in realizing the vision of Viksit Bharat @ 2047. It is an economy based on the inexhaustible resource of human imagination. For India, the Orange Economy is not merely a source of revenue but also a powerful means to enhance its soft power. When Indian films, music, yoga, and cultural heritage reach global audiences through digital platforms, they create a positive image of India. This represents a modern form of cultural diplomacy that strengthens India's influence in trade and bilateral relations.

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Free Market Economy and Cooperative Sector: A Comparative and Analytical Study

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Abstract: This study provides a comparative and analytical examination of the free market economy and the cooperative sector, focusing on their key features, objectives, strengths, limitations, and role in promoting inclusive and sustainable economic development. The free market economy, driven by private ownership, competition, and profit maximization, fosters efficiency, innovation, and industrial growth but often leads to inequality and neglect of social welfare. In contrast, the cooperative sector emphasizes collective ownership, democratic governance, and service to members, promoting equity, rural development, and social inclusion. In a mixed economy like India, both systems coexist and complement each other: the free market drives growth and efficiency, while cooperatives ensure inclusiveness and equitable distribution of benefits. The study also highlights the challenges faced by cooperatives in a predominantly market-driven environment, including limited access to capital, competition from private enterprises, management issues, and regulatory constraints. By analyzing these two systems together, the study underscores the importance of integrating efficiency with equity to achieve balanced economic progress and inclusive growth.

Key Words: Free Market Economy, Cooperative Sector, Inclusive Growth, Economic Development, Comparative Analysis, Challenges.

1. INTRODUCTION :

Economic systems form the backbone of any nation's development process, as they determine how resources are allocated, how goods and services are produced, and how income is distributed among individuals. Over time, different economic systems have evolved to address the changing needs of societies. Among these, the free market economy and the cooperative sector represent two important yet contrasting approaches to economic organization.

A free market economy is based on the principles of individual freedom, private ownership, and minimal government intervention. In such a system, economic decisions are largely determined by market forces, particularly demand and supply. Prices act as signals that guide producers and consumers, ensuring efficient allocation of resources. The theoretical foundation of the free market economy is often linked to the ideas of Adam Smith, who argued that individuals pursuing their self-interest unintentionally contribute to the overall welfare of society through the "invisible hand" mechanism. This system encourages competition, innovation, and productivity, making it a dominant model in many developed and developing economies.

However, despite its efficiency, the free market economy is not without limitations. It often leads to unequal distribution of income and wealth, as those with greater resources and market power tend to benefit more. Additionally, issues such as monopolies, externalities, and neglect of public welfare can arise in a purely market-driven system. These shortcomings highlight the need for alternative or complementary approaches that prioritize social welfare and equity.

In contrast, the cooperative sector emerges as a people-centred economic model that focuses on mutual assistance, democratic participation, and equitable distribution of benefits. Cooperatives are voluntary associations formed by individuals who come together to achieve common economic, social, and cultural objectives. Unlike profit-driven enterprises, cooperatives operate on the principle of service to their members. Each member typically has equal voting rights, regardless of their financial contribution, ensuring democratic governance. The cooperative movement gained momentum as a response to the exploitative conditions of early industrial capitalism, offering a more inclusive and humane approach to economic development.

In the context of India, the cooperative sector has played a significant role in promoting rural development, agricultural growth, and financial inclusion. Cooperatives have been instrumental in sectors such as dairy, sugar, credit, and housing, providing support to small and marginal producers who may otherwise be excluded from mainstream markets. A prominent example is Amul, which has successfully demonstrated how cooperative principles can be combined with market efficiency to achieve large-scale success.

The coexistence of the free market economy and the cooperative sector is particularly evident in mixed economies like India, where both private enterprises and cooperative institutions contribute to economic progress. While the free market system drives growth, innovation, and efficiency, the cooperative sector ensures inclusiveness, equity, and social justice. Rather than viewing these systems as mutually exclusive, it is more appropriate to consider them as complementary components of a balanced economic framework.

In the era of globalization and liberalization, the interaction between these two systems has become even more significant. The increasing dominance of market forces has created both opportunities and challenges for cooperatives. On one hand, cooperatives must compete with large private corporations; on the other hand, they have the potential to provide a more sustainable and inclusive alternative to purely profit-driven models.

Against this backdrop, the present study seeks to undertake a comparative and analytical examination of the free market economy and the cooperative sector. It aims to explore their key features, differences, strengths, and limitations, as well as their role in promoting inclusive and sustainable development. By analyzing these two systems together, the study attempts to highlight the importance of integrating efficiency with equity in order to achieve long-term economic and social progress.

2.Free Market Economy

A free market economy refers to an economic system in which the allocation of resources, production decisions, and pricing are determined primarily by market forces such as demand and supply, with minimal government intervention. In the context of this study, it represents a system driven by private ownership, competition, and profit maximization. Such a system promotes efficiency, innovation, and productivity by encouraging firms to compete and respond to consumer preferences. However, the absence of regulation may lead to issues such as income inequality, market concentration, and neglect of social welfare. Therefore, while the free market ensures economic dynamism, it may fail to address distributive justice, which becomes a central concern in comparative analysis.

Cooperative Sector:

The cooperative sector consists of member-owned and democratically controlled organizations formed to meet common economic and social objectives. Within this study, it is viewed as an alternative institutional framework that emphasizes mutual help, equitable distribution of benefits, and social welfare. Cooperatives operate on principles such as voluntary membership, democratic governance, and service orientation. They play a crucial role in empowering marginalized groups, particularly in rural and agricultural sectors. Unlike profit-driven enterprises, cooperatives focus on collective benefit, thereby reducing exploitation and ensuring economic participation. This makes them an important corrective mechanism to the limitations of the free market system.

3.Inclusive Growth:

Inclusive growth refers to a development process that ensures the benefits of economic progress are shared equitably among all sections of society. In relation to this study, it highlights how the cooperative

sector contributes to reducing inequality and promoting participation of marginalized groups, while balancing the efficiency-driven nature of the free market economy. Inclusive growth not only focuses on income generation but also emphasizes equal access to opportunities, resources, and services. The study examines how cooperatives play a vital role in achieving inclusiveness by integrating weaker sections into the economic system, thereby complementing the growth generated by market forces.

4.Economic Development:

Economic development is a broader concept that includes not only economic growth but also improvements in living standards, reduction in poverty, and enhancement of overall well-being. This study examines how both the free market economy and cooperative sector contribute differently to achieving sustainable and balanced economic development. While the free market promotes industrial growth, investment, and technological progress, the cooperative sector ensures that the benefits of such growth are distributed more equitably. Thus, economic development in this context is viewed as a combination of efficiency and equity, requiring the integration of both systems.

Mixed Economy

A mixed economy is an economic system that combines elements of both free market and state or cooperative interventions. In the context of this study, it reflects the Indian economic structure, where both private enterprises and cooperative institutions coexist, contributing jointly to growth, equity, and inclusive development. The mixed economy approach allows the strengths of the free market—such as efficiency and innovation—to be complemented by the social orientation of cooperatives. This balance helps in addressing the limitations of each system and ensures a more sustainable and inclusive development process.

Free Market Economy vs Cooperative Sector Comparative Analysis

Comparative analysis is a research method used to systematically compare two or more systems to identify their similarities, differences, strengths, and limitations. In this paper, it is applied to evaluate the free market economy and cooperative sector in terms of efficiency, equity, decision-making, and developmental impact. This method helps in understanding how each system performs under different conditions and how they can complement each other. By adopting a comparative approach, the study provides a balanced evaluation and highlights the need for integrating both systems to achieve optimal economic outcomes.

Aspect	Free Market Economy	Cooperative Sector
Definition	An economic system where economic activities are guided by market forces like demand and supply, with minimal government intervention.	An economic system where individuals voluntarily join together to meet common needs through collective ownership and democratic control.
Ownership	Private ownership of resources and production. Example: Private companies like Tata Motors, Reliance.	Collective ownership by members. Example: Dairy cooperatives like Amul.
Objective	Profit maximization.	Service and welfare of members.
Decision Making	Centralized, by owners or management.	Democratic, each member has equal voting rights ("one member, one vote").
Motive	Profit motive drives production, innovation, and efficiency.	Service motive drives welfare, equity, and mutual benefit.
Distribution of Wealth	Unequal, determined by market success and contribution.	Equitable, benefits shared among members.
Examples in India	IT companies, private banks, manufacturing firms.	Amul Dairy Cooperative, cooperative banks, sugar cooperatives.
Advantages	Efficiency, innovation, consumer choice, industrial growth.	Equity, inclusiveness, social welfare, rural development, employment generation.

Limitations	Inequality, possibility of monopolies, market failure, less social focus.	Limited capital, weak management, slower growth, bureaucratic delays.
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5.Role of Cooperative Sector within a Free Market Economy:

Even within a free market framework, the cooperative sector plays an important complementary role, especially in promoting equity, social welfare, and rural development. While private firms in the free market focus on profit maximization and efficiency, cooperatives help ensure that the benefits of economic growth reach all sections of society, including small farmers, artisans, and rural workers. For instance, Amul Dairy Cooperatives allow farmers to collectively market milk and earn fair prices, while cooperative banks provide credit to small businesses and agricultural producers who may not have access to commercial bank loans. In this way, the cooperative sector balances the profit-driven nature of the free market by emphasizing collective ownership, democratic decision-making, and equitable distribution of resources. It supports the free market economy by stabilizing rural income, increasing employment in non-urban areas, and improving access to essential goods and services, thus creating a more inclusive and socially responsible economic system. Therefore, even in a predominantly free market setup, the cooperative sector ensures that growth does not lead to inequality, making the economy both efficient and equitable.

6.Review of Literature:

Various scholars and institutions have examined the functioning of free market economies and the role of cooperative organizations in economic development.

Gadgil (1960s): Emphasized the importance of the cooperative sector in India's economic planning. He argued that cooperatives are essential for rural development, agricultural progress, and reducing regional disparities.

Dandekar (1970s): Emphasized the role of cooperatives in reducing rural poverty and improving income distribution. He highlighted that cooperative institutions can strengthen small farmers by providing access to credit, inputs, and markets, thereby correcting inequalities created by the market system.

Namboodiripad (1975): Stressed the importance of cooperative movements as instruments of socio-economic transformation. He viewed cooperatives as a means to reduce exploitation and promote collective welfare in a market-driven economy.

Sen (1990s): Focused on the concept of welfare and capability development. He argued that economic growth should not be measured only by income but also by the improvement in people's well-being. His ideas support the cooperative approach, which promotes social justice, equality, and human development alongside economic efficiency.

Rangarajan (2000s): Highlighted the importance of financial inclusion and the role of cooperative banking institutions in extending credit to rural and underserved populations. He emphasized that cooperatives complement the market system by ensuring access to financial services for all.

7.Objectives of study

- 9 To understand the concept of a free market economy
- 10 To examine the structure and functioning of the cooperative sector
- 11 To compare both systems on economic and social parameters
- 12 To analyze their role in promoting inclusive growth

8.Research Methodology

The present study is based entirely on secondary data, and no primary data has been used in this research. The required information has been collected from various secondary sources such as books, research journals, government reports, and institutional publications. The study follows a descriptive and analytical research design to understand the concepts and functioning of the free market economy and the cooperative sector. A comparative analysis method has been adopted to examine the similarities and differences between these two systems on the basis of their features, objectives, and roles in economic development.

9.Challenges Faced by the Cooperative Sector in a Free Market Economy:

- Limited Access to Capital: Cooperatives mainly rely on member contributions and small government support, whereas private firms have easier access to loans, investments, and advanced technology.
- Competition from Private Enterprises: Profit-driven private companies can produce goods at lower costs and dominate the market, making it difficult for cooperatives to compete.
- Management and Governance Issues: Democratic decision-making in cooperatives, where each member has equal voting rights, can slow down implementation and create bureaucratic delays.
- Marketing and Scaling Challenges: Cooperatives often lack strong marketing networks, which limits their ability to scale production and reach larger markets.
- Limited Innovation and Technology Adoption: Compared to private firms, cooperatives may adopt new technologies more slowly, reducing productivity and competitiveness.
- Policy and Regulatory Constraints: Inconsistent government support or complex regulations can create uncertainty, affecting planning, expansion, and financial stability.
- Balancing Social Welfare with Market Efficiency: Cooperatives prioritize equity and service over profit, which can make it challenging to compete with profit-maximizing private firms in a free market.

10.CONCLUSION:

The study reveals that the free market economy and the cooperative sector represent two complementary approaches to economic development. While the free market emphasizes efficiency, innovation, and rapid growth, it may lead to income inequality, market monopolies, and neglect of social welfare. On the other hand, the cooperative sector prioritizes equity, inclusiveness, and collective well-being, ensuring that marginalized and rural populations benefit from economic progress. In a mixed economy like India, the coexistence of these systems allows for a balanced approach, where the dynamism of the free market is tempered by the social orientation of cooperatives. Despite facing challenges such as limited capital, governance issues, and competition from private enterprises, the cooperative sector plays a crucial corrective role, promoting inclusive and sustainable development. Overall, the integration of efficiency-driven free markets with equity-focused cooperative principles is essential for achieving long-term economic growth, social justice, and inclusive prosperity.

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Impact of White Cooperation on Rural Income: Evidence from Amul

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Abstract: White Cooperation is the call given to the cooperative structure that turned into installed at some point of India's White Revolution and is exceptional exemplified by Amul. This examines the effect of the cooperative dairy version on socioeconomic improvement and rural revenue manufacturing. Using secondary records from instructional research, NDDB reviews, and case research, the paper evaluates how Amul's three-tier cooperative structure boosts farmer income, eliminates intermediaries, and promotes inclusive boom. The effects show that the cooperative model extensively will increase farmer profits by means of making sure extended price realisation, get right of entry to veterinary care, and marketplace balance. Issues such as nearby inequality and operational inefficiencies also are identified in the research. The have a look at concludes that while White Cooperation continues to be a possible paradigm for rural improvement, modernisation and policy help would be vital for destiny scalability.

Key Words: White Cooperation, Rural Income, Dairy Cooperative, White Revolution, Amul Model, Inclusive Growth, Farmer Empowerment.

1.INTRODUCTION:

White Cooperation refers particularly to the cooperative-based dairy farming movement in India, typically known as the White Revolution. This movement aimed to make India a self-enough, top milk-producing kingdom, and so white revolution was launched on January 13, 1970, through the countrywide Dairy development Board (NDDB). India's rural economy has continually been primarily based on farming. It no longer makes a lot of cash and the profits aren't strong. The White Revolution modified this case with the assistance of Amul and its cooperative gadget. Amul, which started out in 1946 got here with a machine where farmers own the dairy and might sell their products without delay to the marketplace without any middlemen taking gain of them.

The fulfillment got here from the. This is something that Amul began in Gujarat. The Anand pattern experiment is a concept. It has three components.

Anand Pattern Experiment					
Village Dairy Cooperative Society - Producers	District	Cooperative	Milk	State	Cooperative
	Producers	Union - Processing		Marketing	Federation
				Marketing	-

The cooperative machine takes care of the whole lot from producing to buying and selling the products. In this manner many small farmers can now promote their products in a marketplace. The Amul device

is one of the cooperative structures within the international community with lots of village corporations and hundreds of thousands of farmers operating collectively.

The White Revolution is vital due to the fact it is able to make dairy farming a commercial enterprise. It has helped increase the earnings of people in areas and created more task opportunities. It has additionally helped India become the manufacturer of milk, inside the world in line with the Institute of Agriculture and Science Direct.

2.OBJECTIVES OF THE STUDY:

1. To examine the White Cooperation concept, in the Amul model.
2. To assess how cooperative structure affects income.
3. To look at the socio- benefits that farmers gain.

3.RESEARCH METHODOLOGY:

The look at how White Cooperation affects profits in rural regions. It specially uses existing facts from studies papers, reports from the countrywide Dairy improvement Board (NDDB) and case studies. The research makes use of both numbers and stories to get a picture. This method allows to recognize the statistics. The observe makes a speciality of the Amul model in Gujarat and its impact on income. The Amul cooperative structure and rural earnings dynamics are examined intently. The studies additionally draws instructions for the dairy region throughout the united states of america. The study uses the information to evaluate and discover what works and what does no longer. It critiques what others have determined out approximately White Cooperation and rural income. The purpose is to recognize how White Cooperation can help regions. The examine presents insights into the Amul model and its consequences. The findings can assist improve the dairy zone and rural income.

Concept of White Cooperation in Amul

White Cooperation refers to the collective action of dairy farmers organized under a cooperative framework. The Amul version follows a three-tier shape. The cooperative shape operates through a properly-described three-tier system.

- At the primary stage, the Village Society is answerable for the collection of milk without delay from farmers.
- This is observed with the aid of the District Union, which undertakes the processing of the amassed milk into various dairy merchandise.
- At the apex level, the state Federation, represented through Amul, manages the marketing and distribution of those products under a unified logo, making sure efficient reach to consumers.

This structure guarantees that farmers hold possession and acquire a widespread proportion of patron sales. Studies suggest that around 80–85% of purchaser charge is returned to farmers that is substantially higher than worldwide benchmarks.

The Amul version has helped India to turn out to be the biggest producer of the arena. More than 16 million milk producers pour their milk in 185903 dairy cooperative societies across the. Their milk is processed in 222 District Co-operative Milk Unions and marketed by way of 28 country advertising Federation, ensuring a higher lifestyle for tens of millions.

Annual Turnover of AMULFED DAIRY (IN `)

Growing annual turnover is an essential sign of growth and monetary achievement for a business. It shows the employer's ability to generate more income and revenue each year, indicating strong demand for its services or products. To gain this, organizations often want to expand their market reach, give a boost to their product line, improve operational efficiency, and invest in innovation. Right here is the graph showing the turnover from 2006-07 to 2024-26:

For businesses like Amul, an upward push in turnover not the simplest suggests business achievement however also suggests the high quality effects on the livelihoods of its stakeholders, particularly farmers

in its cooperative community. This also reinforces its marketplace leadership. AFD recorded a turnover of Rs. 15,418 Crores in FY 2024-25, in comparison to Rs. 13,012 Crores ultimate year.

The turn over facts of Amul showcase that the organisation has exhibited a steady growth fashion when you consider that near decades ago. With a turnover of approximately ₹896 crore during 2006-07, the business enterprise steadily multiplied its turnover to ₹15,418 crore all through 2024-25, which amounts to approximately 17 times of its earlier discern and is associated with a CAGR (compound annual growth price) of approximately 17%-18%.

During the first few years from 2006 to 2012, increase became steady, thinking that the agency at that point was concentrating on strengthening its cooperative shape in addition to the delivery chain. During 2012-13 to 2016-17, there has been a duration of sharp growth in turnover because of the reasons that the organisation varied its products and multiplied its coverage throughout the year. From 2017-18 to 2020-21, the corporation exhibited a mild boom, which may be attributed to the adulthood of the marketplace and the effect of the pandemic. Submit the pandemic, the business enterprise has regained its momentum and has proven giant growth from 2021-22 onward.

Impact on 3.6 Million Farmer Producers

The reality that AMUL is owned by the farmers builds up a feel of warranty amongst the farmers, who accept as true that AMUL will continually take delivery of their milk and pay them properly. We feel that through our collective efforts, we've received blessings like flexibility and efficiency, which make us resilient inside the international market.

The involvement of AMUL with 18164 Village Co-operative Societies from 20 districts together with 3.6 million milk manufacturers has made a big difference to their lives as AmulFed Dairy accepts every drop of milk produced by them and ensures their profits thereby enhancing the monetary energy of the rural society. Sustainability in presenting returns to our farmer proprietors is the very essence of our Co-operative organisation. As visible inside the above graph, there is a clean fashion of growth for those seven years, demonstrating that returns to farmers have grown at a Compound Annual boom price (CAGR) of 15.13%.

Employment Generation

AmulFed has also made good sized contributions to local rural societies through supplying employment possibilities to humans from neighboring locations including Bhat, Koteshwar, Motera, Ambapur, and Sughad. Via the supply of employment to greater than 700 milk van drivers, eighty security guards, 600 gardening people, and 200 milk tanker drivers.

The AmulFed Dairy proves its dedication to business sustainability and livelihood advent. The importance of producing employment for each male and female personnel highlights gender equality initiatives.

4.FINDINGS: IMPACT ON RURAL INCOME

Increase in Farmer Income

The cooperative model ensures higher rate consciousness for farmers. The impact of the cooperative version is obvious through several key factors. Direct procurement ensures that milk is collected immediately from farmers, thereby putting off middlemen and lowering exploitation. Truthful pricing mechanisms enable farmers to receive better and more solid milk procurement prices, enhancing their income security. Moreover, earnings sharing inside the cooperative framework, as practiced by means of Amul, facilitates equitable earnings redistribution amongst member farmers, selling inclusive monetary increase. Farmers get hold of notably higher returns in comparison to personal supply chains, enhancing livelihood stability.

Employment Generation

There may be AmulFed Dairy's determination in creating jobs and social interactions. Via having hired a complete quantity of 2543 males and females, AmulFed has controlled to create job vacancies at special tiers. That is due to the fact there had been 172 new personnel employed through AmulFed within the past 3 years.

Financial Inclusion

Amul facilitates complete aid offerings for farmers, such as get entry to institutional credit, veterinary care, and critical enter supply which includes farm animals feed and healthcare. Those provisions substantially reduce manufacturing risks associated with cattle management and, in turn, decorate overall productivity and income stability for rural dairy farmers.

Women Employment

The co-operative movement is a traditional instance of the biggest women empowerment campaign in India. More than 2 million women farmers own their organizations and feature turn out to be financially unbiased. They're contributing in the direction of nation building. Amul Fed Dairy takes the problem of ladies empowerment and gender equality very severely. The participation of ladies employees in the increase and fulfillment of the organisation is actively recommended. There are a total of 26 women playing vital roles in various sectors including production, first-rate management, finance, human assets, and control structures.

Rural Development

The cooperative machine of Amul has contributed drastically to holistic rural development with the aid of enhancing entry to higher nutrients, enabling higher spending on youngsters's training, and helping infrastructure development in villages. Its effect extends past mere income enhancement, mainly to a common development inside the first-rate of lifestyles and socio-financial well-being of rural households.

5. CHALLENGES & LIMITATIONS:

There are sure challenges associated with the cooperative approach hired by way of Amul which have an impact on its steady effectiveness.

- Firstly, there's a local imbalance for the reason that effectiveness of Amul can be seen specifically in Gujarat, while there has not been any replication of achievement some place else.
- There are also shortcomings in infrastructure like insufficient presence of cold chain systems for storing the milk.
- Further to this, rising opposition from non-public dairies, imparting rewarding blessings, is a risk to Amul's dominance within the industry.

6. CONCLUSION:

White Cooperation, exemplified with the aid of Amul, has had an amazing effect on the income structure of rural India. The model of White Cooperation ensures that the costs are saved fair, no middlemen interfere, and there is ownership through all of the stakeholders. This version no longer best increases earning however additionally enables social empowerment, specially for women and marginal farmers. However, the boundaries that exist, which includes uneven distribution and infrastructural constraints, need to be overcome for sustainability. In summary, the White Cooperation technique nonetheless stands out as an incredible and replicable model for rural development.

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Role of Cooperative Banks in Promoting Financial Inclusion in India

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Abstract: This study analyses the role of cooperative banks in promoting financial inclusion in India. Financial inclusion focuses on providing affordable, accessible and timely banking services to all sections of society, particularly in rural and underserved areas. In a developing country like India, a significant portion of the population still lacks access to formal financial institutions. Therefore, it makes financial inclusion an essential tool for fostering economic and social development.

The research is based on secondary data collected from reports, reference books, government publications and reliable online sources. It focuses on significant role played by cooperative banks in extending basic banking services, providing credit facilities to farmers and small entrepreneurs and encouraging saving habits among rural populations. Their local presence and customer-friendly approach make them more accessible to weaker sections of society.

However, cooperative banks face several challenges that restricts their growth, such as a lack of advanced technology, limited geographical reach, poor management practices and low awareness among people. These issues affect their effectiveness in achieving financial inclusion. The study concludes that with proper modernisation, digital development, and strong policy support, cooperative banks can further strengthen financial inclusion and contribute to inclusive economic growth in India.

Key Words: Financial Inclusion, Cooperative Banks, Rural Banking, India

1.INTRODUCTION:

Financial inclusion is defined by the World Bank Group as “Individuals and businesses have access to useful and affordable financial products and services that meet their needs- transactions, payments, savings, credit and insurance delivered in a responsible and sustainable way”.

As per world bank “Financial inclusion has the potential to help the achievement of the bank group’s twin goals of ending extreme poverty and promoting shared prosperity and it is linked to at least eight of the united nation’s 17 sustainable goals: no poverty, good health and well-being and women’s empowerment, economic growth and full and productive employment, decent work, innovation and infrastructure, reduced inequalities and partnership for the goals.

In essence, financial inclusion is about creating a financial system where everyone have an equal opportunities to access financial services. It’s a process by which individuals and businesses can have access to appropriate, affordable and timely financial products and services, which include loan, equity and insurance products. It helps in enhancing economic growth by enabling the unbanked population to access the means for savings, investment and insurance towards improving household incomes and reducing income inequality.

Financial inclusion is crucial in India as many rural areas and underprivileged sections of society still have very limited access to formal banking services. One of the main reasons is the lack of awareness among the people regarding various financial services.

The banking sector plays an important role in promoting financial inclusion among various sections of society, particularly in rural and underserved areas. It is through banks that people gain access to the formal financial system, including services such as savings accounts, credit facilities, and other financial products. Banks act as a primary channel through which individuals can access essential financial services.

Banks also provide credit facilities to farmers, small entrepreneurs, and low-income groups, enabling them to invest in income-generating activities and improve their standard of living. In addition, microfinance institutions play a supportive role by offering small loans and savings options, especially in rural areas.

With the advancement of technology, it has become easier for banks to reach remote and rural populations. Services such as internet banking, mobile banking, and ATM facilities have improved accessibility and convenience for users. Furthermore, banks, in collaboration with the government and non-governmental organisations (NGOs), are actively promoting financial literacy programs to increase awareness and encourage the use of financial services among the population.

Overall, the banking sector acts as the backbone for financial inclusion as it bridges the gap between financial services and the unbanked population.

Among the various components of the banking sector, **Cooperative Banks** play a significant role in promoting financial inclusion, especially in rural and semi-urban areas. These banks operate on the principle of cooperation and have a better understanding of the local requirements of different sections of society. Due to their strong grassroots presence and customer-friendly approach, they are able to reach the unbanked and underserved population effectively.

2.OBJECTIVES OF THE STUDY:

- To understand the concept and importance of financial inclusion in India.
- To study the role of cooperative banks in promoting financial inclusion.
- To examine the various services provided by cooperative banks.
- To identify the challenges faced by cooperative banks.

3.RESEARCH METHODOLOGY:

The present study is based on **secondary data**. The data has been collected from various sources such as reports published by government agencies, books, journals, research articles, and reliable online sources.

The study is limited to available secondary data and focuses on general trends and observations related to financial inclusion and cooperative banking in India.

Financial inclusion in the Indian Context:

Financial inclusion refers to the process of ensuring access to affordable, efficient and timely banking services to rural, underserved and unbanked sections of society. It aims to promote awareness and usage of financial services among individuals with little or no access to the formal banking system.

Key components of Financial Inclusion:

1. **Access to Financial Services:** Ensuring that financial services such as banking, insurance, and credit are available to everyone. This involves the establishment of physical banking outlets in underserved areas and the provision of digital financial services.

2. **Affordability:** Financial products and services should be priced to be accessible for all segments of society. High costs can be a significant barrier, particularly for low-income groups.
3. **Financial Literacy:** Educating individuals about financial products, services, and management is essential. Financial literacy empowers people to make informed decisions about their finances, including saving, investing, and managing credit.
4. **Usage:** Beyond access, it's crucial that individuals actively use financial services to achieve financial stability and growth. This includes engaging with banking services, utilizing credit responsibly, and taking advantage of insurance products.

4.SIGNIFICANCE:

1. **Empowerment and Independence:** Financially literate individuals are more capable of making sound financial decisions, reducing vulnerability to exploitation.
2. **Economic Growth:** Financial inclusion boosts economic growth by mobilizing savings, generating employment, and enhancing productivity.
3. **Reduction of Inequality:** By granting access to financial services, financial inclusion can address poverty and inequality.
4. **Financial Stability:** A financially literate population can lead to greater financial stability, as individuals are better prepared to handle economic uncertainties.

Key Drivers of Financial Inclusion in India:

Government Initiatives

These schemes have significantly expanded financial access across India.

Digital Revolution

These technologies have simplified financial transactions and improved accessibility.

Institutional Support

- Priority Sector Lending (PSL)
- Business Correspondents (BCs)
- National Centre for Financial Education (NCFE): National Strategy for Financial Education (NSFE) 2020-25 adopts a "5 C" approach:

Source: National centre for financial inclusion

Thus, financial inclusion in India is driven by a combination of government initiatives, technological advancements, regulatory support and financial literacy efforts, all of which contribute to inclusive economic growth.

Co-operative Banks:

Cooperative banking is a vital segment of the Indian financial system. Unlike commercial banks, cooperative banks are owned and operated by their members, who are both the customers and stakeholders. Their primary objective is to promote financial inclusion, especially in rural and semi-urban areas, by providing affordable credit to farmers, small businesses, and low-income households.

Evolution of Cooperative Banking in India:

The roots of cooperative banking in India go back to the early 20th century, when farmers faced acute credit shortages and dependence on moneylenders. To solve this problem, cooperative credit societies were established under the Cooperative Societies Act, 1904. Over time, these grew into a structured system of cooperative banks at various levels.

The movement gained momentum after Independence, with government support and RBI supervision. Today, cooperative banks play an important role in providing agricultural and rural credit, financing self-help groups, and supporting micro-enterprises.

Structure of Cooperative Banks in India

These banks, under the Banking System in India, are primarily categorized into – Rural Cooperative Banks (RCBS), and Urban Cooperative Banks (UCBS). They are further sub-categorised as shown below:

Source: <https://www.nextias.com/ca/current-affairs/21-02-2025/rbi-restrictions-on-new-india-co-operative-bank>

Significance of Cooperative Banks in India:

Due to their very nature of working, they play crucial roles in the Indian economy. Some of their major roles can be seen as follows:

1. **Financial Inclusion:** By reaching out to the unbanked and underbanked sections of society, they play a crucial role in promoting financial inclusion.
2. **Easy Access to Credit:** They offer easy access to credit to their customers that too at competitive interest rates.
3. **Promoting Savings:** They encourage saving habits by offering deposit accounts tailored to rural needs.
4. **Local Development:** These banks understand local needs better and thus play a significant role in rural development by funding various agricultural and rural development activities.
5. **Rural Development:** The majority of these banks operate in rural areas, catering to the specific needs of farmers, small businesses, and low-income households.
6. **Financial Literacy Promotion:** They often act as financial literacy educators, empowering rural communities to make informed financial decisions.

5.The Role of Cooperative Banking in Promoting Financial Inclusion:

Financial Empowerment:	• Cooperative banks helps to bridge the gap between individuals and the formal banking sector. • It helps to provides accessible & affordable financial services to communities who have limited access to financial sector services. • Cooperative banks empower individuals to save, invest, access credit facilities, and contributes to their economic growth and development.
Extends access to financial services even in remote areas:	• In rural areas where traditional banks may have a limited presence. • By establishing branches in remote regions, cooperative banks offer a way to agriculturalists, small business operators, and marginalised section of society. • This enables them to access affordable financial services like savings accounts, loans and credit, and other insurance products.
Low cost services:	• Cooperative banks often offer very low or no '<u>minimum balance requirements</u>' for savings accounts, comparatively lower transactional and operational fees, and very competitive rate of interest loans and other short term credit services. • These measures make it easier for individuals belonging to meagre income group to save, invest, and access credit. This further helps to promote financial inclusion.
'Local-ownership' structure:	• Cooperative banking sector focuses on meeting the financial needs of the local community.

	- Cooperative banks are owned and managed by their members. These members usually are local residents or owners of small businesses from the same locality - The 'local-ownership' structure enables cooperative banks to have an in-depth understanding of the <u>financial challenges and opportunities</u> specific to that area/ - This allows them to customize their products and services accordingly.
Digitization:	- The contemporary cooperative sector banks incorporate <u>innovative technological solutions</u>. - For instance, mobile banking, and provisions of banking services through other digital platforms provides easy access to banking services, facilitates low-cost financial transactions helps to extend financial services to remote areas.

6. Working of Cooperative Banks:

The working of cooperative banks is unique because they operate on democratic principles. Each member has equal voting rights, regardless of the size of their shareholding. Their work can be explained as follows:

- Deposit Mobilisation:** Cooperative banks accept deposits from members and the public.
- Credit Provision:** They provide short-term and medium-term loans, mainly for agriculture, allied activities, and small enterprises.
- Refinance Support:** State and district cooperative banks provide refinance to PACS, ensuring adequate credit flow at the grassroots.
- Profit Distribution:** Profits are distributed among members or reinvested for the growth of the institution.

7. Functions of Cooperative Banks:

- Cooperative banks perform various functions that support financial inclusion and rural development.
- Providing agricultural and rural credit to farmers, artisans, and weaker sections.
- Offering savings and deposit facilities for small savers.
- Financing self-help groups and micro-enterprises.
- Extending credit for housing, education, and small industries in urban areas.
- Supporting government initiatives like rural development programs and priority sector lending.

8. Challenges Faced by Cooperative Banks:

- Financial scams and mismanagement of funds
- Political interference, bureaucracy and corruption
- Weak financial position and high Non Performing Assets
- Cut-throat competition from Non-Banking Financial Corporations (NBFC's), Fintech firms, and MFIs
- Dual regulation by RBI and State Government
- Inadequacy of audit systems
- Technological and infrastructural lacunas
- Maladministration and weak governance frameworks

9. CONCLUSION:

Cooperative banks play a vital role in promoting financial inclusion in India, particularly in rural and semi-urban areas. Their accessibility, affordability, and community-based approach make them distinctly placed to serve the communities.

However, structural and operational challenges limit their effectiveness. Strengthening governance, adopting modern technology, improving regulatory mechanisms, and increasing awareness can significantly enhance their role.

With the right reforms and support, cooperative banks can become a powerful instrument for achieving inclusive and sustainable economic growth in India.

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Financial Performance and Governance Challenges of Cooperative Credit Societies in the Digital Era

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Abstract: *This study attempts to examine the financial performance and governance challenges faced by cooperative credit societies in the rising digitalization era. The Cooperative Credit Societies play a vital role in promoting financial inclusion, especially among economically weaker sections of society. However, at the same time they face persistent issues related to profitability, liquidity management, and rising non-performing assets. Moreover, governance concerns such as weak regulatory coordination, lack of professional management, and inadequate internal control systems affect their efficiency and transparency. The study also seeks to understand the impact of digital transformation on institutional operations, highlighting both the opportunities for improved efficiency and the challenges related to cost, technical skills, and cyber security. The findings are suggestive that while digitalization can enhance performance and service delivery, its successful implementation warrants strong governance, financial discipline, and capacity building. The study emphasizes the need for a balanced approach to ensure long-term sustainability of cooperative credit societies.*

Key Words: Cooperative Societies, Governance, Digitalization, Financial Performance.

1.INTRODUCTION:

Cooperative credit societies constitute an important part of India's financial system, mostly in advancing the objective of inclusive growth. Based on the principles of mutual help, democratic participation, and self-reliance, these institutions primarily cater to individuals and small economic units that often remain outside the reach of formal banking channels. Their role becomes especially significant in rural and semi-urban areas, where access to institutional finance is limited. By mobilizing local savings and providing need-based credit, cooperative credit societies contribute to grassroots economic development and financial empowerment. Previously, the cooperative movement in India was initiated to counter the exploitation of borrowers by informal moneylenders and to create a fair and affordable credit system. Over time, cooperative credit societies have expanded their scope and outreach, supporting sectors such as agriculture, small-scale industries, and self-employment activities. Their member-driven structure ensures that the benefits of financial services are distributed equitably, thereby strengthening community-based economic systems. Despite these strengths, the sector continues to face persistent challenges that affect its efficiency, sustainability, and credibility. Primary concerns regarded with cooperative credit societies is their financial performance. Many societies struggle with issues such as rising non-performing assets, low profitability, and inadequate capital base. Weak credit appraisal mechanisms and ineffective recovery practices often lead to loan defaults, which in turn erode financial stability. Also limited access to diversified funding sources restricts their ability to expand operations and compete with commercial banks. These financial constraints not only impact their operational viability but also reduce their capacity to serve members

effectively. Governance is another critical area that influences the functioning of cooperative credit societies. It involves central banking authorities and state-level cooperative departments, often creates ambiguity in control and accountability. In several instances, lack of professional management, insufficient training of board members, and weak internal control systems have resulted in operational inefficiencies. Furthermore, external influences in decision-making processes can compromise transparency and lead to suboptimal financial practices. Establishment governance frameworks is therefore essential to ensure accountability, efficiency, and long-term sustainability.

According to the financial view, the emergence of digital technology has brought transformative changes across the banking and financial services sector. Innovations such as digital payments, mobile banking, and data-driven financial services have redefined customer expectations and operational standards. While these advancements offer significant opportunities for improving efficiency and outreach, they also pose new challenges for cooperative credit societies. Several institutions continue to rely on traditional methods of operation, making it difficult for them to adapt digital environment. The digital era demands that financial institutions adopt modern technological systems to remain competitive and relevant. For cooperative credit societies, this involves the implementation of core banking solutions, integration with digital payment platforms, and development of secure information systems. However, the transition to digital operations requires substantial financial investment and technical expertise, which may not be readily available to smaller societies. As a result, a digital divide is emerging within the sector, where only a few institutions are able to leverage technological advancements effectively.

The use of digital systems has created new risks, especially in cyber security and data protection. Many cooperative credit societies do not have strong technology systems. They also lack awareness about cyber threats. This makes them more open to fraud and data breaches. Rules for digital transactions and data security are also changing regularly. Following these rules adds more pressure on their operations. These risks show the need for a balanced approach. Societies must adopt technology along with strong risk management practices. Important part of digital change is capacity building and change management. Employees and management need proper skills to work in a digital environment. Many people resist change due to lack of knowledge or fear of technology. This slows down the adoption of digital systems and reduces efficiency. Training programs and awareness activities are very important. Support from institutions can also help in smooth transition. Study of financial performance and governance issues of cooperative credit societies in the digital age. Understanding these problems can help identify gaps in their structure and operations. It can also show how digital tools can improve efficiency, transparency, and services. This study focuses on these areas and suggests ways to strengthen the system. Cooperative credit societies play an important role in financial inclusion in India. However, they must change with time to stay relevant. Improving financial health, strengthening governance, and adopting digital systems are necessary for their long-term success.

2.OBJECTIVES OF THE STUDY:

1. To analyse the financial performance of cooperative credit societies with reference to profitability, liquidity, and non-performing assets in the digital era.
2. To examine the governance framework of cooperative credit societies
3. To evaluate the effect of digitalization on their working, risk, and sustainability.

3.RESEARCH METHODOLOGY:

Secondary data was collected from a range of sources, including government reports, research studies, and policy documents, to provide an in-depth analysis of cooperative societies in India

3.1Financial Performance of Cooperative Credit Societies

Financial performance is a critical factor of the sustainability and operational efficiency of these institutions, as it reveals their ability to manage resources expertly, generate adequate returns, and maintain financial stability.

Profitability	• An important indicator of financial performance • It indicates the ability of a cooperative credit society to earn surplus after meeting all its expenditure. • Maintaining profit adequacy is difficult due to high operational costs, limited scale of administrative proficiency, and relatively marginal interest rates. • Other challenges include inefficient recovery systems and rising defaults in loan repayment. • Continuous digital up gradation has substantially improved efficiency and has reduced long-term costs. However, the initial investment required for incorporating digital infrastructure puts an additional pressure on already limited financial resources. This affects short-term profitability.
Liquidity	• It is essential aspect of financial performance • Determines the ability of cooperative credit societies for meeting short-term financial responsibilities, including repayment of deposits and disbursement of loans. • Confidence among members and depositors is created through sound liquidity position which also is essential for smooth functioning of these institutions • Several cooperative credit societies experience liquidity constraints due to a high proportion of overdue loans and improper asset-liability management. • Availability of liquid resources is reduced due to funds are locked in non-performing assets which leads to difficulties in meeting immediate financial commitments. • In a digital financial environment, where transactions are expected to be processed quickly and efficiently, maintaining adequate liquidity becomes even more important.
Non-performing assets (NPAs)	• Asset quality, particularly in terms of non-performing assets is Most important concern affecting the financial health of cooperative credit societies is Asset quality, particularly in terms of non-performing assets (NPAs) • The problems of weaknesses in credit appraisal, monitoring, and recovery mechanisms occurs due to High levels of NPAs • Issues such as inadequate borrower assessment, lack of proper documentation, and external influences in lending decisions contribute to the rise in loan defaults. • As NPAs increase, income from interest declines, and additional provisions need to be made, which further reduces profitability and erodes the capital base. This creates a cycle of financial stress that hampers the growth and stability of these institutions • It reduces profitability because when NPAs increase, income from interest declines and it creates a cycle of financial stress that hampers the growth and stability of co-operative credit societies
Digital Revolution	• Digital tools viz. data analytics, automated accounting systems, and digital transaction platforms help to enhance efficiency, improve assessment of credit worthiness and strengthens overall financial control systems.

	• However, there are certain lacunas of digitization of credit cooperative society such as high cost of installation, dearth of technical expertise. • Small scale credit cooperative societies face the problem of fund adequacy. This limitation poses difficulties of allocation of financial resources for digitization.
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3.2 Governance framework of cooperative credit societies:

Effective governance:

It is key element for ensuring transparency, accountability, and efficiency in the functioning of these institutions. Because cooperative credit societies operate on the principles of democratic management and member participation, maintaining trust among stakeholders and ensuring long-term sustainability is possible through effective governance. The governance framework of cooperative credit societies requires significant strengthening to meet contemporary challenges. Improving regulatory coordination, enhancing management professionalism, and establishing robust internal control systems are essential steps towards ensuring transparency and accountability. A well-structured governance system will not only improve operational efficiency but also build confidence among members, depositors, and regulators.

Regulatory framework:

One of the strategic features of governance in cooperative credit societies is the regulatory framework under which they operate. In India, these cooperative credit societies are subject to a dual system of control, involving oversight by central banking authorities and state-level cooperative departments. While this arrangement is intended to ensure comprehensive supervision, it often results in overlapping responsibilities and lack of clarity in decision-making. This can delay corrective actions and weaken the overall effectiveness of regulatory control. A fragmented regulatory approach may also lead to inconsistencies in policy implementation and monitoring.

Professional Management:

Important aspect of governance is management efficiency. In many cooperative credit societies, management positions are held by individuals who may not possess adequate professional expertise in finance or administration. Poor decision-making and inefficient operations are done because of absence of trained personnel and limited exposure to modern financial practices. Involvement of external influences in management decisions, particularly in loan approvals and resource allocation, can compromise the objectivity and integrity of the institution. This may lead to increased credit risk and financial instability.

Internal control systems:

Internal control system include mechanisms such as internal audits, financial reporting, risk assessment, and compliance procedures. Which helps for Strong internal controls for detecting errors, preventing fraud, and ensuring adherence to regulatory guidelines. Many cooperative credit societies suffer from weak audit systems, delayed financial reporting, and inadequate monitoring practices. The lack of timely and accurate information makes it difficult to assess the true financial position of the institution and take necessary corrective measures.

System Digitization:

In the digital era, governance challenges have become more difficult. The introduction of digital systems requires stronger oversight, enhanced data security measures, and updated compliance frameworks. Cooperative credit societies must adapt their governance practices to address issues related to cyber security, data protection, and digital transactions. This necessitates not only technological investment but also capacity building among management and staff.

3.3 Impact of Digitalization on Cooperative Credit Societies:

In recent years, the financial sector has undergone significant transformation due to the adoption of digital technologies, and cooperative institutions are also gradually becoming part of this change. Evaluating this impact is essential to understand whether these societies are able to adapt effectively and remain relevant in a competitive financial environment. Digitalization is transforming the way cooperative credit societies operate by improving efficiency and strengthening risk management. At the

same time, it introduces new challenges related to cost, skills, and security. A balanced and well-planned approach is required to ensure that these societies can fully benefit from digital advancements while managing the associated risks effectively.

Positive

- **Brings in operational efficiency:**
Digitalization has brought noticeable improvements in the operational efficiency of financial institutions. For cooperative credit societies, the introduction of computerized systems, digital record-keeping, and online transaction facilities has the potential to reduce dependency on manual processes.
- **Improved Transparency :**
Digitalization helps in faster service delivery, better accuracy in financial data, and improved transparency in operations. With digital systems, financial data is recorded automatically and can be monitored continuously, leading to greater accuracy and accountability. Transactions leave clear digital footprints, making audits simpler and more reliable. This helps build trust among stakeholders, including customers, employees, and regulators.
- **Enhances Customer Satisfaction :**
Members benefit from quicker access to services such as deposits, withdrawals, and loan-related transactions. And digitalization enhances customer satisfaction and strengthens the overall functioning of these societies. It helps to maintain confidence among the stakeholders.
- **Efficient Risk Management :**
Another important area influenced by digitalization is **risk management**. Traditional systems often rely on manual assessment and limited data, which may not provide a complete picture of a borrower's creditworthiness. With the use of digital tools, cooperative credit societies can analyse financial data more effectively, monitor loan performance, and identify early signs of default.
- **Reducing the level of non-performing assets:**
Digitalization helps in improving credit decisions and reducing the level of non-performing assets. Digital systems also support better tracking of financial transactions, which strengthens internal control and reduces the chances of errors or mismanagement.

4.Challenges of digitization:

- **Limited Financial Resources :**
Despite these advantages, the process of digital transformation presents several challenges. Many cooperative credit societies operate with limited financial resources, making it difficult to invest in advanced technology and infrastructure. The cost of software, system maintenance, and cyber security measures can be high, especially for smaller institutions. In addition, there is often a lack of technical expertise among staff, which slows down the adoption of digital systems. For effective use of technologies training and skill development becomes necessary.
- **Cyber security :**
Cyber security is another serious concern associated with digitalization. As financial activities shift to digital platforms, the risk of fraud, data theft, and unauthorized access increases. Cooperative credit societies may not always have strong security systems in place, making them more defenceless to such threats. Protecting member data and ensuring secure transactions is therefore essential to maintain trust and credibility. Compliance with regulatory guidelines related to digital operations also adds to the responsibilities of these institutions.

- **Sustainability of small cooperative credit societies:**

Sustainability of small cooperative credit societies has direct impact of digitalization. Institutions that successfully adopt technology can improve efficiency, expand their services, and compete with other financial entities. Besides that societies that fail to modernize may face difficulties in retaining members and maintaining their financial position. Therefore, adapting to digital changes is not only beneficial but necessary for long-term survival.

5.CONCLUSION:

Cooperative credit societies are important for financial inclusion. They provide easy and low-cost credit to people who are often ignored by the main-stream banking sector. However, they face many problems. Their profits are low, liquidity is weak, and non-performing assets are high. This shows poor financial management. There are also governance issues. Many societies lack skilled professionals. Internal control systems are weak, and rules are complex. These problems reduce efficiency and transparency.

Digital technology brings both benefits and challenges. It can improve work efficiency, service quality, and risk management. But adopting technology is costly. Many employees do not have technical skills. There is also a risk of cyber fraud. Most societies are still new to digital systems, so they cannot use technology fully.

For long-term success, these societies need a balanced approach. They should improve financial performance and strengthen governance. They should also slowly adopt digital systems. Training, better coordination with regulators, and investment in technology are very important. With proper planning and reforms, cooperative credit societies can remain strong and useful in the changing financial environment.

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RBI Prudential Oversight of Cooperative Banks

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Abstract: *The Reserve Bank of India (RBI) has gradually moved from just advising cooperative banks to taking a more hands-on regulatory role. This shift was mainly needed to fix the long-standing issue of dual control between the RBI and State Registrars, which often weakened the sector. In this context, the study looks at important rules introduced by the RBI, such as higher Capital to Risk-Weighted Assets Ratio (CRAR) requirements, stricter norms for handling Non-Performing Assets (NPAs), and better governance standards. The RBI has also introduced a four-tier regulatory system based on the size of deposits, trying to maintain the community-focused nature of cooperative banks while also making them more stable and reliable. The findings show that tighter supervision has improved transparency and made deposits safer. However, some challenges still remain, including weak internal systems, slow adoption of technology, and political interference, particularly in rural areas. Looking ahead, the RBI is focusing on improving governance, merging weaker banks with stronger ones, and ensuring that only qualified and trustworthy individuals manage these institutions. The overall goal is to make the cooperative banking sector stronger, more modern, and professionally managed, so it can play a more important role in India's financial system*

Keywords: *RBI, Urban Cooperative Banks, Prudential Norms, Banking Regulation Act 2020, Financial Stability, Corporate Governance, NABARD.*

1.INTRODUCTION:

Cooperative banks are based on the idea of people helping each other. They are owned and managed by their members, who come together to meet the financial needs of their community—whether it's a village, a group of workers, or people with a common interest. By pooling their resources, members can access basic banking services like loans, savings accounts, and deposits. What makes cooperative banks different from regular commercial banks is their focus on service rather than profit. They follow values like mutual support and democratic decision-making, where members have a say in how the bank is run. Even so, they are still regulated by authorities like the Reserve Bank of India (RBI) and must follow proper banking rules. In India, cooperative banks play a key role, especially in rural areas where big banks may not reach easily. They provide financial support to farmers, small businesses, and local communities, helping them grow and become more stable. They also encourage saving habits and support sectors like agriculture and small-scale industries. Since a large portion of India's population lives in rural areas, cooperative banks are very important for financial inclusion. Registered under the Cooperative Societies Act, they work on the principles of self-help, shared responsibility, and mutual benefit. Overall, they help bring banking services closer to people and support grassroots economic development.

2.OBJECTIVE OF STUDY:

- 1.To study the role of RBI to strengthen the cooperative banks
- 2.To analyse the core functioning and key areas of cooperative banks.

3. RESEARCH METHODOLOGY:

The research methodology used to study the RBI's prudential oversight of cooperative banks is mainly based on secondary data. It focuses on understanding the regulatory framework for Urban Cooperative Banks and Rural Cooperative Banks. It helps in gaining a clear understanding of the regulatory role of the Reserve Bank of India (RBI) in strengthening cooperative banks. These indicators help in evaluating the performance and financial stability of cooperative banks under RBI supervision. The research also examines recent developments, particularly the RBI's 2025 guidelines and amendments related to credit risk management, to understand their impact on the functioning of cooperative banks.

4. FRAMEWORK OF COOPERATIVE BANKS:

The structure of Cooperative Banks in India is a well-defined multi-tiered network designed to serve both urban and rural populations. As of 2025, there are around 96,000 PACS, 370 DCCBs, and 33 SCBs operating under NABARD's supervision. (Source: NABARD Annual Report 2024). It is broadly divided into two main categories: Urban Cooperative Banks (UCBs) and Rural Cooperative Banks.

4.1. Urban Cooperative Banks (UCB):

Urban Cooperative Banks (UCBs) mainly operate in cities and semi-urban areas, offering services like housing loans, personal loans, MSME financing, and deposit facilities. They primarily cater to small borrowers, traders, and small-scale businesses. Urban Cooperative Banks are financial institutions that mainly operate in cities and semi-urban areas. They are formed by a group of individuals who come together to meet their common financial needs, such as saving money or getting loans. These banks provide services similar to commercial banks, including savings accounts, fixed deposits, personal loans, housing loans, and credit facilities for small businesses and traders.

UCBs play an important role in supporting the urban middle class, small entrepreneurs, and local businesses that may not always have easy access to large commercial banks. They are regulated and supervised by the Reserve Bank of India, although some administrative control also lies with state governments, which sometimes creates challenges like dual regulation. Despite these issues, many UCBs have adopted modern banking technologies like Core Banking Solutions to improve their services.

4.2. Rural Cooperative Banks (RCB):

Rural Cooperative Banks are designed to serve people living in villages and rural areas. Their main objective is to promote financial inclusion and support agricultural and rural development. These banks provide affordable credit to farmers, agricultural labourers, small artisans, and rural entrepreneurs. The rural cooperative banking structure in India is generally divided into three levels: Primary Agricultural Credit Societies (PACS) at the village level, District Central Cooperative Banks (DCCBs) at the district level, and State Cooperative Banks (SCBs) at the state level. Together, they form a network that ensures the flow of credit from the top level to the grassroots. Rural cooperative banks are also regulated by the Reserve Bank of India along with the National Bank for Agriculture and Rural Development, which plays a key role in refinancing and supporting these institutions. These banks are crucial for farmers who depend on timely and affordable loans for crop production and other activities.

4.3 Cooperative Banks Legal Framework:

Cooperative banks in India operate under a dual-regulation legal framework, governed by the Banking Regulation Act, 1949. The cooperative banks of respective states or the Multi-State Cooperative Societies Act, 2002. They are supervised by the RBI and NABARD, ensuring they provide democratic, member-driven financial services. A legal framework is very essential to regulate and administrate the plans and policies of a state effectively and efficiently. The law is a social as well as a moral science and that it is concerned with the behaviour of human beings in society. People living in an organized society have to follow certain common rules. According to Salmond, Law is the body of principle recognized and applied by the state in the administration of justice. Various sources from which rules of Indian Law are derived are -

1. Customs and Usages

2. Writings of the great jurists
3. Judgment of the court
4. Foreign law
5. Statutes or Acts

5. NEED FOR LEGAL FRAME WORK FOR CO-OPERATIVES –

A) General:

The mutual contract with a person is a general phenomenon in an organized society. In each and every human activity there may be some transactions either in social, economic or political nature. All these transactions have to be regulated by certain well defined and written regulations or legislations. So the state will enact various Acts and Legislation to ensure the wellbeing and smooth functioning of the people in the state. Each and every one is supposed to follow such rules of the state. Nobody can be escaped from the proceedings of the law due to their lack of knowledge on the law of the state. There is a saying that ignorance of law is not an excuse before the law.

B) Specific:

The economic positions of Indian villages were completely shattered during the period of British rule. Indians were exploited by exporting their rich raw materials and importing manufactured goods from Britain. So the Indian industries were set back and they gradually collapsed. The British people did not pay attention to the problems of the agriculturists. Consequently it was a period of money lenders who exploited the agriculturists by lending money at a higher rate of interest. Amidst these worst situations on the life of the Indians, the government took many initiatives. It was the need of the time to solve the problems of the farmers etc in India to ensure the economic and social development of the nation. The only solution was to pass certain regulations or to create a legal framework for the same. Cooperative banks are governed by a mix of constitutional, legal, and policy provisions, reflecting their unique socio-economic role.

6. PRUDENTIAL NORMS FOR COOPERATIVE BANKS

Prudential norms for cooperative banks are a set of financial guidelines issued by the Reserve Bank of India to ensure that these banks function in a safe, transparent, and responsible manner. These norms are important because cooperative banks deal with public money, and maintaining trust among the people.

- 1. Income Recognition Norms:** Banks are not allowed to show income unless it is actually received. For example, if a borrower stops repaying a loan, the bank cannot continue to show interest as income. This helps in presenting a true and fair financial position.
- 2. Asset Classification:** Cooperative banks must regularly review their loans and categorize them based on their performance. Loans that are repaid on time are considered healthy, while those that are overdue are classified into different categories like sub-standard, doubtful, or loss assets. This system helps banks identify risky loans early.
- 3. Provisioning Requirements:** Provisioning is also a crucial requirement. Banks must set aside a portion of their profits to cover potential losses from bad loans. This acts as a financial cushion and protects the bank from sudden shocks.
- 4. Capital Adequacy Norms (CRAR):** Cooperative banks are required to maintain a certain level of capital, known as the Capital Adequacy Ratio. This ensures that the bank has enough funds to absorb risks and continue operating even during financial stress.
- 5. Exposure Norms:** The norms also include limits on how much a bank can lend to a single borrower or group. This prevents over-dependence on a few customers and reduces the chances of large losses.
- 6. Non-Performing Assets (NPA):** Management Managing Non-Performing Assets (NPAs) is another important part of prudential norms. Banks must actively monitor loans and take steps to recover overdue amounts. A high level of NPAs can weaken the bank's financial stability.

7. Liquidity Requirements: Cooperative banks must maintain sufficient liquidity by keeping reserves like CRR and SLR, and they must invest in safe and approved securities. This ensures that they can meet customer withdrawals and avoid financial crises.

RBI Issues 2025 Guidelines to Strengthen Co-operative Banks (Source By Taxman Last Updated on 8 December, 2025)

The Banking Regulation Act, 1949 has been amended to provide additional powers to RBI for more effective regulation of Co-operative banks vide Banking Regulation (Amendment) Act, 2020. The major amendments pertain to areas such as management, audit, capital, reconstruction/ amalgamation, etc. The provisions of the Act have been brought into force for Urban Co-operative Banks (UCBs) with effect from 26.06.2020. Post these amendments, interlaid, the governance/management related provisions of the BR Act, (such as Section 10,10A,10B,35B,36AB, etc.), have become applicable to co-operative banks. The Reserve Bank of India (RBI) has released the 2025 Guidelines for Co-operative Banks, introducing a transformative framework aimed at strengthening governance, enhancing credit capacity, and accelerating technological adoption. These guidelines mark a major step towards modernizing the co-operative banking sector and empowering it to play a larger role in local economic development.

1. Greater Autonomy and Governance Reforms

One of the core elements of the new guidelines is the enhanced operational autonomy provided to co-operative banks. RBI has eased several restrictions related to branch expansion, product offerings, and credit approvals, allowing banks to take quicker, more localized decisions. Strengthened governance standards, including improved board oversight and risk management systems, aim to ensure better accountability and transparency across the sector.

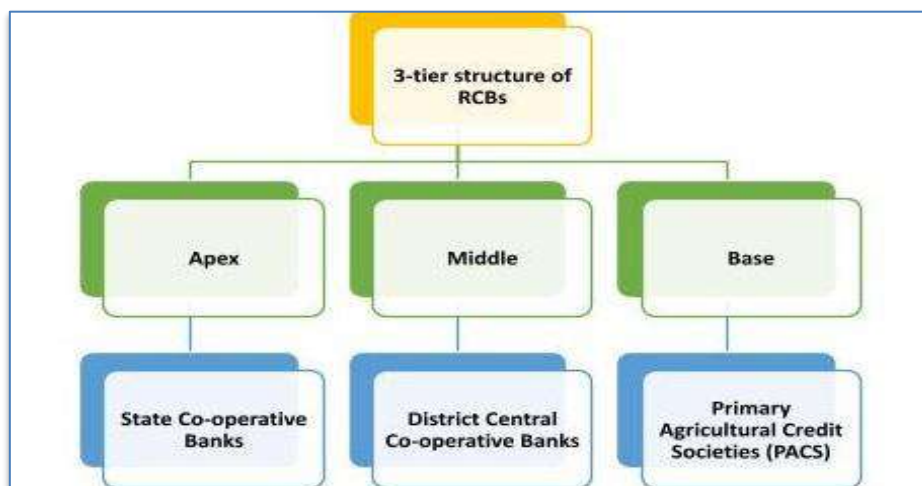
2. Boost to Credit Growth and Lending Capacity

The 2025 framework introduces measures to improve liquidity access, streamline lending processes, and widen the scope of permissible credit activities. By revising capital adequacy norms and enabling more flexible credit operations, RBI aims to boost credit flow to rural and semi-urban areas where co-operative banks are primary financial providers. The enhanced lending ability is expected to support agriculture, MSMEs, and local enterprises.

3. Push for Technology Adoption and Digital Transformation

Recognizing the growing importance of digital financial services, RBI has mandated co-operative banks to adopt improved core banking systems, cyber security standards, and digital payment infrastructure. The guidelines encourage partnerships with fintech platforms, promoting innovation, faster service delivery, and greater financial inclusion. This digital push is expected to significantly upgrade customer experience and operational efficiency.

The RBI's 2025 amendment on Rural Co-operative Banks (RCBs) and credit risk management:



Size & Structure of the Co-operative Banking System (India)	Institutional Numbers 34 State Co-operative Banks (StCBs) 351 District Central Co-operative Banks (DCCBs) 1,457 Urban Co-operative Banks (UCBs)		
Scale of Rural Co-operative Credit System	96,000+ rural co-operative credit institutions (including PACS) 14,000 co-operative bank branches in rural India		
Financial Size (Deposits & Credit)	Urban Co-operative Banks (proxy for sector scale) - Deposits: ₹5.8 trillion - Advances: ₹3.5 trillion	Rural Co-operative Credit Institutions - Deposits: ₹5.9 trillion - Advances: ₹6.5 trillion	
Exposure & Risk Indicators (Why ₹10 Cr Threshold Matters)	Loss-Making Cooperative Banks 46 DCCBs and 134 UCBs reported losses Approx. Losses: DCCBs: ₹998 crore UCBs: ₹1,468 crore		
Financial Inclusion & Growth Trends	RBI Financial Inclusion Index: 64.2 (Mar 2024) → 67 (Mar 2025) - Growth: +4.3%		
(Source : RBI Update – Reserve Bank of India (Rural Co-operative Banks – Credit Risk Management) – Amendment Directions, 2025)			

Benefits of RBI guidelines to strengthen the cooperative banks in India:

1. Faster Growth

- Easy Expansion: Good banks can open new branches (up to 10%) without waiting for RBI permission.
- Banking at Home: Banks can now offer doorstep services like cash pickup, deposits, and KYC.

2. Bigger Loans

- Housing: Banks can now lend much more for home loans (up to 25% of their total business).
- Gold Loans: The limit for gold loans has doubled from ₹2 lakh to ₹4 lakh.

3. Better Management

- Longer Terms: Directors can now serve for 10 years instead of 8 for better stability.
- Settling Debt: Banks can now use "One-Time Settlements" to clear old, unpaid loans more easily.
- Safety First: If a bank struggles, the RBI step in early to fix it and protect your money.

4. Tech & Safety

- Going Digital: Lower fees for Aadhaar payments and new computers for rural societies.
- Safe Deposits: Every depositor is insured up to ₹5 lakh if a bank fails.
- Easier Complaints: A simpler way to report problems through the RBI Ombudsman.

DRAWBACK:

Cooperative banks in India are very important for supporting local communities, especially small businesses and individuals. However, the guidelines introduced by the Reserve Bank of India (RBI) to strengthen these banks often create practical challenges. While these rules are meant to improve safety and stability, they do not always fit well with the cooperative banking model.

1. Dual Regulation Difficulties:

- Under the Four-Tier Framework of the Reserve Bank of India, banks moving to a higher tier (e.g., crossing ₹100 crore deposits) face stricter rules.
- Impact: Small banks hesitate to grow due to higher compliance requirements.

2. Capital Adequacy (CRAR):

- Banks must achieve 12% CRAR by 2026.
- Challenge: Cannot raise funds from the public like commercial banks; depend on members.
- Impact: Difficult to increase capital while limiting dividends.

3. Technology and Cyber security Costs:

- Need advanced systems like Core Banking Solutions and cyber security tools.
- Impact: Small banks cannot afford high costs, leading to a digital divide.

4. Governance v/s Cooperative Nature:

- RBI requires professional management (e.g., Chief Compliance Officer, tenure limits).
- Impact: Conflict between modern governance and traditional cooperative structure.

5. Integrated Ombudsman Burden:

- Inclusion in RBI Ombudsman Scheme requires formal grievance handling.
- Impact: Small rural banks face heavy administrative workload.

7. MEASURES TO OVERCOME CHALLENGES:

Overcoming the challenges of the RBI 2025-2026 guidelines requires a shift from "traditional community lending" to "modern financial management." Since cooperative banks cannot raise capital from the stock market like commercial banks, they must use creative, collaborative strategies. Here is how cooperative banks are successfully navigating these hurdles.

1. Improving Capital Adequacy Ratio (CRAR): banks are adopting methods such as share linking, where borrowers are required to contribute a small percentage of their loan amount as share capital. In addition, many banks are reducing dividend pay-outs and retaining profits to strengthen their financial reserves. Some Urban Cooperative Banks are also exploring new capital instruments like Perpetual Cumulative Preference Shares and long-term bonds to raise additional capital.

2. High Cost of Technology: Smaller cooperative banks often cannot afford expensive IT systems on their own. To solve this, they are increasingly adopting shared service models. Government-supported initiatives like Sahakar Sarathi provide cloud-based banking solutions, allowing banks to access modern technology at a lower cost.

3. Mergers and Consolidation: When smaller banks find it difficult to meet regulatory requirements, they are encouraged to merge with stronger institutions

4. Improving Governance: Cooperative banks are taking steps to professionalize their boards by forming specialized committees for audit and risk management. They are also investing in training programs through institutions

5. One-Time Settlement (OTS) Schemes: To prevent misuse, they are implementing strict and transparent policies, ensuring that only long-pending defaulters are eligible. At the same time, banks are focusing on early intervention by identifying stressed borrowers in advance and offering restructuring options before loans turn into non-performing assets.

8.CONCLUSION:

The study clearly shows that cooperative banks play a very important role in India's economy, especially in rural and semi-urban areas. They help farmers, small businesses, and local people by providing easy access to basic banking services. Since these banks are run by members and focus more on service than profit, they are closely connected to the needs of the community. However, they also face several problems like weak management, increasing bad loans (NPAs), lack of funds, and outdated technology. In this situation, the role of the Reserve Bank of India becomes very important. The RBI has taken strong steps to improve the functioning of cooperative banks by introducing stricter rules, better supervision, and new guidelines in 2025. These changes are helping banks become more stable, efficient, and modern. At the same time, these new rules also bring challenges, especially for smaller banks that find it difficult to meet higher capital requirements and invest in technology. To overcome these problems, cooperative banks need to find smart solutions like increasing their capital, using shared technology, hiring skilled professionals, and sometimes merging with stronger banks.

Overall, the future of cooperative banks depends on how well they can adapt to modern banking while still keeping their basic values of cooperation and service. With the right support and continuous improvements, they can overcome their challenges and continue to play a strong role in India's growth and development.

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Role of Green Cooperatives as Drivers of Sustainable Development: A Case Study Perspective

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Abstract: *In the last two decades, the world has increasingly faced various challenges such as socio-economic inequalities, climate change and environmental degradation. As such, 'sustainable development' has become a global-mantra. Green-cooperatives have emerged as an effective mechanism for promoting environmentally sensitive economic activity while ensuring social inclusivity and economic stability by integrating cooperative principles such as democratic governance, shared ownership, and community orientation with environmental sustainability goals. Through this research paper, the researcher explores the role of green cooperatives as drivers of sustainable development through a case study perspective. The researcher has tried to extend an insight on how Green-cooperatives contribute to socio-economic economic growth, social empowerment and environment sustainability.*

The paper highlights the potential of green cooperatives like renewable-energy cooperatives, organic-farming cooperatives, and eco-focused housing cooperatives, in fostering socio-development and ecological sustainability, through certain case-studies. The findings of the study suggest that green cooperatives play a very significant role in promoting sustainable economic activities as means of earning livelihood; thus strengthening the local economies. The researcher has also identified certain challenges that hinder the growth process of green cooperatives such as limited required resources - financial and otherwise, lack of awareness, and policy constraints. The study concludes that a supportive framework, access to adequate finance, and capacity-building initiatives are the key requisites to strengthen green cooperatives as drivers of sustainable development.

Key Words: *Green cooperatives, sustainable development, renewable-energy cooperatives, organic-farming cooperatives, eco-focused housing cooperatives, community participation, environmental sustainability.*

1. INTRODUCTION:

Sustainable development has become a global concern for most of the governments, policymakers, and international organizations. Sustainable development refers to a gradual developmental process that caters to present needs without compromising the needs of the future generations. A balanced economic growth, ecological conservation, and social equity are pillars of sustainable development. Traditional economic activities and frameworks have often prioritized the objective of profit maximization over environmental sustainability and social welfare. Global enigmas such as climatic change, biodiversity imbalances, and social inequality have intensified in recent years. As such, contemporary ideologies supporting alternate economic models that integrate business activities with principles of equity, environmental sensitivity, and social responsibility are gaining importance. The 'green cooperative' model integrates cooperative principles with environmental sustainability goals.

Through this research paper, the researcher aims to examine the role of green cooperatives as drivers of sustainable development and highlight how green cooperatives contribute to environmental sustainability and socio-economic empowerment at local and regional levels.

2. OBJECTIVES OF THIS STUDY:

1. To study the concept and significance of green-cooperatives in the sustainable development process.
2. To analyze how green-cooperatives contribute to socio-economic development and environmental sustainability.
3. To explore case studies demonstrating the practical outcome of green-cooperatives.
4. To identify the various challenges faced by green-cooperatives and suggest policy recommendations.

3. RESEARCH METHODOLOGY:

The researcher adopts a 'qualitative case study approach' to analyze the role of green cooperatives as key drivers of sustainable development.

4. SOURCES OF DATA:

The study is based on secondary data sources. The researcher has collected data from:

- Research papers and articles published in journals
- Publications by International organizations and Government bodies.
- News and Web articles

5. METHOD OF ANALYSIS:

The researcher adopts a descriptive method to examine and analyze the contribution of green cooperatives in the process of sustainable development. Case studies are used to illustrate the practical outcomes of green-cooperatives in the real-world scenario.

6. CONCEPTUAL FRAMEWORK:

6.1. Sustainable Development

The concept of sustainable development focuses mainly on creating a world where economic growth and development is balanced with social well-being, and maintaining ecological health. The United Nations World Commission on Environment and Development released the report '*Our Common Future*' in 1987 known popularly as Brundtland Report. This report defines the concept of sustainable development as: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." The conceptual framework of sustainable development integrates the concept of development with economic stability, environmental conservation and societal well-being.

Figure1 The '3 Pillars' of Sustainable Development



In 2015, all United Nations Member States adopted the 2030 Agenda for Sustainable Development, which established 17 Sustainable Development Goals (SDGs) at the global level. These "Global Goals" serve as a universal 'call to action' - to end poverty at the global level and protect the planet earth by the year 2030. The United Nations 'Sustainable Development Goals' (SDGs) highlight the importance of sustainable production, clean energy, green environment, conservation of natural resources, climate action, and inclusive economic growth. Sustainability refers to the long-term goal of creating a more sustainable world, while sustainable development refers to the processes, methods and pathways to achieve this goal of sustainability. Cooperatives are recognized as crucial drivers in achieving these goals at local and national levels.

6.2 The Cooperative Model:

A cooperative is an independent association of people who come together voluntarily to satisfy their mutual economic, social and cultural needs. Cooperative organizations are based on the principles of democracy, equity, equality, mutual responsibility and self-help. As such, these organizations are owned, managed and controlled by its members through a democratically elected management committee. The registration, management, and functioning of co-operative societies is governed and regulated by The Maharashtra Co-operative Societies Act, 1960. The bye-laws of the cooperative society serves as the charter for the society, providing a structured legal framework for its internal management, day-to-day operations and governance.

6.3 Green Cooperatives:

Green cooperatives are cooperative organizations that combine cooperative principles with environmental-friendly practices and focus on ecological sustainability while meeting the economic and social needs of their members. As such, Green cooperatives are organizations that apply cooperative principles to environmentally sustainable economic activities.

The Industrial Revolution, which began in the 1760s in Great Britain, brought about unprecedented changes in the production systems. It led to technological advancements and rapid economic growth marking a significant landmark in the history of human development. However, this development came with a significant environmental cost owing to:

- Rapid growth of waste generation.
- Ever-increasing pollution due to greenhouse gases emission and release of industrial effluents in the atmosphere.

India has emerged as a major economic player in recent decades along with many developed economies like the many European countries, USA, Russia, and Japan.

Key Features of Green Cooperatives Includes:

1. **Focus on environmental sustainability:** Protect the environment by reducing pollution, conserving natural resources, creating environmental awareness and promoting sustainable practices.
2. **Fostering Renewable Energy Production and Usage:** Many green cooperatives work in areas like solar energy, Wind energy, Bioenergy etc.
3. **Promotes Sustainable Production and Consumption:** Green cooperatives foster green-entrepreneurship and are engaged in economic activities like Organic farming, manufacturing of Eco-friendly products and recycling waste.
4. **Works towards overall Community Benefit:** Green Cooperatives not only contribute towards the economic interest of its members but also works towards the community at large. It aims at improving environmental quality and public health, helps to generate employment opportunities, fosters environmentally sustainable practices by creating awareness, promotes innovation in areas of sustainable production, green energy, eco-friendly products, organic farming etc.

5. **Democratic Structure:** Green cooperatives are based upon cooperative principles of equity, equality, solidarity, self-help and democracy. As such, these organizations are owned, managed and controlled by members with equal voting rights, and enjoy equal distribution of surplus irrespective of capital contribution.

7. LITERATURE REVIEW:

Several studies show that cooperatives play an important role in promoting economic growth while contributing towards sustainable development goals. Number of researches have highlighted how cooperative have fostered responsible methods in production and have adopted environmentally sustainable methods.

Certain studies demonstrate how agricultural cooperatives promote collective investment and enable farmers (especially local and marginal producers) to share resources, access environmentally friendly technical knowledge, adopt eco-friendly solutions and adopt sustainable production methods through proper training and capacity building programs. This encourages the adoption of green practices and sustainable production systems.

A few researches have highlighted certain challenges faced by green cooperatives. This includes limited financial and other resources, inadequate and weak institutional support, lack of technical support and expertise. The researchers have also identified certain market barriers for green/organic produce viz. lack of standardization and grading systems, inadequate advertising/ promotion etc. These lacunas can be diminished by framing and implementing supportive policies and remodeling institutional frameworks suitably.

8. Role of Green Cooperatives in Sustainable Development:

Green cooperatives may contribute to sustainable development in following ways.

Promoting Renewable Energy sources	• Energy cooperatives promote the adoption of renewable energy sources such as solar, wind, and biomass. • These initiatives reduce the dependency on fossil fuels and help to deal with environmental issues such as pollution and resource depletion. • Community-owned renewable energy projects also generate income and employment opportunities for local populations.
Supporting Organic farming	• Replacing chemical fertilizers/ pesticides with their organic or natural alternatives. • Promoting water and Soil conservation techniques • Fostering Water-efficient irrigation methods like drip/ sprinkle irrigation These practices help to improve soil health, safeguard biodiversity & ensure maximum long-term yield.
Resource Sharing	Green technologies such as solar powered water pumps, renewable energy systems, and eco-friendly machinery often require significant financial investment. Green cooperatives allow its members to pool resources and collectively invest in such sustainable technologies.
Knowledge Sharing	Green cooperatives organize workshops and training programs to educate its members and local community in general about sustainable production techniques, Environmental conservation methods and efficient resource management. This accelerates the pace of adoption of sustainable practices.
Improving Marketability	Green Cooperatives enable small producers to collectively market their products, thus enhancing their bargaining power and improving accessibility to larger markets. This helps the producers obtain better prices and meet the global sustainability standards.

9. CASE STUDIES ON GREEN COOPERATIVES:

9.1 Solar Energy Cooperative:

A solar energy cooperative is a member-owned, community-based organization that promotes the generation and usage of solar energy. Members reduce high energy generation costs, bypass technical hurdles through collective efforts by allowing individuals to act as "sustainable prosumers" i.e. producers and consumers of green energy while reducing dependency on pollution causing traditional energy sources.

One such cooperative in India is 'The Dhundi Solar Energy Producers' Cooperative Society'. The Dhundi Solar Energy Producers' Cooperative Society (DSUUSM) also known as *Dhundi Saur Urja Utpadak Sahakari Mandali* established in 2016 in Gujarat's Kheda district, is the world's first solar irrigation cooperative. Being a pioneer of solar-powered irrigation, it was registered under the Gujarat Cooperative Societies Act 1961 on 16/02/2016. This organization has fostered 'Solar Entrepreneurship' and is supported by the Gujarat State Government and International Water Management Institute (IWMI) whereby members collectively invested in solar pumps and created a microgrid to generate renewable energy. This sustainable farming initiative by DSUUSM allows farmer-members to utilize solar pumps for irrigation, thus reducing dependency of diesel power for irrigation purposes. The surplus electricity produced is sold to the grid, transforming 'the power of the sun' not only as a source of renewable energy but also as a means of earning additional revenue. Ensuring eco-friendly irrigation through drip irrigation & other water and energy saving technology. DSUUSM conducts a number of experiments to identify improved harvesting and agricultural methods. In light of the growing environment related issues and current fuel shortages faced due to global crises, such initiatives hold a massive significance in the field of energy generation. Its success led to replication in Mujkuva village, amplifying sustainable agriculture and rural development.

Key aspects of Dhundi Solar Energy Producers' Cooperative Society:

Incentive Structure:	Solar power is treated as a "Remunerative Crop": Farmer Members treat solar energy as a harvestable product. They sell excess power to the Madhya Gujarat Vij Company Ltd (MGVCL) at a base rate of ₹4.63 per unit. To encourage conservation, members receive an additional "Green Energy Bonus" @ Rs. 1.25 per unit and a "Groundwater Conservation Bonus," @ Rs. 1.25 per unit; bringing the total payout to be up to Rs. 7.13 per unit (Rs. 4.63 + Rs. 1.25 + Rs. 1.25) Additional income was generated by providing water to the farmers in the neighboring fields and getting income of Rs.250 per biga.
Economic Growth:	Member farmers have seen significant income increases; for example, one member's annual income reportedly jumped from ₹30,000 to over ₹ 1, 30,000 within two years with an initial investment of mere Rs. 54000.
Environmental Sustainability	The initiative taken by DSUUSM in the field of green energy and water conservation has significantly reduced carbon emissions and prevents the over-extraction of groundwater.
Ideal Green Energy Model	The success of the "Dhundi Model" led to the initiation of Suryashakti Kisan Yojna (SKY) by Gujarat State Government (that helps farmers install solar power plants, allowing them to generate their own electricity ty for irrigation and earn additional income up to approximately ₹21,917 per year by selling surplus power to the grid. and the national PM-KUSUM scheme - a 2019 Govt. of India initiative is one of largest initiatives of the world to provide clean energy to more than 35 lakhs Indian farmers (by solarizing their agriculture pump)

9.2 Green Farming Cooperatives:

India has always been an agrarian economy since ancient times. As such, it holds a true potential to be the global leader in organic produce owing to its diversified topography and climatic conditions suitable for producing a wide range of agricultural products. A green farming cooperative also known as organic farming cooperative is a form of green cooperative wherein a group of farmers come together to practice environmentally sustainable agriculture. The members of these cooperatives share knowledge and resources while enjoying its economic benefits on equitable basis. As such, green farming cooperatives blends the cooperative model with eco-friendly farming principles such as use of organic or no-chemical farming methods, promoting use of green powered irrigation methods, pooling resources, sharing costs, using collective marketing strategies, undertaking agricultural research to promote resource conservation like soil, water, energy etc., and supporting biodiversity.

1. Green-Farm Farmers Producer Company Limited:

A Farmers Producer Company (FPC) was recognized as a hybrid form of company by integrating the features of a cooperative society and private Ltd. company. This form was accepted under a 2002 Act passed in Parliament as a legal form of the company whereby only farmer – producers can be members of the FPC and the farmer members themselves will manage this company. Green Farm Farmers Producer Company Ltd. is one such FPC. It was incorporated in 2022 under the Companies Act, 2013 in Birbhum (West Bengal).

This organization aimed at organizing local smallholder women farmers for cooperative agriculture and value-addition. The company holds more than 1000 ‘women farmer’ shareholders since its beginning. Likewise Green Farm Farmers Producer Company Limited was incorporated on 22 July 2022 under Companies Act with the objective of organizing women farmers in order to enhance their bargaining power in the market. The Green Farm Farmers Producer Company Limited is wholly owned and governed by women. Its shareholders and Board of Directors is composed of women members. This organization is involved in activities related to production, harvesting, procurement, assembling, grading, marketing, processing, etc., of agricultural commodities.

Key Aspects of Green Farm Farmers Producer Company Limited:

Hybrid Form of Organization	Incorporated as a ‘Farmers Producers Company’ that integrates the strengths of a cooperative society and Private Ltd. company.
Aims at sustainable profit:	The organization focuses on making agriculture profitable and ecologically sustainable by promoting organic farming methods.
Owned and Managed by women:	Majority of its shareholders are women farmers. It has more than 1000 women farmer shareholders since its incorporation in the year 2022. The Board consists of Women Directors who are involved in management of the organization.
Based on the cooperative principle of democracy & self-help.	It is governed by the principle of ‘one member one vote’ which ensures equality in decision making on all important matters related to the organization. Also, it helps the local producers to satisfy their economic goals by mutual cooperation and self-help.
Organizes the local producers:	Improves the bargaining power of local primary producers in the market, in the areas of procurement, processing, and marketing of agricultural products.

9.2.2 Organic Farming Cooperatives in Uttar Pradesh, India

The Organic Farming Cooperatives in Uttar Pradesh organize local farmers to reduce chemical fertilizer usage, adopt organic farming techniques by providing necessary training and know-how, and assisting them in regards to certification and marketing of agro products. By 2024, these cooperatives collectively held a significant share in the organic agro-market of Uttar Pradesh and are supported by more than 200 registered multi-state societies.

Key aspects of Organic Farming Cooperatives in Uttar Pradesh:

- It undertakes research activities to improve soil health, identify and produce organic inputs for farming (like vermicompost) and enhance agricultural yield.
- It promotes sustainable agricultural practices like rain water harvesting, drip irrigation, use of nature based pest control methods, equipment and resource sharing etc.
- It supports local farmers in marketing their produce, thus ensuring higher farmers' income and maximizing their returns.
- It fosters expansion of organic food markets.
- It helps to maintain regional bio-diversity
- Institutional support is provided by organizations for marketing and certification of organic agro-products such as the National Cooperative Organics Limited (NCOL)
- It undertakes various local initiatives like supporting localities engaged in agro-allied activities to produce and sell manure, vermicompost.
- Is supported by various government schemes. For instance Paramparagat Krishi Vikas Yojana (PKVY) under which financial assistance of ₹31,500/ha for 3 years is given, including ₹15,000 via Direct Benefit Transfer (DBT) for organic inputs.

9.3 Eco-Focused Housing Cooperative:

An eco-focused housing cooperative is a residential society registered under the Cooperative Societies Act where the residents are the members themselves who jointly own, manage, and consciously design their living space in such a way so as to minimize their environmental impact while enjoying the joys of a comfortable living and enhancing the quality of life. The management of an eco-focused cooperative is in the hands of a management committee composed of members elected democratically. An eco-focused housing cooperative is based on a community-driven sustainable model to ensure resource efficiency and foster environmental responsibility through:

- an effective waste management system (through proper segregation and composting organic waste)
- appropriate water management and conservation (through rain water harvesting, sprinkle irrigation, drip irrigation and grey water recycling)
- use of green energy (solar energy/ wind energy), adopting energy saving methods (through natural lighting and ventilation, LED lighting, sensors)
- green-scaping the surroundings (through tree plantation, terrace gardening and vertical gardening)
- bio-diversity conservation
- use of eco-friendly construction material
- engaging in community driven sustainable programs

One such eco-focused housing cooperative is Palash Co-operative Housing Society - a residential complex located in Wakad area of Pune region (Maharashtra) known for its eco-friendly architectural design and community-driven sustainability programs. This project was developed by Vilas Javdekar & Associates and registered as a co-operative in 2012. This project is an ideal example of urban green living through use of renewable-energy, waste recycling and management, and effective water-conservation mechanism.

Key sustainable initiatives of Palash Co-operative Housing Society:

- **Energy Management:** Palash Co-operative Housing Society is equipped with rooftop windmills and solar-panels that power corridors and common areas, cutting its electricity bill by nearly half.
- **Water Conservation:** Palash Co-operative Housing Society has an extensive rainwater-harvesting system to help maintain the ground water levels. The society has a 750-litre well which serves as a rainwater harvesting tank. Drip-irrigation systems are installed to water the gardens. Aerators are installed on household taps. The residents of the society have adopted 'the zero-water car-wash' whereby they use locally made herbal-liquid car cleaners instead of water and chemical soaps. Through such initiatives, approximately 60,000 liters of water is saved on daily basis

- **Waste Management:** The members of Palash Co-operative Housing Society have shifted to cloth bags with a view to reduce plastic waste. They have an effective waste-segregation mechanism whereby waste is segregated as wet, dry and hazardous. The society processes approximately 200–230 kgs of wet waste daily through composting. Nearly 5–6 tons of organic manure is produced every year which is distributed free of cost or at subsidized rates to nearby farmers.
- **Conservation of Biodiversity:** Palash Co-operative Housing Society has done extensive green-scaping by planting over 1,600 trees within its four-acre premises. This in turn has created natural habitats for birds. Bird feeders have been installed in various parts of the society. A few residents' have taken up organic-patch farming.
- **Eco-friendly Architecture:** Use of sustainable building material like fly ash bricks which are machine-made, environment friendly, durable, water resistant, cost effective, requires lesser plaster & safer for earthquake prone zones.
- **Community and social engagement:** During the COVID-19 pandemic, the residents of the society had chosen vendors to deliver essentials like vegetables directly from the farm to their society. They even managed to get cash delivered at their doorsteps through 'mobile ATMs'. They also conduct regular education drives and eco-tours for its members to promote sustainable urban living.

For its environmental stewardship, Pimpri Chinchwad Municipal Corporation has accorded 'the Best Society Award' to Palash Housing Cooperative Society in the year 2017–2018. Their sustainability initiatives have received a five-star environmental rating combined with an extensive nation-wide media coverage.

10. Key Insights:

- Through this paper, the researcher has studied green cooperatives of specific natures viz. Green energy cooperatives, organic farming cooperatives and eco-focused housing cooperatives through a case study method.
- The above case studies highlight the various pathways through which green cooperatives contribute towards sustainable development.
- Green cooperatives are engaged in environmentally sustainable economic activities which are often supported by collective pooling of financial resources, technology and knowledge sharing.
- These organizations are based on principles of cooperation viz. Equity, equality, democracy, self-help and solidarity and foster ecologically responsible production and consumption systems which help to reduce environmental foot-print along with providing a means or livelihood to local residents.
- The objectives of these organizations include:
 - a. Uplifting the economic conditions of local residents, by providing stable income-earning opportunities
 - b. Conservation of natural resources by fostering use of non-conventional/ renewable sources of energy like solar energy, wind energy etc
 - c. Implementing eco-friendly production methods & environmentally sustainable inputs is vital for sustainable development.
 - d. Promoting environmental sustainability by incorporating 5 R's of sustainability viz. Reuse, refuse, reduce, recycle and recover, wherever possible. This further helps in effective waste reduction and waste management.
 - e. Promoting water conservation methods like rain water harvesting, drip/sprinkle irrigation and other such methods
 - f. Encouraging community collaboration and promoting environmentally responsible production systems, with a view to reduce pollution, reduce environmental impact and conserve the scarce natural resources
- The initiatives of Green cooperatives are supported by various schemes of the government.

- In spite of its massive potential, the growth of green cooperatives is often subject to various constraints like:
 - a. Lack of awareness about this particular cooperative model
 - b. Limited financial resources and technical know-how
 - c. Lack of proper training and development mechanism
 - d. Limited awareness about government schemes and incentives
 - e. Inadequate policy support
 - f. Lack of professional management
 - g. Difficulties in adapting to change for better
- To overcome the above challenges, there is a need to impart awareness about green cooperatives and extend necessary support. This may be possible through policy reformations that foster enhanced financial incentives, skill-development programs, training and capacity-building programs etc. Also, the success stories of green cooperatives should be brought to light through media coverage, awards and recognitions.

11. RECOMMENDATIONS:

- The Government, banks and other non-governmental organizations should provide green cooperatives with grants, subsidies and zero interest or low-interest loans.
- Training programs should be organized to enhance managerial, technical, and environmental knowledge amongst the community in general and members of green cooperative in particular.
- The government, through its various policies, should encourage renewable energy cooperatives, organic farming cooperatives, and other environmentally friendly enterprises.
- Governments should promote green products through standardization of organic products, recognition through proper certification and labeling systems, supportive public procurement policies, and adequate promotion/advertising of organic products.
- The government should extend additional incentives to producers who incorporate sustainable practices like installation of solar panels, wind turbines, rain-water harvesting system, grey-water recycling system etc.
- The government should take steps to increase the number of certified recyclers to ensure proper waste management.
- Subsidizing of eco-friendly agricultural inputs, construction material, solar panels etc.
- Collaboration between Government agencies, cooperatives, NGOs, research institutions, and private organizations can positively promote innovation & knowledge sharing thus accelerating the pace of sustainable economic growth.

12. CONCLUSION:

Green cooperatives serve as an ideal model for achieving environmentally sustainable socio-economic development. The cooperative structure integrated with sustainable production practices enables communities to collectively address environmental challenges while catering to their economic needs. The researcher, through this paper, has highlighted how green cooperatives are drivers of sustainable development and help to make the world a better place, for all species, to live in. Green cooperatives promote - adoption of non-conventional and eco-friendly ways of energy generation, means of energy and water conservation, sustainable organic agriculture, resource sharing, knowledge sharing, market access, stable income generating opportunities for local people, being ecologically responsible while improving the quality of life. In the era of climate change and ecological crises, green cooperatives can serve as powerful catalysts of sustainable transformation, helping communities to move toward a more equitable, habitable and environmentally sustainable future

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Use of Biogas, Composting, and Recycling Technologies by Rural and Urban Cooperatives

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Abstract: This paper explores how village and city associations contribute to the use of biogas, composting, and recycling methods for eco-friendly refuse handling in India, centered specifically on Maharashtra. The investigation relies on existing information gathered from state records and success stories, involving projects backed by the Ministry of New and Renewable Energy along with the Swachh Bharat Mission. A contrastive and narrative analytical structure was employed to evaluate variations in technical implementation and functional performance between countryside and metropolitan collective formats. The results show that farming unions are more deeply involved in biogas generation and composting because of accessible biological materials and land, whereas city-based groups exhibit higher proficiency in recycling operations aided by superior facilities and systematic refuse gathering setups. Examples like the SWaCH Alliance underscore the success of group-managed municipal waste handling. The inquiry finishes by stating that both country and town collaborative networks are mutually beneficial, and a unified strategy merging their advantages can notably improve green waste treatment and bolster the growth of a circular marketplace in India.

Key Words: Biogas, Composting, Recycling, Rural & Urban Cooperatives, Sustainable Waste Management, Circular Economy, Environmental Sustainability, Waste Segregation, Government Schemes, Rural-Urban Divide

1.INTRODUCTION:

Biogas Composting and recycling technologies are essential for sustainable waste management. Rural and Urban cooperatives provide an effective platform for implementing these technologies by involving communities reducing pollution and generating economic benefits with proper support and awareness, this system can help to achieve a clean and energy efficient society

In the current LPG crises biogas plays a crucial role as a sustainable economic and ecofriendly alternative fuel. The capacity of the biogas-based power has been growing rapidly for the past decades. Government schemes for community biogas plants in India, primarily driven by the Ministry of New and Renewable Energy (MNRE) and the Swachh Bharat Mission.

As we must be aware that waste management in India has not evolved like western countries. Also, by the point of view of technology, we are lagging behind as compare to key partners within the field. Also, Biogas production, Composting & Recycling are evolving fields but, so invention and experiments must need sharing factor. Nowadays at different levels many experiments are happening in and around the country. But, urban, rural gap has created block in experience sharing within the working cooperative groups.

This study aims to point out efforts are being taking place in Rural and Urban Cooperatives for the use of Biogas, Composting, and Recycling Technologies. The objectives are to analyse their effectiveness

in waste management, compare rural and urban cooperative models and evaluate their contribution to environmental sustainability and economic development.

About Topic:

Biogas production, composting, and recycling processes serve as the three fundamental foundations of eco-friendly waste handling. These strategies do more than just mitigate ecological contamination; they also advocate for the streamlined use of existing materials. Within India, particularly when managed through cooperative systems, these methods have become increasingly significant as waste volumes expand and energy requirements climb.

Biogas Generation

Biogas systems function by transforming organic matter, including crop leftovers, livestock manure, and discarded food, into a flammable gas via anaerobic breakdown. This procedure yields a sustainable, non-polluting power source suitable for culinary needs, power production, and various household applications. In countryside settings where organic refuse is abundant, these systems have emerged as both economical and ecologically sound solutions. Furthermore, they play a crucial role in lowering the reliance on traditional fossil fuels.

Organic Composting

Composting serves as a critical method for turning degradable refuse into high-quality organic fertilizers. By utilizing biological decay, items like food remnants, yard clippings, and farming byproducts are transitioned into compost. This end product boosts soil productivity and bolsters eco-conscious farming. Both city dwellers and rural residents are adopting composting at higher rates, driven by a deeper understanding of soil vitality and the necessity of waste minimization.

Materials Recycling

The focus of recycling technology is the transformation of non-degradable items, such as synthetic polymers, paper, glassware, and alloys, into functional new products. This practice preserves raw materials while simultaneously decreasing the pressure on dump sites and slowing environmental decline. Metropolitan regions, aided by superior facilities, systematic collection services, and established trade networks, have successfully implemented more organized recycling frameworks.

The Path to Sustainability

Collectively, these advancements facilitate the growth of a circular economy, a system where refuse is viewed as a valuable asset rather than trash. When deployed through collaborative community efforts, these technologies foster public engagement, create new jobs, and provide a roadmap for enduring environmental health

2.OBJECTIVES:

- To investigate the contribution of countryside and city associations in the integration of biogas, composting, and recycling methods.
- To assess the efficiency of these systems in advancing long-term eco-friendly refuse handling habits.
- To contrast the operations and results of village versus metropolitan collective frameworks in trash administration.
- To gauge the ecological and financial advantages produced via group-driven waste processing structures.
- To pinpoint the hurdles and disparities, especially the country–city split, in the execution of these innovations.
- To review the influence of state programs like the Swachh Bharat Mission and the GOBAR-DHAN Plan in encouraging these activities.

3. LITERATURE REVIEW:

When we look towards bio gas it always come as a good option against fossil fuels. Even, the studies already proven that bio gas can be good option to reduce use of fossil fuel. Also, due to environmental impact & current global situation because of war in west Asia the bio gas and sustainable waste management has emerged as a key area to research and further development. For this, the availability

to produce bio gas or for waste management the raw material like agricultural waste or animal waste like cow dung it is available in large quantity at cheaper cost.

Apart from biogas, if we look at composting, it has a proven record of playing a crucial role in waste management systems. Due to increasing awareness of environmental issues, people have started adopting composting as a method to produce fertilizers for houseplants in urban areas and for agricultural purposes in rural areas.

Ultimately, it has had a positive impact on improving soil quality and has helped reduce landfill waste in urban areas, which also holds significant potential for the future.

Within municipal waste management, recycling serves as a fundamental area of focus. According to academic experts, natural resources are conserved and environmental pollution is significantly reduced through efficient sorting and recycling processes. Urban centers have improved their recycling output through collective initiatives and well-structured waste management systems.

This study seeks to address the existing research gap by examining and comparing how urban and rural cooperatives utilize recycling, composting, and biogas methods. Differences in their impact, efficiency, and strategies among these organizational types remain underexplored. Existing academic literature reveals a lack of comparative evaluations between city-based and village-level collectives, particularly in the Indian context.

The integration of sustainable technologies, generation of employment, and mobilization of local communities are some of the key outcomes of cooperative frameworks. Furthermore, several studies highlight that public participation is a crucial factor in effective waste management.

4. RESEARCH METHODOLOGY:

Research Design

Focusing specifically on the Maharashtra region, this study aims to compare and evaluate how rural and urban cooperatives in India implement recycling, composting, and biogas technologies. The research is based entirely on secondary data and adopts a comparative and descriptive design.

Nature of the Study

To understand the variations, trends, and patterns within urban and rural cooperative frameworks, this study employs a qualitative approach. It analyzes existing case studies, reports, and statistical data. Therefore, the study maintains an interpretative and analytical nature.

Sources of Data

The study is based on online databases, digital platforms, and printed literature related to cooperatives and waste management. Additionally, it draws insights from national initiatives such as the Swachh Bharat Mission and organizations like the Ministry of New and Renewable Energy (MNRE). Only reliable and authentic sources, including research papers, policy documents, and official government publications, have been used.

Data Collection Methods

Accuracy and reliability are ensured by selecting relevant, recent, and credible sources. The data collection process includes reviewing case studies of cooperatives, analyzing government schemes and reports, and examining academic literature through a systematic document review method.

Data Analysis Techniques

Policy documents, case studies, and research findings are analyzed using content analysis. A comparative approach is also used to highlight similarities and differences between urban and rural cooperatives. Key themes such as recycling systems, composting practices, and biogas usage are identified through thematic analysis.

Scope of the Study

The study primarily focuses on sustainable waste management practices, particularly the use of recycling, composting, and biogas technologies. While it considers both rural and urban cooperatives across India, it places special emphasis on the state of Maharashtra.

Case Studies:

The list below provides a selection of case studies for the report, focusing specifically on those that demonstrate the most significant impact on the implementation of biogas, composting, and recycling.

Urban Cooperatives

1. SWACH Organization Region: Pune

2. Core Activities:

- Home-based refuse gathering
- Sorting materials (organic & inorganic)
- Reprocessing synthetics, stationery, alloys
- Assisting decomposition in residential zones

Major Outcomes:

- Decreases dump site volumes
- Offers jobs to refuse collectors
- Enhances metropolitan hygiene

2. Mumbai Biogas Project (City Waste-to-Power) Region: Mumbai

Core Activities:

- Gathering culinary and bazaar scraps
- Transforming it into fuel via digestion facilities

Major Outcomes:

- Generates green electricity
- Lowers refuse disposal rates
- Bolsters eco-fuel in municipalities

3. Pune Residential Composting Framework

Region: Pune

Core Activities:

- Dividing culinary leftovers
- Turning it into fertilizer on-site
- Frequently aided by SWaCH Alliance

Major Outcomes:

- Lowers trash hauled to mounds
- Fosters resident involvement
- Supports eco-friendly lifestyles

Rural Cooperatives

1. Biogas Facilities via Ministry of New and Renewable Energy

Region: Countryside India (comprising Maharashtra)

Core Activities:

- Utilize livestock manure and natural refuse
- Generate combustible gas and natural compost

Major Outcomes:

- Offers non-polluting culinary energy
- Lessens reliance on bottled gas
- Bolsters eco-conscious agriculture

2. GOBAR-DHAN Program

Region: Hamlets throughout India

Core Activities:

- Transform biological waste into:
- Bio-fuel
- Natural soil-enhancers

Major Outcomes:

- Transformation of refuse into riches
- Enhances village-level hygiene
- Produces new revenue streams

3. Dairy Alliance Biogas Framework (Western Maharashtra)

Region: Maharashtra (Kolhapur, Sangli, Satara)

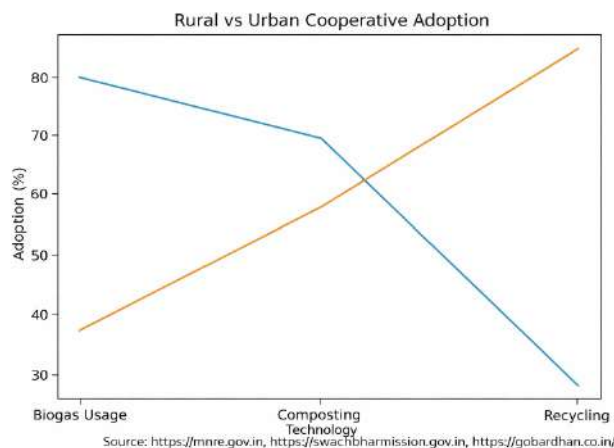
Core Activities:

- Gather cattle waste from milk producers
- Process within fermentation units

Major Outcomes:

- Power generation
- Production of biological fertilizers
- Extra earnings for agriculturists

5.Data Analysis & Discussion:



Graph 1.1

1. Comparative Analysis of Rural and Urban Cooperatives

Based on secondary data from Maharashtra and Indian case studies (such as Pune waste cooperatives and rural biogas initiatives), a comparative analysis has been conducted.

Table 1.1: Adoption of Technologies (% Approximation based on Case Studies)

Technology	Rural Cooperatives (%)	Urban Cooperatives (%)
Biogas Usage	80%	40%
Composting	70%	60%
Recycling	30%	85%

Source: <https://mnre.gov.in/> <https://swachhbharatmission.gov.in/> <https://gobardhan.co.in/>

(Compiled and interpreted by the author based on secondary data.)

Interpretation (Above Chart)

Rural Cooperatives:

1. High adoption of biogas (80%) due to the availability of animal and agricultural waste
2. Strong presence in composting (70%)
3. Low engagement in recycling due to lack of infrastructure

Urban Cooperatives:

- Dominant in recycling (85%) due to organized waste collection systems
- Moderate composting practices
- Lower adoption of biogas due to space and logistical constraints

2. Discussion of Key Findings

A. Biogas Technology

- Rural areas (e.g., Kolhapur and Satara dairy cooperatives) actively use biogas plants
- Urban areas show limited adoption, except in cities like Pune (biomethanation plants)

Interpretation:

Biogas is more suitable for rural settings due to the availability of raw materials and space.

B. Composting Practices

- a. Both rural and urban cooperatives are actively involved
- b. Urban housing societies (Pune model) are increasingly adopting composting

Interpretation:

Composting acts as a common link between rural and urban systems.

C. Recycling Systems

- Urban cooperatives (e.g., Pune waste-picker model) dominate recycling
- Rural areas lack structured systems

Interpretation:

Recycling requires infrastructure, logistics, and market linkages, which are stronger in urban areas.

3. Table 1.2 : Rural vs Urban Gap Analysis

Factor	Rural	Urban
Resource Availability	High (Organic Waste)	Mixed Waste
Infrastructure	Low	High
Technology Adoption	Traditional	Advanced
Economic Model	Agriculture-based	Market-based

Source: <https://mnre.gov.in/> <https://swachhbharatmission.gov.in/> <https://gobardhan.co.in/>

(Compiled and interpreted by the author based on secondary data.)

4. Link with Government Policies

Schemes such as:

1. GOBAR-DHAN Scheme - <https://gobardhan.co.in/>
2. Swachh Bharat Mission - <https://swachhbharatmission.gov.in/>

have played a significant role in:

- Promoting biogas in rural areas
- Encouraging waste segregation and recycling in urban areas

5. Key Issues Identified

- Lack of integration between rural and urban systems
- Limited awareness and training in rural areas
- Infrastructure gaps in recycling at the village level
- Variations in policy implementation across regions

6. Overall Interpretation

The analysis clearly indicates that:

- Rural cooperatives are strong in biogas and composting
- Urban cooperatives are strong in recycling and structured waste management systems
- A combined approach can create a more efficient and sustainable waste management model

7. Conclusion Note

“The analysis highlights a complementary relationship between rural and urban cooperative models, where integrating their strengths can significantly enhance sustainable waste management practices in India.”

Overall Conclusion:

Achieving a circular economy and long-term environmental sustainability in India depends on promoting knowledge sharing, improving infrastructure, and strengthening collaboration across these sectors. The efficiency of waste management systems can be significantly enhanced through an integrated approach that combines the strengths of both urban and rural cooperatives, as reflected in the overall findings.

Despite the important role played by the Swachh Bharat Mission and the GOBAR-DHAN Scheme in encouraging technological integration, the implementation of these initiatives remains inconsistent across regions. The study identifies a clear gap between urban and rural areas in terms of knowledge dissemination, infrastructure, and access to modern technologies, even though both systems function effectively within their respective contexts.

Urban cooperatives demonstrate greater efficiency in recycling systems due to better market linkages, organized collection mechanisms, and advanced infrastructure. In contrast, the availability of space and organic waste in rural areas supports strong composting and biogas utilization, contributing to agricultural productivity and energy generation. The analysis of cooperative models in India, particularly in Maharashtra, highlights that both rural and urban systems are essential and complementary in promoting sustainable waste management.

8.Recommendations:

To enhance the effectiveness of biogas, composting, and recycling technologies through cooperative models, the following measures are recommended:

- **Prospects for Subsequent Investigation**

Non-Governmental and Corporate Involvement: Future research can explore how private entities and NGOs support and strengthen cooperative efforts.

Sustainability and Scalability Analysis: Further studies can examine the scalability and long-term viability of cooperative-based waste management systems.

Technological Advancements: Both urban and rural settings could benefit from research into cost-effective and innovative methods for composting, biogas, and recycling.

Impact Assessment Studies: To accurately measure the economic and environmental outcomes of these systems, more field-based research using primary data is required.

Inter-Regional Comparisons: Future researchers may analyze cooperative models across different Indian states to understand variations in successful practices.

- **Policy Recommendations and Governance**

Bridging the Rural–Urban Divide: Collaborative platforms should be established to facilitate the exchange of innovations and best practices between urban and rural cooperatives.

Encouraging Public Participation: Awareness campaigns should be conducted, especially among rural communities and urban residential societies, to promote collective action and waste segregation.

Financial Support and Incentives: Government initiatives such as the Swachh Bharat Mission and the GOBAR-DHAN Scheme should provide stronger financial incentives, easier access to credit, and increased subsidies.

Capacity Building and Skill Development: Training programs and workshops should be organized to enhance technical knowledge and operational skills among cooperative members.

Promoting Integrated Waste Management: A comprehensive approach combining composting, biogas, and recycling should be encouraged to minimize waste and maximize resource recovery.

Strengthening Infrastructure: Local governments and state agencies must invest in organized systems for waste segregation, collection, and processing, particularly in rural areas where recycling infrastructure remains underdeveloped.

Role of Private Sector and NGOs: Future research may analyse the involvement of private organizations and NGOs in supporting cooperative initiatives.

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Integrating Functional Microbial Inoculants in Cooperative Farming: Metagenomic Validation and Laboratory-Scale Collective Implementation

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Abstract: This research paper investigates the scientific integration of functional microbial inoculants (FMIs) within the structural framework of Farmer Producer Companies (FPCs) in Maharashtra. As global agricultural systems face the dual challenges of climate-induced abiotic stress and soil degradation, the transition from chemical-intensive to microbial-mediated intensification is essential. This study employs a botanical and biotechnological lens to analyze the efficacy of Plant Growth-Promoting Microorganisms (PGPMs) such as *Bacillus*, *Pseudomonas*, and *Trichoderma*. A unique scientific niche is explored through the metagenomic validation of traditional fermented bio-fertilizers (e.g., Jeevamrit) and their subsequent standardized production in cooperative-owned laboratories. Shotgun metagenomic profiling reveals a functionally rich microbial consortium dominated by *Firmicutes* and *Proteobacteria*, capable of nitrogen fixation and phosphate solubilization. The research highlights the "Genome-to-Field" framework implemented by cooperatives like Sahyadri Farms, which democratizes access to high-end biotechnology, achieving a 96% increase in soil organic carbon and reducing chemical input costs to Rs 40 per acre. The paper concludes that the institutionalization of microbiome science via cooperatives is a prerequisite for sustainable agricultural intensification and regional food security.

Key Words: Microbial Inoculants, Metagenomics, Cooperative Farming, Botany, Bio-fertilizers, *Bacillus subtilis*, Rhizosphere, Sahyadri Farms, Sustainable Intensification, Soil Health.

1.INTRODUCTION:

Molecular Foundations of Microbial Inoculants in Plant Science

At the intersection of botany and biotechnology lies the rhizosphere—a narrow, complex ecosystem surrounding plant roots where microbial inoculants act as biological catalysts. Agricultural biotechnology is defined as the application of scientific techniques to modify plants and microorganisms to enhance their physiological resilience, intrinsic value, and nutritional content. Functional microbial inoculants (FMIs) are biological products containing living cells or dormant spores of beneficial microorganisms that establish populations capable of enhancing crop nutrition and suppressing pathogens.

2.OBJECTIVES:

1. To evaluate the molecular mechanisms and physiological impact of functional microbial inoculants (PGPMs) on crop productivity within collective farming systems.
2. To provide scientific validation of traditional bio-fertilizers using advanced shotgun metagenomics and functional gene annotation.

3. To analyze the institutional model of "Cooperative Biotechnology" through case studies of advanced laboratory infrastructures in Maharashtra's Farmer Producer Companies (FPCs).
4. To quantify the socio-ecological benefits of microbial deployment in terms of soil health restoration and synthetic input reduction.
5. To explore the role of community-led conservation in preserving indigenous plant genetic resources as a biotechnological insurance policy.

3. RESEARCH METHODOLOGY:

This study utilizes a multidisciplinary methodology combining longitudinal experimental review and comparative analytical techniques. The botanical analysis focuses on the interaction between microbial consortia and the plant rhizosphere. Metagenomic data is synthesized from shotgun sequencing and 16S rRNA amplicon analysis to identify microbial taxa and functional genes such as (nitrogen fixation), (siderophore synthesis), and (phenazine biosynthesis). The study incorporates clinical field trial data from the Nashik and Ahmednagar districts of Maharashtra, specifically examining the outcomes of Farmer Producer Companies (FPCs) that have institutionalized internal bio-input production. Statistical evaluation includes the measurement of soil fertility parameters (Soil Organic Carbon, Microbial Biomass Carbon) and crop yield variances using a randomized block design (RBD). Furthermore, the study integrates findings from the "Genome-to-Field" framework to bridge the gap between laboratory predictions and field realities.

Key PGPM Taxa and Physiological Mechanisms

Modern botanical science identifies several microbial groups as essential for sustainable intensification:

- **Bacillus megaterium:** Known for producing organic acids that dissolve bound phosphates, making them bioavailable for plant uptake.
- **Bacillus subtilis:** A multi-functional strain that promotes phosphate solubilization and induces systemic acquired resistance (SAR) in the host plant to fight diseases.
- **Pseudomonas fluorescens:** Specialized in secreting phosphatases and organic acids, improving nutrient synergy.
- **Trichoderma:** A biocontrol fungus that protects plants against soil-borne phytopathogenic organisms.

These microorganisms utilize enzymatic degradation to protect the plant. For instance, the secretion of **cellulase** and **protease** directly breaks down the cell walls of fungal pathogens, while **chitinase** degrades their structural integrity. Simultaneously, the biosynthesis of **Indole-3-Acetic Acid (IAA)**—a critical growth hormone—stimulates root elongation.

Metagenomic Validation of Traditional and Engineered Bio-inputs

A historical gap in botanical research was the lack of precision regarding "Zero Budget" or traditional organic inputs. The emergence of **shotgun metagenomics** has resolved this by enabling the analysis of the entire genetic composition of microbial communities without requiring traditional culturing.

The Metagenomic Profile of Jeevamrit

Jeevamrit, a fermented bio-fertilizer derived from cattle resources (dung and urine), has been used for centuries but only recently validated through metagenomics. Shotgun metagenomic profiling reveals a functionally rich microbial consortium dominated by four phyla: **Firmicutes**, **Proteobacteria**, **Actinobacteria**, and **Bacteroidetes**.

Research indicates that the fermentation process causes a microbial succession, moving from a diverse initial community to a *Bacillus*-dominated population, particularly enriched in **Lactic Acid Bacteria**, after approximately eight days. Functional annotation of these metagenomes has identified specific genes responsible for oxidative C/N cycling and metal dissolution. Field trials in degraded soils have demonstrated a **96% increase** in soil organic carbon (SOC) and a **159% rise** in microbial biomass carbon.

Soil Parameter	Conventional Farming Impact	Microbial Inoculant Impact	Scientific Basis
Microbial Diversity	Low (due to chemical stress)	Rich/Heterogeneous	16S rRNA enrichment
Available Phosphorus	Fixed/Unavailable	20-40% Improvement	Organic acid secretion
Root Health	Pathogen susceptibility	20-30% Disease Reduction	Chitinase activity
Soil Organic Carbon	Declining	Up to 96% Increase	Biomass turnover

The Cooperative Advantage: Institutionalizing Biotechnology

The deployment of advanced botanical science is often limited by the lack of capital and technical expertise among individual smallholders. **Farmer Producer Companies (FPCs)** serve as the essential socio-economic infrastructure to aggregate resources and democratize access to high-tech innovations.

Case Study: Sahyadri Farmer Producer Company

Sahyadri FPC in Nashik, Maharashtra, which involves over 18,000 registered farmers across 31,000 acres, provides a global benchmark for collective biotechnology.

- **Advanced Laboratory Infrastructure:** The FPC operates a self-contained bio-lab for micro-strain isolation and identifies microbial associates using molecular approaches.
- **Precision Testing:** They utilize high-end equipment like **ICPOES** for soil analysis and **GC-MS/MS** for pesticide residue testing at parts-per-billion levels.
- **Democratic Cost Structures:** By upcycling fruit waste into bio-actives, the cooperative produces pest repellents and bio-fertilizers at a cost of **Rs 40 per acre**, a fraction of the cost of commercial synthetics.

4. Case Study: Vasantdada Sugar Institute (VSI)

VSI, established in 1975 by sugarcane growers in Maharashtra, is a unique example of a cooperative-owned research body. Their **Molecular Biology & Genetic Engineering** laboratory, inaugurated by Dr. A.P.J. Abdul Kalam, uses modern tools to develop disease-resistant sugarcane varieties. VSI provides liquid bio-inoculants like **Rhizophospho** and **Azophospho** specifically designed to increase productivity and maintain soil health in sugarcane clusters.

Advanced Breeding and Precision Selection

While FMIs restore the soil, botanical science also targets the plant's genetic potential through **Marker-Assisted Selection (MAS)** and **Genomic Selection**.

Accelerating Varietal Development

MAS utilizes molecular markers linked to specific traits, such as drought tolerance or flood resistance. A prime example is the **Swarna-Sub1 rice**, which contains the gene allowing it to survive two weeks of complete submergence. In Maharashtra, the **Agharkar Research Institute (ARI)** in Pune utilizes MAS to develop high-yielding, climate-resilient varieties of wheat, soybean, and grapes.

Recent breakthroughs at ARI have decoded the genetic basis of **parthenocarpic seedlessness** in grapes, identifying molecular markers that can significantly accelerate the breeding of superior table grape varieties for the export market.

The Maharashtra Gene Bank Programme (MGBP)

Biotechnology in cooperatives is not only about creation but also **conservation**. The MGBP is a pioneering multi-institutional project that integrates scientific research with grassroots action.

- **Molecular Taxonomy:** The programme uses nuclear ITS1 and 28S rRNA markers to identify species and preserve genetic material.

- **Landrace Preservation:** MGBP has registered 54 landraces under the PPVFR Act, ensuring that indigenous seeds, which often have superior nutritional profiles (e.g., finger millet with high calcium), are not lost to the biological "thinning" of previous agricultural revolutions.

Future Trends: Translational Microbiomes and AI Integration

The future of botanical management lies in moving from static applications to real-time monitoring and advanced diagnostics.

Microbiomes as Health Indicators

Microbiome states are now used as diagnostic tools. A **eubiotic** state indicates health, while **dysbiosis** signals impending disease. Cooperative laboratories can perform 'omics analyses of macromolecules (DNA, RNA, proteins) to diagnose crop substrates before physical symptoms manifest. This allows for the precise deployment of beneficial microbial consortia to "pathobiomes," reducing the need for chemical intervention.

Digital Integration and Smart Farming

Smart farming systems powered by **IoT** and **AI** allow cooperatives to integrate sensor data from the soil with weather monitoring. AI-powered analytics can suggest the best time for microbial inoculation, reducing water usage by 40% and labor costs by 20-30%. FPCs like Sahyadri are already utilizing mobile platforms to log inventory and track climate suitability, ensuring data-driven decisions at the community level.

5.CONCLUSIONS:

The synergy between botanical science, advanced biotechnology, and the cooperative farming model represents the only viable pathway for 21st-century agricultural sustainability. Functional microbial inoculants offer a scientifically validated method to restore soil organic carbon and increase yields by 20-40%. The success of Maharashtra's Farmer Producer Companies, such as Sahyadri Farms, and research bodies like the Vasantdada Sugar Institute, proves that high-cost scientific innovation can be democratized through collective ownership. However, for this "White Revolution 2.0" to be successful, it must prioritize the conservation of indigenous genetic diversity and address the "High-Tech, Low-Touch" gap by involving farmers in the scientific process. Ultimately, the transition to a microbial-mediated, data-driven cooperative system is essential for a resilient, self-reliant, and eco-friendly agricultural future.

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Technology-Driven Precision Farming and Smart Post-Harvest Systems in Devgad Alphonso Cooperatives.

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Abstract: The Devgad Alphonso mango, known for its premium quality and GI tag, plays an important role in the economy of coastal Maharashtra. However, changing climate conditions and increasing international demand have made it necessary to adopt modern farming and post-harvest technologies. This study focuses on how precision farming tools such as IoT-based soil sensors, smart irrigation systems, drone monitoring, and AI weather applications are being used in Devgad mango cooperatives. It also examines smart post-harvest practices including hot water treatment, QR-based traceability, digital grading, and ripening chambers. The findings show that the cooperative model helps small farmers access expensive technologies through shared facilities. At the same time, issues such as high investment cost, limited technical skills, and poor digital awareness remain major challenges. The study suggests that combining traditional farming knowledge with modern technology can improve sustainability, export quality, and farmer income.

Key Words: Precision farming, IoT, smart post-harvest, cooperative farming, Devgad Alphonso, mango export, Smart irrigation.

1. INTRODUCTION:

Davgad Alphonso mango farming has traditionally depended on farmers' experience, local knowledge, and observation of natural conditions. While this traditional wisdom remains valuable, current challenges such as climate uncertainty, pest outbreaks, and export quality standards require a more scientific approach. Precision farming offers solutions through technologies like IoT soil moisture sensors, AI weather forecasting apps, GIS mapping, and drone-based orchard monitoring. These tools help farmers make timely decisions related to irrigation, nutrient management, and pest control.

Similarly, post-harvest management has become equally important because mango quality must be maintained from farm to export market. Technologies such as hot water treatment, digital grading systems, smart ripening chambers, and QR code traceability ensure quality compliance and help preserve the authenticity of Devgad Alphonso in domestic and global markets.

1. Background:

Davgad mango industry has been managed through Cooperatives, which empower small-scale farmers by pooling resources. However, the industry currently stands at a crossroads. Traditional farming methods are struggling to keep pace with:

- Climate Volatility: Unseasonal rains and heatwaves are disrupting the flowering and fruit-setting cycles.
- Global Competition: Other regions and countries are producing cheaper mango varieties, making quality and consistency the only way for Devgad to maintain its premium price.

- The Digital Era: Modern consumers demand total transparency (traceability) and chemical-free ripening, which traditional supply chains cannot easily provide.

2.PROBLEM STATEMENT:

Despite the premium reputation of Devgad Alphonso mangoes, cooperatives face several practical challenges in maintaining consistent quality and profitability. Traditional irrigation and input practices often lead to inefficient use of water and fertilizers. Post-harvest losses remain significant due to improper handling, lack of scientific ripening facilities, and internal defects like spongy tissue. In addition, the absence of strong digital traceability systems allows counterfeit products to enter the market, affecting the genuine GI-tagged brand value of Devgad Alphonso.

3.OBJECTIVE:

- To design a Precision Farming Framework utilizing IoT sensors and satellite data to monitor soil health and micro-climates in the hilly terrains of Devgad.
- To evaluate the effectiveness of AI-based non-destructive testing in identifying internal fruit defects like spongy tissue during the grading process.
- To assess the impact of QR traceability, hot water treatment, and ripening systems on export quality and shelf life.
- To assess the Socio-Economic Impact of adopting these technologies on small-holder farmers within the cooperative structure, focusing on Cost-Benefit Analysis

4.RESEARCH METHODOLOGY:

Research Design

The study focuses on the use of precision farming tools such as IoT-based smart irrigation, drone monitoring, and digital traceability systems, along with smart post-harvest technologies like ripening chambers, hot water treatment, and sensor-enabled packhouse systems.

The present study was conducted with descriptive and exploratory research design. The research is primarily based on primary data collected through a semi-structured interview schedule from selected cooperative mango growers, packhouse staff associated with Deogad Taluka Amba Utpadak Sahakari Sanstha Limited. Secondary data from journals, cooperative records, reports, and official websites have also been used to support the study. in Devgad in Sindhugurg District - during the year 2026.

Area of Study

- Geographical Location and Topography.
 1. Coordinates: Approximately 16.37° N latitude and 73.38° E longitude.
 2. Soil Type: The dominant soil is Laterite (Red Rock). This soil is rich in iron and aluminum but has low water-retention capacity, making Precision Irrigation (part of your PF framework) a critical necessity.



Fig 1 - Courtesy of "Devgad Taluka Mango Growers Co-operative Society Ltd."

Climatic Conditions

1. Temperature: Ranges between 20°C and 33°C. High humidity is constant due to the proximity to the sea.
2. Rainfall: The region receives heavy monsoon rainfall (avg. 3,000mm+), which necessitates smart drainage systems to prevent root rot.
3. Heat Waves: Recent trends of sudden temperature spikes in February/March cause "fruit drop," a problem that IoT-based climate sensors aim to mitigate.

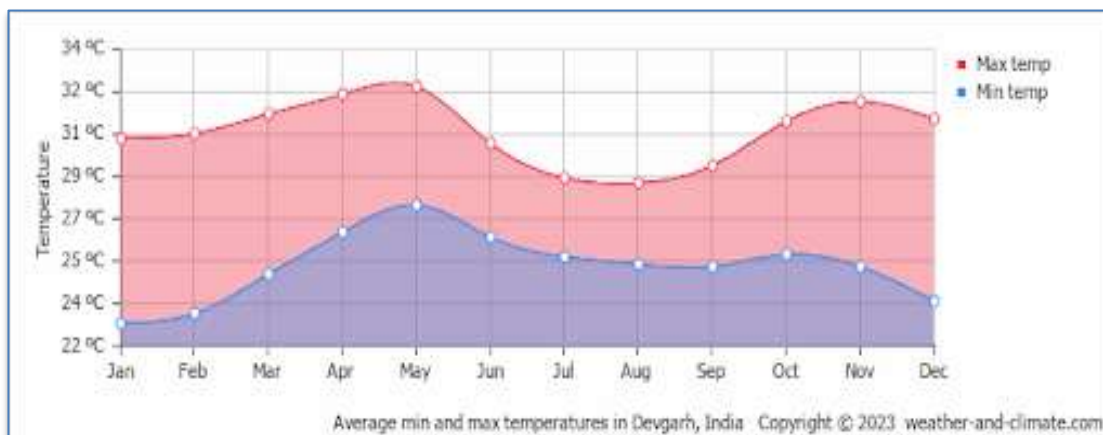


Fig 2 - <https://weather-and-climate.com/average-monthly-Rainfall-Temperature-Sunshine,devgarh-maharashtra-in,India>

Socio-Economic Profile of Cooperatives

1. The Cooperative Model: Most farmers are members of the Devgad Taluka Amba Utpadak Sahakari Sanstha Ltd. This body acts as a bridge between small-scale growers and global markets.
2. Landholding Pattern: Most growers are small and marginal farmers with landholdings between 1 to 5 acres. This fragmentation is the primary reason why "Smart Post-Harvest Systems" must be managed at the cooperative level rather than the individual level.
3. Economic Impact: Mango farming is the primary livelihood for over 70% of the population in this taluka.

Data Collection:

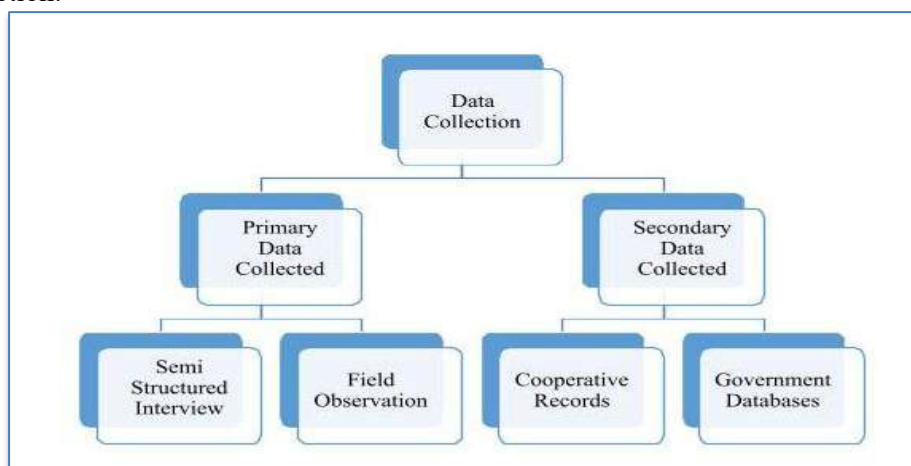
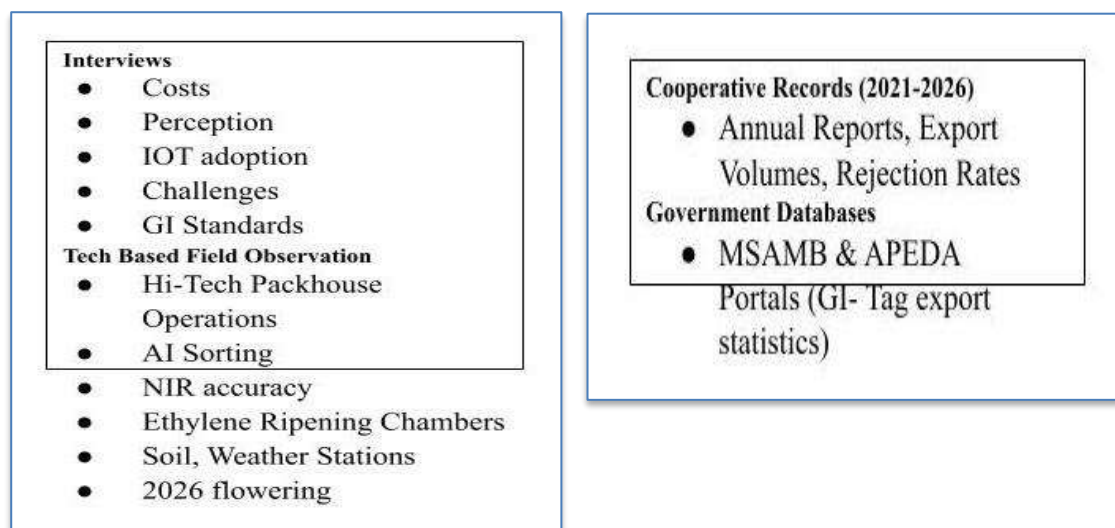


Chart 1 – Classification Of Data Collection Methods



5. Sampling

1. Primary Sampling (Human/Field)

- Sampling Technique: State that you are using Multi-Stage Stratified Random Sampling.
 - Stage 1: Selection of registered Cooperatives (those with high tech-adoption vs. traditional).
 - Stage 2: Stratification of 150 Farmers based on landholding (Small, Medium, Large) to compare tech affordability.
- Expert Sampling: Mention the purposive selection of 10 Cooperative Managers and 5 Packhouse Technicians for specialized technical insights.

2. Secondary Sampling (Data/Records)

- Time-Series Sampling: Explain that you have selected a 10-year window (2015–2025) for weather data to show climate trends.
- Source Selection: List the specific "sampled" databases: APEDA (for export), MSAMB (for local trade), and Cooperative Audit Reports.

1. Primary Level Data Collection - Interview Method

Use of a semi-structured interview schedule allowed flexibility in obtaining both specific factual information and detailed practical insights from growers, cooperative office bearers, and technical staff. In addition to the interview schedule, field observation was also used to validate the availability of smart farming and post-harvest infrastructure.

For the purpose of the study, a total of 20 respondents were selected. These respondents include Alphonso mango growers, cooperative office bearers, and packhouse or technical staff associated with

Sr. No.	Category of Respondents	Number of Respondents
1	Alphonso Mango Growers	15
2	Cooperative Office Bearers	3
3	Packhouse / Technical Staff	2
Total		20

Chart 2 – Representing Interview Collected By Members

Deogad Taluka Amba Utpadak Sahakari Sanstha Limited. The selected sample size is considered suitable for interview-based qualitative research, where detailed responses and practical insights are more important than a large sample.

Sr. No.	Section of Interview Schedule	Focus Area
1	Respondent Profile	Age, education, farming experience
2	Orchard Information	Area, trees, production
3	Precision Farming	Smart irrigation, IoT sensors
4	Orchard Monitoring	Drone, weather app, pest alerts
5	Spray & Compliance	Digital spray records, residue control
6	Post-Harvest Systems	Ripening, grading, packhouse
7	Export Readiness	QR traceability, hot water treatment
8	Challenges & Suggestions	Cost, training, awareness

Chart 3 – Which Types Of Question where examined

2. Secondary Level Data Collection – Records and Databases

The document sampling was used for the collection of secondary data. Under this method, only those documents, reports, and official records that are directly related to precision farming, smart post- harvest systems in Devgad Alphonso production, and cooperative operations were selected.

Sr. No.	Source Selected	Nature of Data
1	Cooperative Annual Reports	Production, sales, membership
2	Packhouse Records	Grading, storage, dispatch
3	APEDA Reports	Export and traceability data
4	NHB Reports	Area and production statistics
5	Horticulture Dept.	Subsidy and scheme data
6	Research Journals	Smart farming technology insights

Chart 4 – Data Collected from Secondary Data

6. Data Analysis

3.6.1 Based on Primary Data – Interview Method

Orchard Information Variable	Category	Frequency
Number of Mango Trees	Below 100	4
	100–300	10
	Above 300	6
Irrigation Source	Rainfed	5
	Drip Irrigation	4
	Borewell / Tank	11
Orchard Age	Below 10 years	2
	Above 20 years	11

Age Group	Frequency
20-35	12
36-50	5
50 and above	3
Total	20

1. Respondent Profile & Orchard Information – Chart 4 & Chart 6

Technology	Frequency
IoT Soil Moisture Sensor	6
Climate Monitor	10
Drone	1
GIS Mapping	8
AI Weather App	15

2. Precision Farming:

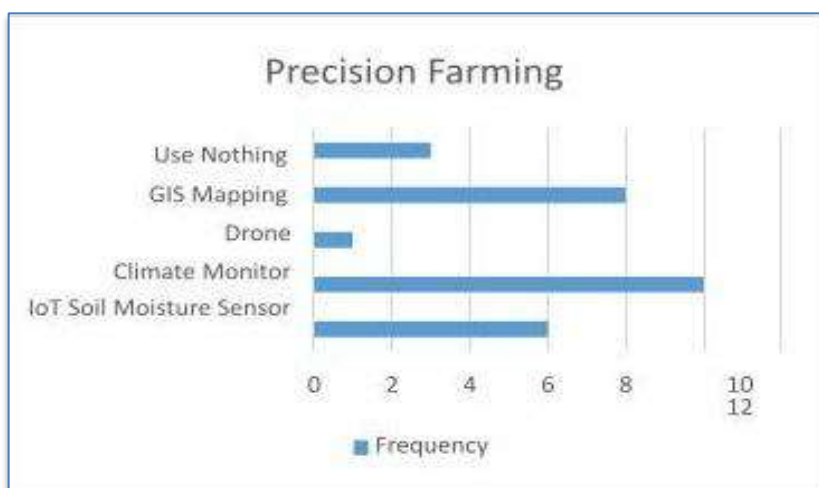


Chart 7 & Fig 3 – Ratio Of Techniques Used For Precision Farming

Smart Post Harvest Technology	Frequency
Smart Ripening Chamber	1
QR / UID Traceability	12
Hot Water Treatment	16
Digital Grading System	14
Traditional Handling Only	3

3. Post-Harvest Systems :

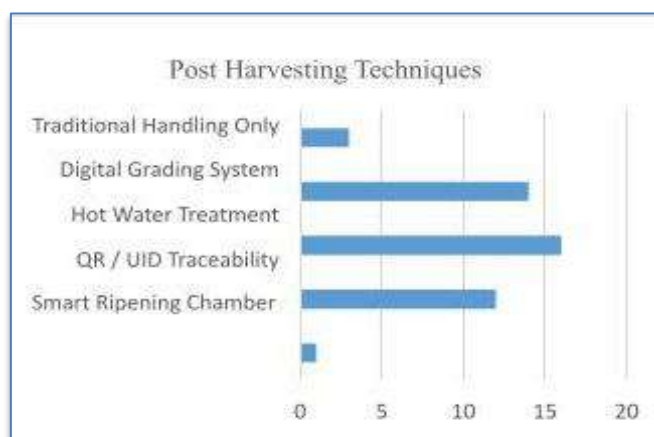


Chart 8 & Fig 4 – Ratio Of Techniques Used For Post Harvest System.

3.6.1.4 Challenges

Challenge	Frequency
High Cost	20
Lack of Training	15
Low Digital Literacy	15
Poor Internet	10
Lack of Infrastructure	15

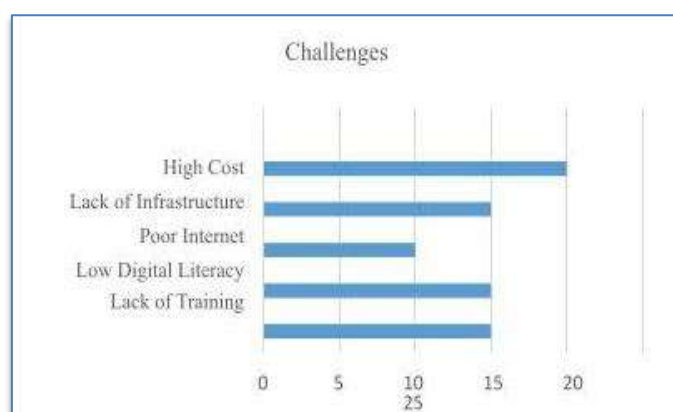


Chart 9 & Fig 5 – Ratio Of Techniques Used For Challenges

2. Data Analysis Based On Secondary Data

Secondary data from APEDA and NHB show that India exported 29,938.40 MT of fresh mangoes worth USD 56.50 million in FY 2024–25[1], with key markets including UAE, USA, UK, Kuwait, and Qatar. The national export model for Alphonso includes traceability systems, residue monitoring, hot water treatment, vapour heat treatment, pre-cooling, cold storage, grading lines, and state-of-the-art packhouses. Maharashtra's Mahamango cooperative model, supported by APEDA, provides shared infrastructure for export-quality handling.[2] These secondary findings establish a benchmark framework for evaluating technology-driven precision farming and smart post-harvest adoption in Devgad Alphonso cooperatives.

National Smart Post-Harvest Infrastructure Model



Mahamango Benchmark Model



4. Result & Discussion

The study findings reveal that younger farmers between the age group of 20–35 years are more open to adopting modern farming technologies, especially AI-based weather applications and GIS mapping. However, the use of advanced tools such as drones and IoT soil moisture sensors remains limited because of high costs and lack of technical training.

In post-harvest operations, hot water treatment and digital grading systems show better adoption due to their direct role in export compliance. QR-based traceability is also gradually increasing, which is essential for protecting the GI identity of Devgad Alphonso. However, access to smart ripening chambers is still very low, which may increase the risk of post-harvest losses.

The major barriers identified include high setup costs, poor internet connectivity in hilly areas, and limited digital literacy among traditional farmers.

RECOMMENDATIONS:

Based on the findings, the study recommends that cooperatives should establish shared technology hubs where farmers can access drones, IoT devices, and sensor-based systems at affordable costs. Training programs should especially target younger farmers who can act as digital leaders within the cooperative. Investment in smart ripening chambers and improved packhouse infrastructure can further reduce losses and improve export readiness. Strengthening internet and technical support services in rural areas will also help improve long-term technology adoption.

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Capacity Building & Skill Development Through Cooperatives

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Abstract: *This research paper explains how cooperatives help in improving people's skills and overall development. Cooperatives are people's economic institutions that play a strategic role in improving the welfare of members through strengthening individual and collective capacities and capabilities. Cooperatives not only function as economic entities, but also as a means of empowering members in a sustainable manner, expanding individual capabilities, and supporting inclusive economic development. The method used is literature review, by analyzing books, journal articles, policy reports, and other relevant scientific publications. It is the important strategy that enable cooperative society and its members to perform effectively well in line with their goal and cooperative principles.*

Key Words: *Cooperatives, Capacity Building, Skill Development, Financial Inclusion, Employment Generation, Inclusive Growth.*

1. INTRODUCTION:

The MacLagan Committees in India (1950) described co operation as the theory which maintains that an isolated and powerless man can by association with others and by moral development & mutual support, obtain to the extent, the material advantage available to the wealthy and powerful persons and thereby develop himself to the fullest extent of his natural abilities. The abilities refers to the level of knowledge, technical skills, and managerial abilities that individuals have in carrying out economic activities. In short "Cooperation is what co-operation does." The Cooperative Movement of India is one of the biggest in the world with more than 300 million personnel, belonging to the categories of members, board of directors and employees—dependent on it for their livelihood. Today, India has cooperatives present in almost all service and economic sectors, contributing significantly to the national economy and country's development, especially in rural areas. Recognising the important role the cooperatives are playing, the Government of India established a new ministry, namely, the Ministry of Cooperation on 6 July 2021, to expeditiously resolve the cooperative issues, enhance autonomy, transparency, efficiency and member participation in their functioning, to bring about 'ease of doing business' for them so that the vision of Sahakar se Samriddhi (Prosperity through Cooperation) could be realised. The Ministry, since its inception, has undertaken more than 60 initiatives to achieve its objectives. Recognising the importance of cooperatives, the United Nations has declared the year 2025 as the International Year of Cooperatives 2025, to be celebrated throughout the world to highlight the role of cooperatives in economic growth, social inclusion, sustainability, etc

This pivotal analysis arrives as the world prepares to celebrate the International Year of Cooperatives in 2025, a global recognition of their profound importance in tackling societal challenges and building a more equitable world. The report delves deep into the foundational principles that make cooperatives not just economic entities, but powerful engines of social justice, economic empowerment, and

community resilience. The report delves deep into the foundational principles that make cooperatives not just economic entities, but powerful engines of social justice, economic empowerment, and community resilience. Capacity Building is mainly based on skill development & digitization. Skill Development: Train employees, students, and aspiring cooperative members in cooperative management. Digitization: Implement digital tools for governance, banking, and business operations to enhance transparency and efficiency.

2. OBJECTIVES OF THE STUDY:

1. To analyze different forms of cooperatives
2. To evaluate their role in socio-economic development
3. To assess their contribution to skill development and capacity building

3. RESEARCH METHODOLOGY:

This study adopts a secondary data-based approach to analyze how cooperatives contribute to capacity building and skill development. It combines descriptive and analytical research designs—describing existing training initiatives while evaluating their impact on members and organizational performance.

Data Sources:

- Information is collected from reliable secondary sources, including:
- Government bodies (e.g., Ministry of Cooperation, NCDC, NSDC)
- Cooperative organizations (ICA, NCUI, NCCT)
- Academic journals and databases (Google Scholar, ResearchGate, Emerald Insight)
- Annual reports and case studies of major cooperatives like AMUL, IFFCO, and SEWA

Data Collection Method:

- a. A systematic review approach is used, focusing on literature from 2015–2025. Relevant documents are selected using targeted keywords and organized into a structured review matrix.
- b. Data Analysis Techniques:
- c. Content Analysis: Examines training types and program structures
- d. Thematic Analysis: Identifies key themes such as empowerment, digital literacy, and challenges
- e. Descriptive Statistics: Analyzes quantitative data like training reach, budgets, and performance outcomes

Major forms of cooperatives :

Cooperatives are member-owned organizations that promote shared decision-making and skill development:

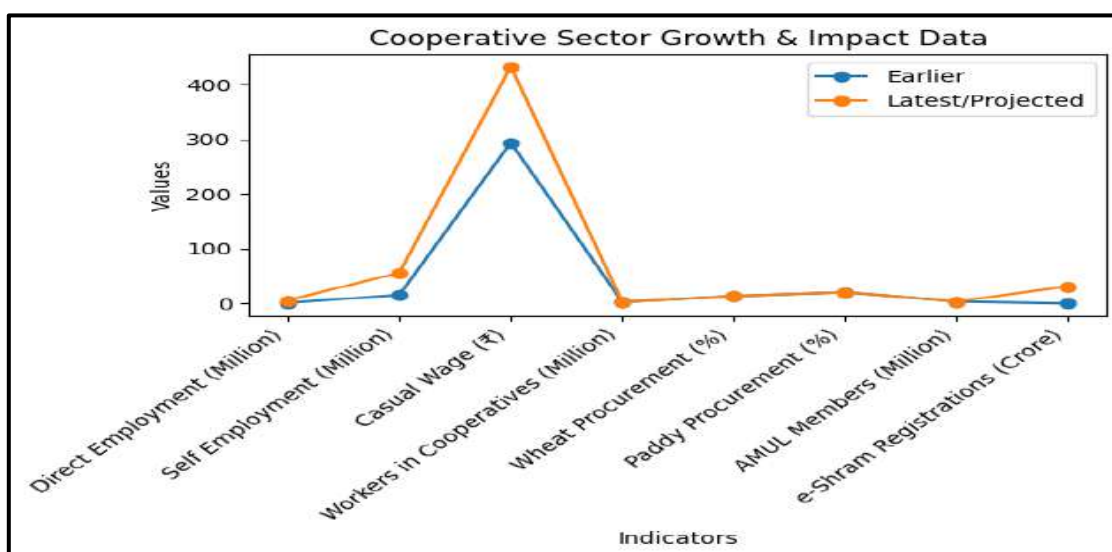
1. **Producer/Agricultural Cooperatives:** Groups of farmers or producers who collaborate to improve production techniques, adopt modern tools, and secure better market prices.
2. **Consumer Cooperatives:** Member-owned retail organizations (like grocery stores) that train members in product quality assessment and customer-oriented business operations.
3. **Credit-Union SACCOS:** Financial cooperatives that promote financial literacy, savings habits, and provide access to affordable credit while teaching accounting and auditing skills.
4. **Platform Cooperatives:** Digital, member-owned platforms (similar to online marketplaces) that focus on building digital and entrepreneurial skills.

Benefits of Cooperatives:

Cooperatives play a vital role in supporting unskilled, semi-skilled, and informal workers by emphasizing collective welfare:

- **Job Stability**
 - Generate employment, especially in rural and informal sectors
 - Provide more stable jobs with fewer layoffs
 - Ensure steady income through minimum work guarantees
- **Fair Pay & Wealth Building**
 - Offer better wages compared to traditional firms
 - Enable profit-sharing among members
 - Provide financial security through low-interest loans (via SACCOS)
- **Training & Skill Development**
 - Enhance skills through continuous training programs
 - Build business knowledge and market understanding
- **Safety & Representation**
 - Give workers a collective voice similar to unions
 - Promote safe working conditions and fair labor practices
- **Social Support & Inclusion**
 - Provide health, insurance, and welfare benefits
 - Empower marginalized groups, especially women

No.	Indicator	Earlier Data	Latest / Projected Data
1	Direct Employment	1.2 million (2007–08)	5.8 million (2016–17)
2	Self Employment	15.47 million (2006–07)	56 million (by 2030)
3	Casual Labour Wage	₹294 (2017)	₹433 (Apr–Jun 2024)
4	Workers in Cooperatives	2.7 million	2.7 million
5	Wheat Procurement	13.3%	13.3%
6	Paddy Procurement	20.4%	20.4%
7	AMUL Members	3.6 million	3.6 million
8	e-Shram Registrations	—	31.20 crore (2025)



Source : International Labour Organisation

4.Challenges to improve skills through cooperation:

Cooperative societies face several challenges that affect their growth and efficiency. They often suffer from limited capital and lack of professional management, which leads to poor decision-making. Additionally, strong competition from private enterprises reduces their market share. Internal conflicts among members, political interference, and low participation further weaken their functioning. As a result, many cooperatives experience financial losses and weak governance.

No.	Challenge	Description
1	Limited Capital	Cooperatives often lack sufficient funds for expansion and modernization.
2	Inefficient Management	Lack of professional expertise leads to poor decision-making.
3	Competition	Strong competition from private companies reduces market share.
4	Internal Disputes	Conflicts among members affect smooth functioning.
5	Political Interference	External influence affects autonomy and decision-making.
6	Poor Member Participation	Low involvement of members weakens governance and performance.
7	Financial Weakness	Leads to losses and inability to sustain growth.

5. Inistitaives by Key Institutions in the Indian Cooperative Sector

1. National Cooperative Union of India (NCUI)

- The NCUI serves as the apex organization representing the entire cooperative movement in India. Its primary objective is to promote and strengthen the cooperative sector through education and systemic advocacy.
- Educational Infrastructure: It operates the National Centre for Cooperative Education (NCCE), which designs specialized curriculum for cooperative personnel and members.
- Capacity Building: Beyond board members, NCUI conducts leadership development programs to ensure democratic governance and professional management within cooperatives.
- Skill Development: Its state-of-the-art centers in Noida focus on modern vocational skills, helping cooperative members adapt to digital economies and entrepreneurial ventures.
- Advocacy & Research: NCUI acts as a bridge between the cooperative sector and the Government of India, conducting research to influence policy-making and legislative reforms.

2. National Cooperative Development Corporation (NCDC)

- The NCDC is a statutory corporation under the Ministry of Cooperation, functioning essentially as a specialized financial institution for the sector.
- Financial Powerhouse: With a massive disbursement of ₹95,183 crore in FY 2024-25, it provides the capital necessary for cooperatives to scale operations, modernize infrastructure, and improve post-harvest management.
- Targeted Empowerment Schemes: * Yuva Sahakar: Incentivizes youth to start cooperative ventures with liberal financial terms, fostering innovation.
- Nandini Sahakar: A dedicated framework to support women's cooperatives, focusing on socio-economic upliftment through business ownership.
- Technical Consultancy: It offers project appraisal and technical guidance to ensure that cooperative projects are both viable and sustainable in the long term

3. Vaikunth Mehta National Institute of Co-operative Management (VAMNICOM)

- VAMNICOM is the intellectual hub of the movement, recognized as an "Apex Management Institute" for cooperative training.
- Professional Education: It offers prestigious programs like the Post Graduate Diploma in Management (PGDM-ABM), producing high-caliber professionals specifically for agribusiness and cooperatives.
- Executive Training: The institute serves as the primary training ground for senior officials from the Indian Cooperative Service, state departments, and large-scale federations (like IFFCO or AMUL).
- Global Collaboration: It frequently collaborates with international bodies like the International Co-operative Alliance (ICA) to bring global best practices in management, digital transformation, and governance to

Area	Details (Latest Data)
Training & Capacity Building	4,389 programmes conducted (2024–25); 3.15 lakh participants trained
Women Empowerment	Participation increased from 22.02% → 38.50%; ~10 crore women linked via SHGs
Computerization of PACS	₹2,516 crore project; 63,000+ PACS targeted; 59,261 using ERP (2025)
New Cooperatives	32,009 new PACS, dairy & fisheries cooperatives registered
Financial Inclusion / Skilling	22 lakh KCCs issued; ₹10,000+ crore loans distributed

6. Initiatives by other Insitutions:

1. **Promotion of training and awareness through National Council for Cooperative Training (NCCT):** By increasing its reach, NCCT has conducted 2,872 training programmes and provided training to 2,35,060 participants till December 2024.
2. **New national cooperative database for authentic and updated data repository:** A database of cooperatives in the country has been prepared with the support of state governments to facilitate stakeholders in policy making and implementation of programmes/schemes related to cooperatives across the country. So far, data of more than 8.2 lakh cooperatives across 30 sectors, with approximately 30 crore members, has been captured in the database
3. **Inclusion of cooperatives as ‘buyers’ on GeM portal:** The government has permitted cooperatives to register as ‘buyer’ on GeM, enabling them to procure goods and services from over 67 lakh vendors to facilitate economical purchases and greater transparency. So far, 574 cooperative societies have been onboarded on GeM as buyers
4. **Expansion of National Cooperative Development Corporation (NCDC) to increase its range and depth:** The NCDC has launched new schemes in various sectors such as Swayamshakti Sahkar for SHGs; Deergahavadi Krishak Sahkar for long term agricultural credit and Dairy Sahkar for dairy. During the current FY 2024–25, so far, total financial assistance of R 84,673.70 crores has been disbursed by NCDC.
5. **Financial assistance by NCDC for deep sea trawlers:** The NCDC is providing financial assistance for projects related to deep sea trawlers in coordination with the Department of Fisheries, Government of India. NCDC has already sanctioned financial assistance of R 25.95 crore for purchase of total 44 deep sea trawlers for the Fisheries Cooperative Societies of Maharashtra and Gujarat state.

6. **National Cooperation Policy (NCP):** The formulation of new NCP has been envisaged to fulfil the mandate of the Ministry of Cooperation— Sahkar se Samridhhi. A national level committee was constituted on 2 September 2022 under Suresh Prabhakar Prabhu with experts of the cooperative sector, representatives from National/State/District/Primary level cooperative societies, secretaries (cooperation) and RCSs from States/ UTs and officers from central ministries/departments to formulate the Cooperatives in India 47 NCP to provide a framework to unlock the true potential of the cooperative sector. The committee conducted four regional workshops throughout the country to elicit suggestions from stakeholders. The received suggestions have been incorporated into the draft policy appropriately. The draft policy has been prepared and is under finalisation.
7. **Refund to investors of sahara group of societies:** A portal has been launched for making payments to the genuine depositors of the cooperative societies of Sahara Group in a transparent manner. Disbursements have already started after proper identification, and submission of proof of their deposits and claims. So far, R 2,025.75 crores have been disbursed to 11.61 lakh applicants.

No.	Initiative	Key Data / Impact
1	Training by NCCT	2,872 programmes; 2,35,060 participants trained (till Dec 2024)
2	National Cooperative Database	8.2 lakh cooperatives; ~30 crore members; 30 sectors covered
3	GeM Portal Inclusion	574 cooperatives onboarded; access to 67 lakh+ vendors
4	NCDC Financial Support	₹84,673.70 crore assistance (2024–25)
5	Deep Sea Trawler Support	₹25.95 crore; 44 trawlers (Maharashtra & Gujarat)
6	National Cooperation Policy (NCP)	Policy under finalisation for sector growth
7	Sahara Refund Portal	₹2,025.75 crore refunded; 11.61 lakh beneficiaries

7. Role of Capacity Building in Market Competitiveness:

- Market competitiveness is the capability that a cooperative leads its members to sell products, explore new markets and make profits, which determines the survival or extinction of the cooperative. To strengthen the building of market competitiveness, priority should be given to the following aspects.
- First, establish awareness of market competition. All members of the cooperative should establish awareness of the market economy, produce products according to market demand, ensure their quality and safety, and realize super quality and competitive price. The cooperative needs to constantly train market awareness of its members, provide a variety of "unified services" for them, and require its members to produce according to standards.
- Second, choose a leader rich in awareness of the market economy. The leader is critical to the development of a cooperative. Currently most of the director generals in China are responsible for product sales, who should study hard, be good at practicing, and constantly enhance their awareness and skills of market competitiveness. Qualified cooperatives may hire professional managers in charge of sales, making their marketing bigger and stronger.
- Third, establish the market-oriented production mechanism. It is necessary to establish a production mechanism and management system to ensure that each member can produce and manage according to the requirements of the market economy, and at the same time, increase efforts in marketing, and constantly expand product distribution channels, to improve the market competitiveness of the cooperative in an all-round way.

8. CONCLUSION:

Cooperatives help people become skilled, independent, and confident. Cooperatives play a vital role in sustainable economic growth and social empowerment. They function not only as business

organizations but also as “schools of democracy” and “human development hubs.” By promoting education, training, and democratic member participation, cooperatives help individuals realize their potential and access economic opportunities. This is especially important in rural and underdeveloped areas, where cooperatives bridge the gap between resources and development.

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FROM FRAGMENTATION TO INTEGRATION: A CLOUD-BASED E-GOVERNANCE FRAMEWORK FOR COOPERATIVE SOCIETIES

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Abstract: Cooperative societies are critical instruments of socio-economic development, particularly in developing economies where they facilitate financial inclusion, collective ownership, and grassroots governance. However, recent crises such as pandemics, financial instability, and administrative disruptions have exposed the structural weaknesses of traditional cooperative systems. These systems are often characterised by fragmented digital practices, manual record-keeping, and a lack of real-time integration, resulting in inefficiencies and limited resilience [1][2]. This study proposes a cloud-based e-governance framework designed to transform cooperative societies into integrated and crisis-resilient digital ecosystems. The framework leverages cloud computing technologies to enable centralised data management, real-time accessibility, and secure information exchange. It integrates multiple governance functions, including member management, document processing, and analytics, into a unified platform. The research adopts a conceptual and system design approach supported by analysis of policy reports and digital governance initiatives. The findings suggest that cloud-based systems significantly enhance transparency, operational efficiency, and crisis adaptability. The proposed framework aligns with national digital initiatives and provides a scalable model for sustainable cooperative governance [3][4][5].

Key Words: E-Governance, Cloud Computing, Cooperative Societies, Crisis Management, Digital Transformation.

1. INTRODUCTION:

Cooperative societies have historically played a significant role in fostering inclusive growth and community-based development. In India, they contribute extensively to sectors such as agriculture, banking, housing, and rural development [1][4]. Despite their importance, cooperative governance systems have remained largely traditional, relying on manual processes and fragmented digital tools. Recent global and local crises, particularly the COVID-19 pandemic, have exposed the vulnerabilities of these systems. Physical restrictions disrupted operations, delayed administrative processes, and limited access to critical data. Many cooperatives struggled to maintain continuity due to a lack of centralised digital infrastructure. Traditional systems, dependent on paper-based records and isolated applications such as spreadsheets and emails, create inefficiencies and data inconsistencies. These challenges hinder transparency and delay decision-making, especially during crises [2]. The emergence of digital technologies offers an opportunity to address these limitations. E-governance enhances transparency and efficiency, while cloud computing provides scalability, remote accessibility, and centralised data management [3]. This study focuses on designing a cloud-based e-governance

framework that enables cooperative societies to transition from fragmented systems to integrated, technology-driven ecosystems capable of responding effectively to modern challenges.

2. LITERATURE REVIEW:

Digital governance has gained significant attention in recent years as a means to improve administrative efficiency and accountability. Studies indicate that digital tools such as mobile applications, automated systems, and digital payment platforms have improved specific functions within cooperative societies [1]. However, existing research largely focuses on isolated technological interventions rather than comprehensive governance systems. NABARD reports emphasise digitisation initiatives but highlight the lack of integration across cooperative functions [1][2]. Government policy frameworks stress the importance of digital transformation but provide limited guidance on implementation models for cooperative societies [3][4]. Similarly, international studies recognise the role of digital governance in improving transparency but do not address system-level integration challenges [5]. Recent crisis situations have further highlighted the need for resilient digital infrastructure. Organisations with centralised and cloud-based systems were better equipped to maintain continuity during disruptions. Despite these advancements, there remains a significant gap in developing unified, scalable, and cloud-based governance frameworks specifically designed for cooperative institutions.

3. OBJECTIVES:

The study aims to analyse the limitations of traditional cooperative governance systems, including inefficiencies arising from manual processes, fragmented data management, and a lack of transparency. It further examines the role of digital technologies in crisis management by evaluating how solutions such as cloud computing enable operational continuity, remote accessibility, and efficient communication during disruptions. Additionally, the study focuses on designing a cloud-based e-governance framework that integrates various cooperative functions into a centralised system, ensuring better data management and coordination. Finally, it seeks to enhance transparency, efficiency, and scalability in cooperative operations by improving decision-making processes, reducing delays, and supporting sustainable growth through digital transformation.

4. RESEARCH METHODOLOGY:

4.1 Research Approach

- Adopts a conceptual and design-oriented approach
- Focuses on framework development rather than empirical testing
- Aims to propose a structured digital governance model

4.2 Data Collection

- Based on secondary data sources
- Includes:
 - NABARD reports on cooperative digitisation [1][2]
 - Government policy documents on digital governance [3][4]
 - International studies on cooperative systems [5]
- Ensures reliability through institutional and policy-based data

4.3 Analysis Method

- Uses comparative analysis
- Compares:
 - Traditional governance systems
 - Digital/cloud-based governance systems
- Evaluation based on:
 - Efficiency
 - Transparency
 - Resilience [1][3]

4.4 Framework Development

- Developed using system design principles
- Key focus areas:

- Centralisation: Unified data management
- Integration: Linking all governance functions
- Accessibility: Real-time and remote access
- Security: Data protection and controlled access

5. SYSTEM DESIGN AND ARCHITECTURE

5.1 System Overview

The proposed system adopts a cloud-based architecture that integrates all cooperative functions into a centralised digital platform. It enables real-time interaction between users, administrators, and stakeholders.

5.2 Architectural Layers

User Interface Layer: Provides access through web and mobile applications

Application Layer: Handles core functionalities such as member management and reporting

Cloud Infrastructure Layer: Ensures data storage, scalability, and accessibility

Security Layer: Implements authentication and data protection mechanisms

5.3 Core Components

- Centralised Cloud Database: Stores all cooperative data securely
- Member Management System: Maintains digital records
- Document Management System: Enables digital storage and retrieval
- Administrative Dashboard: Provides real-time insights
- Reporting and Analytics Module: Supports data-driven decision-making
- The cloud infrastructure ensures operational continuity during crises by enabling remote access and real-time updates [3].

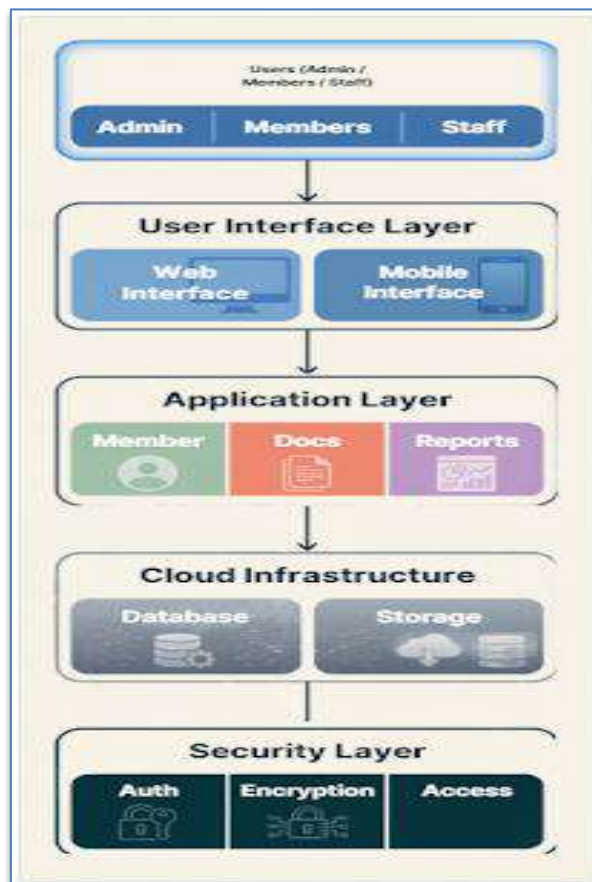


Figure 1: Cloud-Based E-Governance System Architecture for Cooperative Societies

6. RESEARCH GAPS

Analysis of existing systems reveals the following key gaps:

- **Lack of integrated governance frameworks:** Most systems operate in isolation, leading to fragmented operations and poor coordination [1][2].
- **Limited adoption of cloud technologies:** Cooperative societies have not fully utilised cloud infrastructure, restricting scalability and remote accessibility [3][4].
- **Dependence on isolated digital tools:** Use of spreadsheets and standalone applications creates inefficiencies and data inconsistencies [1][5].
- **Absence of scalable implementation models:** Existing research lacks practical frameworks adaptable to different cooperative sizes and structures [2][4].
- **Limited focus on data-driven decision-making:** Minimal use of analytics reduces the ability to generate insights and support strategic planning [5].
- **Inadequate attention to digital literacy:** Lack of training and resistance to change hinder effective adoption of digital systems [1][4].

7. RESULTS AND ANALYSIS

The proposed cloud-based e-governance framework demonstrates significant improvements over traditional cooperative systems. Transparency is enhanced through centralised data management, which reduces inconsistencies and improves accountability [1]. Operational efficiency is increased through automation and streamlined workflows, minimising manual errors and processing time [2]. The use of cloud-based platforms ensures greater accessibility by enabling real-time and remote access to data and services [3]. Additionally, the framework supports scalability, allowing cooperative societies to expand operations and manage increasing data requirements effectively [4]. During crises, the system ensures operational continuity through remote access and real-time communication capabilities. Comparative analysis further indicates that integrated digital systems outperform traditional systems in terms of efficiency, coordination, and transparency. Overall, the findings confirm that digital transformation is essential for achieving sustainable and modern cooperative governance [5].

Traditional System	Cloud-Based System
 Manual Records	 Centralized Database
 Paper-Based Work	 Digital Documentation
 Limited Access	 Remote Access
 Delayed Decisions	 Real-Time Decisions
 Fragmented Tools	 Integrated Platform
 Low Transparency	 High Transparency

Figure 2: Comparison between Traditional and Cloud-Based Governance Systems”

8. DISCUSSION:

The transition from fragmented governance systems to integrated cloud-based frameworks represents a significant advancement in cooperative management. The proposed model effectively addresses existing inefficiencies while enhancing resilience against operational disruptions. By integrating multiple governance functions into a unified platform, the framework improves coordination, minimises redundancy, and streamlines administrative processes. Cloud technology further contributes by providing flexibility, scalability, and reliability, making it highly suitable for dynamic and evolving environments. However, successful implementation requires overcoming challenges such as limited technical expertise, inadequate infrastructure, and resistance to change. In this context, government support, training programs, and awareness initiatives play a critical role in facilitating adoption [3][4]. Overall, the framework aligns with national digital transformation initiatives and contributes to the modernisation and sustainable development of cooperative societies.

9. CONCLUSION:

The study demonstrates that a cloud-based e-governance framework can effectively transform cooperative societies from fragmented systems into integrated digital ecosystems. By centralising data and automating processes, the framework enhances transparency, efficiency, and resilience.

The proposed model provides a scalable and sustainable solution aligned with digital governance initiatives. It enables cooperative societies to adapt to evolving technological and administrative requirements while ensuring long-term growth [1][3][5].



Figure 3: Workflow of Cloud-Based E-Governance Framework

10. RECOMMENDATIONS:

- Promote adoption of cloud-based governance systems [3]
- Develop digital infrastructure in cooperative sectors [4]
- Implement training and capacity-building programs [1]
- Integrate advanced analytics and AI tools [5]
- Establish standardized digital governance policies

11. LIMITATIONS:

- Conceptual framework without empirical validation
- Limited availability of real-time cooperative data
- Implementation challenges in rural environments

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A Study On AI-Enabled Sustainable Vertical Farming-As-A-Service Models in Cooperative Agriculture

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Abstract : This study examines the concept of AI-enabled Vertical Farming-as-a-Service (VFaaS) and its importance in promoting sustainable agriculture, particularly within cooperative farming systems. Due to rapid population growth, decreasing availability of agricultural land, and the effects of climate change, traditional farming practices are facing serious challenges. Vertical farming, which involves cultivating crops in vertically arranged layers under controlled conditions, provides an innovative solution to these issues. The integration of Artificial Intelligence (AI) further enhances this system by making it more efficient, automated, and easier to manage.

VFaaS is a modern service-based approach where organizations offer vertical farming infrastructure, technology, and technical support to farmers on a rental or subscription basis. This model reduces the need for large initial investments, enabling small-scale farmers to access advanced agricultural technologies. AI and data analytics play a key role in this system by continuously monitoring plant conditions and automatically controlling factors such as temperature, humidity, lighting, and nutrient supply. Farmers can operate and monitor their farms remotely through mobile applications, requiring only occasional physical visits.

This study uses information collected from different research papers, journals, and reports. It explains how Artificial Intelligence (AI) and Vertical Farming as a Service (VFaaS) help increase productivity, use water more efficiently, and support sustainable farming. It also highlights the importance of cooperative farming, where farmers work together to share resources, knowledge, and profits.

The results show that VFaaS can help grow more crops, reduce costs, and make modern farming easier for farmers. However, there are still some challenges like high energy use, complex technology, and a lack of awareness. Overall, AI-based VFaaS is a new and promising way to support sustainable agriculture in the future.

Key Words : Vertical Farming-as-a-Service (VFaaS), Artificial Intelligence (AI), Controlled Environment Agriculture (CEA), Cooperative Agriculture, Smart Farming, Internet of Things (IoT), Data Analytics, Sustainable Agriculture, Precision Agriculture, Agricultural Automation

1. INTRODUCTION:

Agriculture is one of the most important sectors because it provides food and supports the economy. However, today farming is facing many problems such as an increasing population, less available land,

and climate change. Because of these issues, traditional farming methods are not enough to meet the growing food demand.

To solve these problems, new farming methods are being developed. One of them is vertical farming, where crops are grown in layers inside buildings using controlled conditions. This method saves space, uses less water, and allows farming throughout the year. According to Dickson Despommier, vertical farming can help produce more food in limited space and reduce pressure on natural resources.

With the help of modern technology, farming has become smarter. Artificial Intelligence (AI) is now used to monitor plant growth, control temperature, and manage water and nutrients automatically. This reduces the need for manual work and improves crop production.

Another new idea is Vertical Farming-as-a-Service (VFaaS). In this system, companies provide farming setup, technology, and support to farmers on rent or subscription. This helps farmers use advanced farming systems without spending a lot of money. VFaaS also supports cooperative farming, where farmers share resources and work together. The International Cooperative Alliance explains that cooperative systems help farmers reduce costs and improve their income.

1.1 Background

Earlier, farming mostly depended on natural factors like rainfall, soil, and climate. But now, due to population growth and urbanization, the demand for food has increased while farming land has decreased.

To overcome this, modern systems like vertical farming have been introduced. These systems allow crops to grow indoors under controlled conditions, which improves productivity. Along with this, AI and data technologies help farmers monitor and manage farms easily, even from a distance.

The VFaaS model is becoming popular because it allows farmers to use advanced farming systems without owning them. This makes farming easier and more accessible, especially for small farmers.

1.2 Problem Statement

Even though modern farming technologies are available, many farmers are still not able to use them. The main problems are:

- High cost of setting up vertical farming systems
- Lack of technical knowledge about AI and smart farming
- Limited access to modern technology
- Traditional farming methods are less efficient.
- Need for sustainable farming solutions.

Because of these challenges, farmers find it difficult to adopt new technologies. Therefore, there is a need for a system that is affordable, easy to use, and accessible to all farmers.

This study focuses on AI-enabled VFaaS as a solution. It aims to understand how shared infrastructure, automation, and cooperative farming can help improve productivity and make agriculture more sustainable.

1.3 OBJECTIVE:

The main objective of this study is to understand how AI-enabled Vertical Farming-as-a-Service (**VFaaS**) works and how it can improve farming. This study aims to explain the use of Artificial Intelligence (AI) in vertical farming and how it helps in making farming more efficient and automated. It also focuses on how VFaaS supports cooperative farming by allowing farmers to share resources and reduce costs.

Another objective of this study is to examine how this model can make modern farming accessible to small farmers without requiring high investment. The study also looks at how VFaaS can help in achieving sustainable agriculture by saving water, reducing waste, and improving crop production. In addition, it aims to identify the advantages and challenges of using AI-based vertical farming systems and suggest possible improvements for better adoption in the future.

2. LITERATURE REVIEW:

2.1 Evolution of AI in Sustainable Vertical Farming Using Cooperative Sectors

In the past, farming mostly depended on nature such as rainfall, soil quality, and climate. Farmers used simple tools and manual work to grow crops. These methods were easy but not very effective, especially during problems like drought, pests, or bad weather.

After some time, machines, fertilizers, and irrigation systems were introduced. This helped increase crop production and made farming faster. This stage is called mechanized farming. But it also had some problems, like high costs and harm to the environment.

Later, farming improved with the help of digital technology. This stage is called smart farming. Farmers started using sensors, IoT, and automated systems. These tools help collect real-time information about temperature, humidity, soil moisture, and plant health. This makes farming more accurate and better managed. The next stage is the use of Artificial Intelligence (AI) in vertical farming. AI can study a large amount of data and make decisions on its own. In vertical farming, AI helps in checking plant growth, predicting crop production, finding diseases, and controlling things like light, water, and nutrients. This increases production and reduces waste. At the same time, cooperative farming has become important, especially for small farmers. In this system, farmers work together and share land, tools, and technology. When AI is used with cooperative farming, it becomes more useful. Data from different farms can be combined and studied, helping farmers make better decisions and improve productivity. So, farming has changed from traditional methods to modern, technology-based, and cooperative systems, where AI and vertical farming help in making agriculture more sustainable.

2.2 Role of AI in Vertical Farming

Artificial Intelligence (AI) plays a very important role in vertical farming today. It helps make farming easier, faster, and more accurate. One important use of AI is monitoring plant growth. Sensors and cameras keep checking plants all the time. AI studies this data and helps farmers know if the plants are healthy and growing well. AI also helps in detecting diseases and pests. It can quickly identify early signs of plant problems using images and data. This helps farmers take action early and protect crops. Another use of AI is controlling the environment. It can automatically adjust temperature, humidity, light, and nutrients based on what plants need. This creates the best conditions for plant growth. AI also helps in automatic watering and lighting systems. Plants get water and light only when needed, which saves resources and reduces waste. Overall, AI reduces hard manual work, improves crop quality, increases production, and supports sustainable farming.

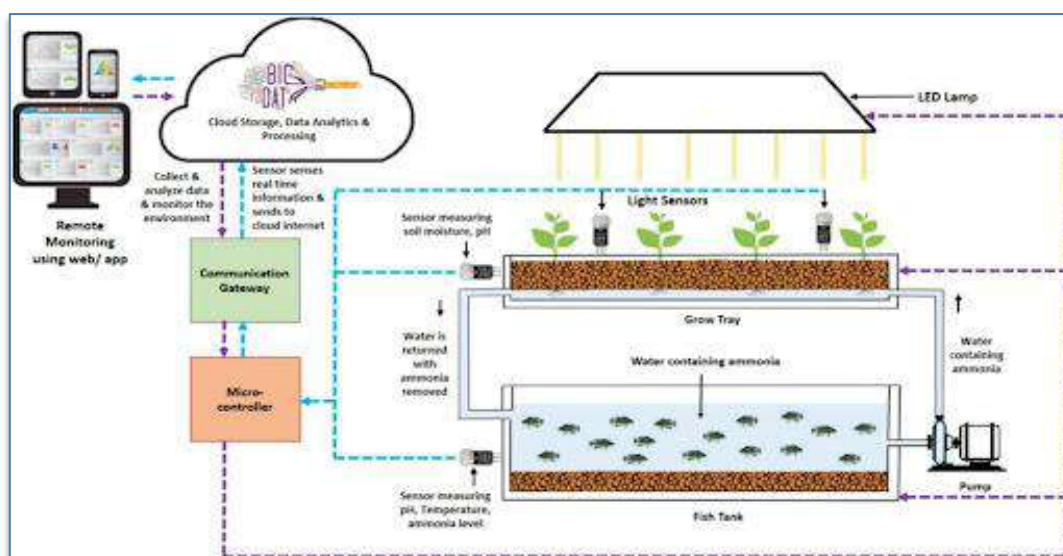


Fig1 : Systematic representation of the implementation of IOT in vertical farming

Source : <https://www.frontiersin.org/journals/sustainable-food>

2.3 VFaaS Model in Agriculture

Vertical Farming-as-a-Service (VFaaS) is a modern farming concept where companies provide complete vertical farming systems to farmers for use instead of ownership. Instead of spending a lot of money to build their own setup, farmers can use ready-made facilities and technology by paying a fee or subscription. In traditional farming, setting up advanced systems requires high investment, which many small farmers cannot afford. VFaaS solves this problem by giving farmers access to modern equipment without needing to buy it. This makes advanced farming easier and more affordable. VFaaS services usually include vertical structures for growing crops, lighting systems, sensors, and AI-based tools that help monitor and control farming activities. It also provides regular maintenance, technical help, and online systems that allow farmers to track their farms. Farmers can operate and check their farms through mobile apps, so they do not have to be physically present all the time. Most of the work, like watering, lighting, and monitoring, is done automatically. This model also works well with cooperative farming, where many farmers share the same resources and technology. This reduces costs and improves overall efficiency. In this way, VFaaS helps make modern farming more practical, cost-effective, and suitable for long-term sustainability.

3. RESEARCH METHODOLOGY:

3.1 Research Approach

This study uses a qualitative research approach, which focuses on understanding concepts like Artificial Intelligence (AI), vertical farming, and VFaaS without using numerical or statistical data.

3.2 Type of Data

This study is based on secondary data, which means the information is collected from already available sources and not from direct surveys or experiments.

3.3 Sources of Data

The data for this study have been collected from:

- Research papers and journals
- Books related to agriculture and AI
- Government and agricultural reports
- Trusted websites and online articles

3.4 Data Collection Method

The data is collected using the literature review method, where different research studies and articles are studied to gather useful information related to the topic.

3.5 Data Analysis Method

The collected data is analyzed using:

- Comparison method – comparing different studies
- Thematic analysis – identifying common ideas and patterns
- Conceptual analysis – understanding how VFaaS and AI systems work

4. System Architecture

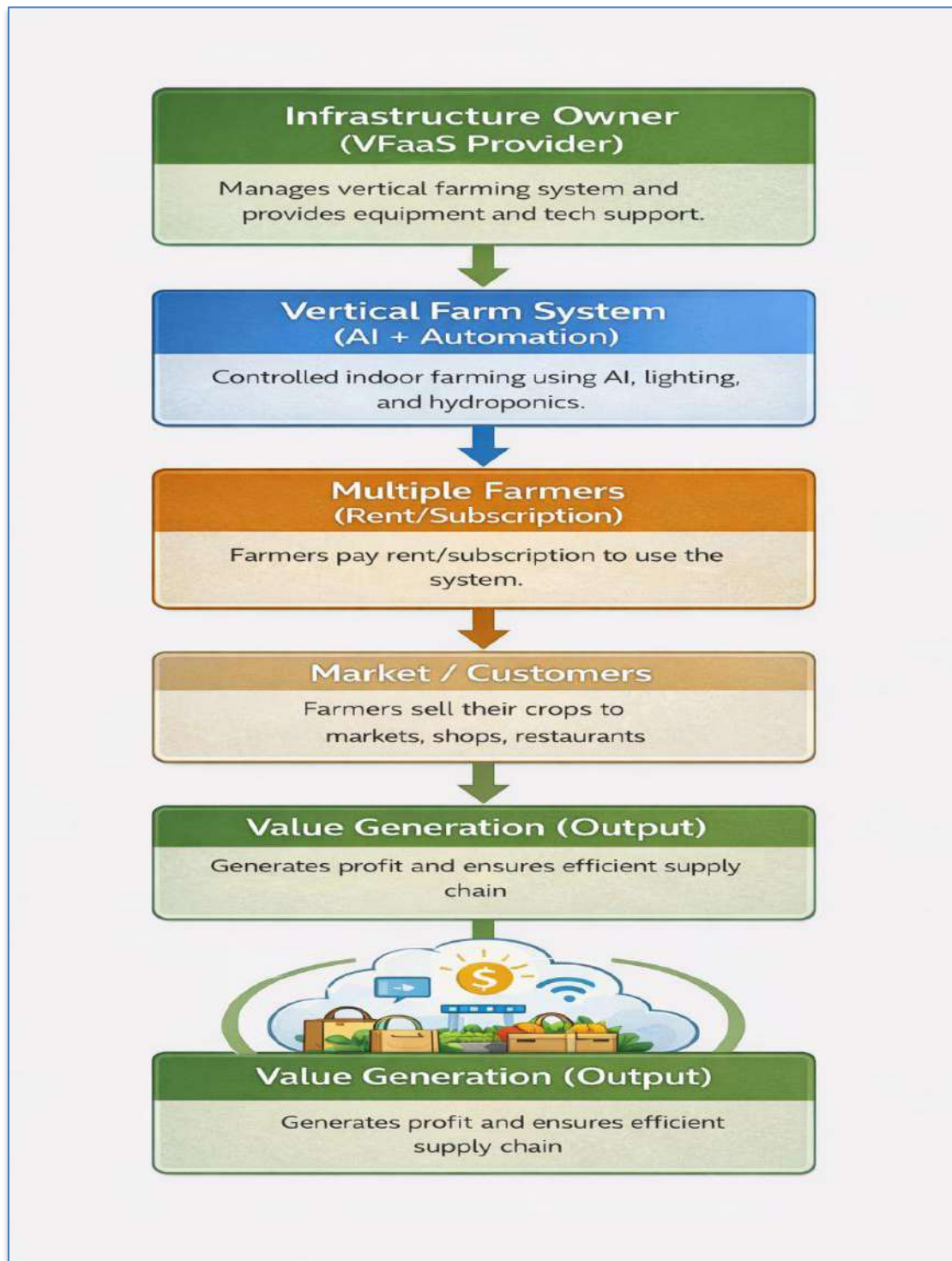


Fig 2. VFaaS System Architecture

Here is the architecture converted into a simple table

Component	Description
Infrastructure Owner (VFaaS Provider)	Company that builds and manages vertical farming systems. Provides equipment like racks, sensors, lighting, and automation. Uses AI, IoT, and cloud for monitoring. Also offers maintenance and technical support.
Vertical Farm System (AI + Automation)	Main unit where crops grow in stacked layers. Uses LED lights, hydroponics, and climate control. AI controls temperature, humidity, light, and nutrients, improving growth and reducing manual work.
Multiple Farmers (Rent/Subscription Model)	Farmers use the system by paying rent or subscription instead of building farms. Makes advanced farming affordable. Farmers can monitor farms remotely using mobile apps.
Market / Customers	Crops are sold to markets, supermarkets, restaurants, and consumers. Produce is fresh, high-quality, and available year-round, increasing farmer income.
Value Generation (Output Layer)	Focus on profit, efficient supply chain, and better food distribution. Digital tools help in online sales and connectivity. Supports sustainable and smart farming.

Chart 1 : Architecture of VFaaS

4.1 Advantages

- Lower Cost for Farmers**
Traditional vertical farming needs a lot of money to start. But in the VFaaS model, farmers can use the system by paying a small fee. They don't need to buy expensive equipment.
- AI Helps in Better Farming**
AI controls things like water, light, temperature, and nutrients. This helps plants grow better without much manual work.
- Saves Water and Land**
Vertical farming uses very little water (about 90–95% less). It also needs less land and fewer chemicals, like pesticides.
- Better and Regular Production**
Crops can grow all year without depending on seasons. This gives steady and higher production.
- Sharing Cost and Risk**
Farmers in a group share machines and costs. If there is any loss, it is shared by everyone, not just one farmer.
- Closer to Market**
Farms can be set up near cities. This reduces transport costs and keeps food fresh.
- Data Sharing Benefits**
AI collects data from different farms. Farmers can learn from this data and make better decisions.
- Works in Any Climate**
Vertical farming is not affected by weather like rain or heat. So, farming becomes more stable.
- Easy to Expand**
Farmers can start small and slowly increase their farming setup when needed.

4.2 LIMITATIONS:

1. **High Setup Cost**
Even though farmers don't pay fully, setting up vertical farming needs a lot of money for equipment, lights, and AI systems. Cooperatives may need loans or funding.
2. **Dependence on Technology**
The system depends on machines, sensors, and software. If anything fails like a power cut or a system error, it can affect crops.
3. **Need for Technical Knowledge**
Farmers need basic technical skills to use AI systems. Training is required to understand and manage the system properly.
4. **High Electricity Use**
Vertical farming uses a lot of electricity for lights and climate control. This increases costs, especially where power is expensive or not stable.
5. **Limited Crop Types**
Only certain crops like leafy vegetables and herbs, can be grown easily. Big crops like wheat or rice are not suitable.
6. **Internet Problems in Rural Areas**
AI systems need good internet. In rural areas, poor connectivity can create problems in monitoring and control.
7. **Data Privacy Issues**
Farm data is stored in digital systems. Farmers may worry about data safety and who owns or uses their data.
8. **Dependence on Service Providers**
Farmers depend on companies for system support and maintenance. If services stop or prices increase, it can create problems.
9. **Financial Risks**
Even in cooperative farming, profit is not guaranteed. Changes in market price and costs can affect income.
10. **Consumer Acceptance Issues**
Some people prefer traditional farming products. They may think vertical farm crops are less natural, which can affect sales.

5.CONCLUSION:

AI-enabled Vertical Farming-as-a-Service (VFaaS) is a new and modern way of farming that combines technology with cooperative farming. It uses tools like AI, IoT, and automation to help farmers grow crops more efficiently. This system makes advanced farming easier to access, especially for small and marginal farmers who cannot afford expensive technology on their own.

VFaaS has many benefits. It reduces the cost of starting farming, saves water and other resources, increases crop production, and helps farmers grow crops throughout the year. Working in cooperatives also allows farmers to share costs, reduce risks, and learn from each other using data and technology.

However, there are also some challenges. The system requires a high initial investment and consumes a lot of electricity. Farmers also depend on technology and service providers, and some may find it difficult to use these systems due to a lack of technical knowledge. In addition, not all crops can be grown, and issues like internet connectivity and market acceptance can create problems.

Even with these challenges, VFaaS has a strong future. With proper government support, better infrastructure, and farmer training, it can become a sustainable and inclusive farming solution. It is especially useful in countries like India, where land is limited and food demand is increasing.

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IoT-Based Smart Sanitation Monitoring and Automated Cleaning System for Public Toilets in Smart Cities

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Abstract: The rapid growth of urban populations has increased demand for clean, efficient public sanitation facilities. However, many public toilets still face issues such as poor hygiene, irregular cleaning, water shortages, and inadequate monitoring. This study includes an IoT-based Smart Sanitation Monitoring and Automated Cleaning System to address the challenges faced in smart cities. The system comprises sensors such as gas sensors for odour detection, ultrasonic sensors for water level monitoring, motion sensors for occupancy detection, and usage counters to track footfall. These sensors collect real-time data, which is processed by a microcontroller and transmitted to a cloud platform for monitoring and decision-making. A key feature of the system is its adaptive cleaning mechanism. It defines three cleaning levels: light cleaning is performed by automatic flushing after each use, medium cleaning is performed by water spraying after a set number of users, and deep cleaning is performed with disinfectants when high odour levels are detected. Safety measures ensure that cleaning is paused when the space is occupied, while the system adjusts operations based on water and detergent availability using logic. Results further focus on improved hygiene, appropriate maintenance, and optimized resource use, which support smart city initiatives and sanitation programs leading to sustainability.

Key Words: IoT, Smart Sanitation, Public Health, Automated Cleaning, Smart Cities, Sensor-Based Monitoring, Hygiene Management.

1. INTRODUCTION:

Sanitation is a core concept for sustainable development. Rapid population growth and urbanization lead to a lack of sanitation facilities, especially regarding public toilets. Not often discussed, but a very important issue is that the lack of maintenance of public washrooms is somehow a key cause of severe health diseases. Various studies indicate that deterioration of public sanitation facilities is due to delays in maintenance, and the absence of automated cleaning worsens the situation. Previous research states that “user negligence and absence of automated mechanisms are key contributors to sanitation inefficiency in public facilities” [2]. Improper use, such as not flushing, inappropriate waste disposal, water spills, and low tank levels, is exacerbating the problem. During natural hazards, such issues proved more severe, affecting the cleanliness of public toilets and limiting accessibility. Lack of proper cleaning schedules, water shortages, and absence of real-time monitoring systems prevent public use, even in severe conditions. Research in urban infrastructure management suggests that “natural hazards

such as heavy rainfall and waterlogging can disrupt sanitation systems and lead to rapid deterioration of hygiene conditions” [3]. To address these limitations, this study proposes an IoT-based smart sanitation and automated cleaning system that includes sensing, decision-making, and various actuation mechanisms. The proposed system also adopts adaptive cleaning methods, such as automated flushing and floor-cleaning mechanisms, which are crucial because many users are elderly and slippery floors can lead to severe accidents. Additionally, occupancy detection ensures that cleaning occurs only when the space is unoccupied. By integrating such digital solutions into society’s development, hygiene standards can be improved, resource utilization optimized, and people will be more willing to use public washrooms.

2. LITERATURE REVIEW:

Over the past few years, there has been a growing interest in bringing IoT technologies into sanitation systems. Since IoT is shaping so many aspects of modern life, researchers have naturally begun exploring how it can improve sanitation efficiency and ease of maintenance. A lot of this work focuses on using sensors to monitor conditions such as odor, humidity, and usage frequency. For example, one study [1] examines an IoT-based sanitation monitoring system that uses gas sensors to measure ammonia levels in a room. Ammonia is a strong indicator of poor hygiene, so tracking it can give a clear idea of how clean a space actually is. As the study points out, ammonia levels can serve as an effective measure of sanitation quality in enclosed environments. What makes this system especially useful is that it connects to a cloud platform, enabling real-time monitoring so authorities can check conditions remotely without being physically present. Another study [2] focuses on smart sanitation through continuous data collection and analysis. It highlights how real-time monitoring can significantly improve maintenance efficiency. However, the authors also point out an important limitation: while the system can detect issues, it doesn’t actually take action on its own. In other words, it still depends on manual intervention, which reduces its overall effectiveness. There’s also research [3] that takes a slightly different angle, examining sustainable sanitation systems. This work explores eco-friendly waste management practices and resource conservation. While these approaches are important from an environmental perspective, they don’t really address the need for dynamic or automated cleaning. In addition, studies on urban infrastructure and disaster management show that sanitation systems are highly vulnerable, especially during events such as floods or water shortages. In such situations, sanitation conditions can deteriorate quickly, making maintenance even more challenging. Overall, even though there has been solid progress in monitoring and data collection, one clear gap still remains. Most existing systems can detect problems, but very few are designed to respond automatically. There is still a need for smarter systems that not only monitor conditions but also make decisions and autonomously trigger cleaning actions.

3. OBJECTIVES:

The primary goal of this research is to design an IoT-based framework for smart sanitation and adaptive cleaning in public toilets. This study aims to bridge the gap between monitoring and implementation by introducing a system capable of responding in real-time across all scenarios. The main objective of this system is continuous monitoring without human intervention to reduce dependence on manual maintenance, while improving hygiene standards and optimizing the efficient use of resources such as water, soap, and others.

4. RESEARCH METHODOLOGY:

The study begins with a detailed review of existing literature to identify challenges and limitations in current systems. Based on these limitations, a system architecture is designed that includes various sensors, depending on their roles, processing units, and automated cleaning mechanisms. These systems map sensor roles to sanitation factors, such as using gas sensors to detect ammonia levels and odor intensity, which in turn specify hygiene standards. Ultrasonic sensors are used to monitor water levels in storage tanks, while motion sensors detect presence or occupancy, enabling the system to differentiate between active and inactive states. Usage counters provide estimates of footfall, which can be used to

determine cleaning frequency. A decision-making algorithm is designed to analyze sensor data and trigger appropriate cleaning actions. This algorithm breaks down cleaning methodologies into multiple levels based on environmental conditions and usage patterns. This adaptive and efficient approach ensures that cleaning operations are performed only when genuinely needed.

5. SYSTEM DESIGN AND ARCHITECTURE

The proposed system is designed as an integrated IoT-enabled sanitation management framework that includes real-time monitoring, decision-making, and automated cleaning mechanisms. This architecture is based on a layered approach comprising sensing, processing, communication, and actuation layers, ensuring efficient public sanitation methods.



Figure 1: Smart Sanitation System Architecture

At the sensing layers, multiple sensors are integrated, each defining its role and actions and indicating when it should be triggered. Gas sensors detect ammonia concentration, which indicates hygiene conditions. Ultrasonic sensors ensure that cleaning methods are adequately available. PIR sensors detect occupancy, while usage counters count users in public toilets to gauge foot traffic. These sensors work together to provide a comprehensive understanding of sanitation.

The processing layers are used to integrate data extracted by sensors and to further support decision-making processes by analyzing it. The system is designed to interpret real-time inputs and classify sanitation conditions into different predefined states. It also defines the threshold logic to detect odors, usage, and water availability.

The communication layer enables seamless data transfer between the system and the cloud. Sensor data is transmitted using wireless modes such as WIFI. This enables remote monitoring and performance analysis, from which the cleaning frequency can be determined. Authorities can access real-time conditions and approaches to define the solution, enabling timely cleaning and efficient management.

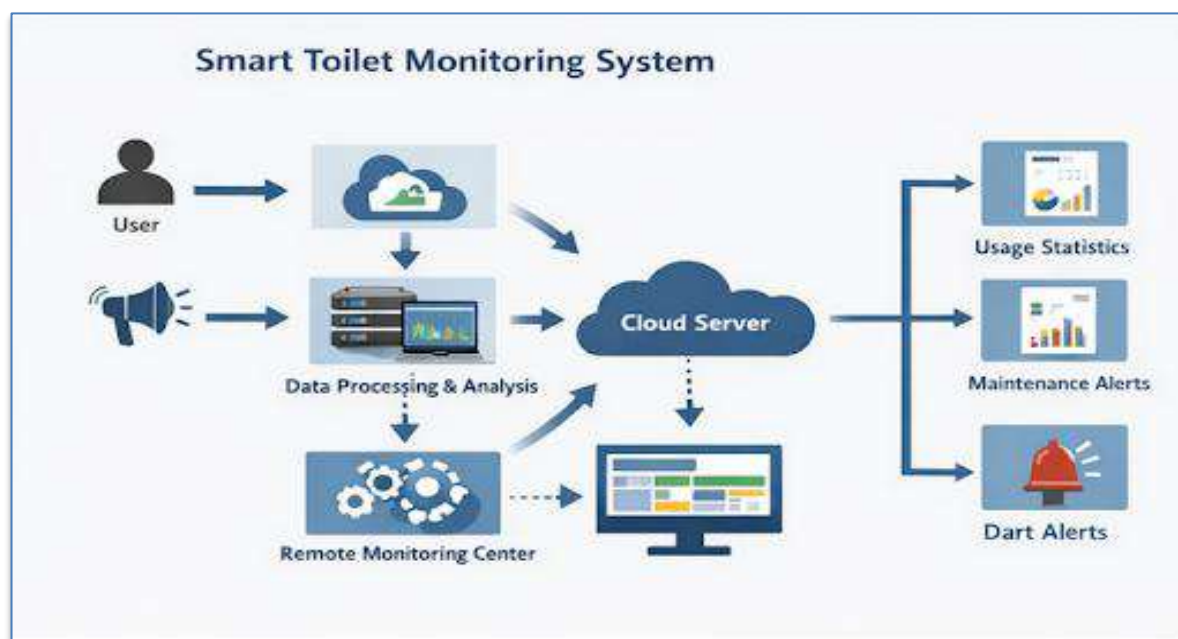


Figure 2: Smart Toilet Monitoring System

The actuation layer is responsible for cleaning methodologies. It includes flushing systems, water sprays for cleaning the floor, and disinfectant spraying. This system consists of various cleaning strategies at multiple levels. It can be categorized into three cleaning methods: light, medium, and deep. Light cleaning is automatically triggered after each use through a flushing mechanism. Medium cleaning is performed after a predefined number of users and involves spraying water to clean the floor, helping prevent accidents or slips. Deep cleaning is initiated when a high level of odor is detected, activating the use of disinfectants or detergents. The floor cleaning system is implemented using a smart wired pipeline setup embedded along the edges of the floor. This system includes perforated pipes connected to a water supply and controlled by solenoid valves. During medium and deep cleaning cycles, water or disinfectant is released through these pipes to ensure even distribution across the floor surface. The wastewater is channelled toward a sloped drainage outlet, allowing automatic flushing of contaminants without manual effort. This design ensures efficient cleaning, minimizes water usage, and prevents water stagnation.

A key feature of this designed system is its ability to detect occupancy. All cleaning operations are temporarily suspended when motion sensors detect user presence, ensuring security and safety.

To enhance transparency, this system also includes LED indicators that display the cleanliness status of public toilets, making it easier for users to decide whether to use them.

This proposed architecture is quite flexible and can be extended to meet requirements by combining various aspects of intelligence. This system provides comprehensive solutions for modern sanitation challenges.

Table 1: Utilization Statistics			
Day	Number of Users	Average Visits per user	Water Usage (Liters)
Monday	26	3.5	100
Tuesday	23	3.2	96
Wednesday	28	3.2	91
Thursday	23	3.3	95

Table 1: Utilization Statistics

Table 2: Health Parameter Analysis			
Parameter	Normal Range	Average Value	Anomalies Detected
pH Level	4.8 – 7.9	3.31	16
Urine Specific Gravity	1.8 – 3.0	2.96	19
Fecal Occurrences	2.2 – 7.4	1.57	15

Table 2: Health Parameter Analysis

Table 3: Maintenance Logs		
Date	Issue	Action Taken
05/07/2023	Repair Malware Fix	
07/07/2023	Repair Chlorinating Water Tank	
08/07/2023	Reported Issue	

Table 3: Maintenance Logs

6. RESEARCH GAPS

Even though some progress has been made, significant gaps remain in the existing research. Most of the systems developed so far mainly focus on monitoring conditions and sending alerts. Very few actually go a step further and take action on their own. As mentioned in [2], many of these systems still depend heavily on manual intervention, which slows things down and makes them less efficient in real-world situations. This clearly shows that proper integration between monitoring and actual cleaning is still missing. Another issue is that these systems are not very flexible. They don't adjust themselves based on real-time conditions, like how often a space is used, how strong the odor is, or changes in the

environment. In practice, this makes a big difference. For example, if cleaning is needed more frequently at certain times, the system should be able to respond to that—but most current solutions simply can't. There are also some very practical problems that haven't been addressed properly. One common issue is users not flushing after use. It might seem like a small thing, but it leads to poor hygiene and a bad odor very quickly. Since most systems don't include automatic flushing, they fail to handle this basic but important problem. Floor cleanliness is another area that tends to be ignored. In busy public toilets, floors often become wet, muddy, or slippery due to heavy use or weather such as rain. Despite this, very few systems are designed to detect or clean such situations automatically, which can make the space both unhygienic and unsafe. Speaking of safety, that's another weak point. Many systems don't consider whether someone is inside before starting a cleaning process. This can be uncomfortable for users and could even create safety risks. Ideally, cleaning should only occur when the space is unoccupied, but this feature is often missing. There's also the issue of how these systems perform under tough conditions. As noted in [3], sanitation infrastructure can be severely affected during floods or water shortages. However, most IoT-based solutions don't account for these situations, which limits their usefulness in real-world scenarios. Finally, the user experience has received little attention. Simple features, such as LED indicators that show whether a toilet is clean or needs attention, could make a big difference, but they are rarely included. Without such features, users have no clear idea about the cleanliness status, which affects their trust in the system.

All of these points highlight one thing: there is still a need for a more complete solution—one that not only monitors conditions but also takes action, adapts to real-time changes, ensures user safety, and performs reliably even in challenging environments.

7. RESULT

The evaluation of the proposed IoT-based smart sanitation system is conducted through simulated scenarios and comparative insights drawn from multiple existing sanitation studies and smart toilet implementations. A major limitation identified across sanitation research is the absence of accurate usage monitoring. It has been observed that *"sanitation programs often report the number of facilities constructed but fail to evaluate the usage and performance with proper accuracy"* [1]. This gap leads to inefficient maintenance and eventual abandonment of facilities. Supporting this, studies on sanitation usage in developing regions highlight that infrastructure without monitoring fails to ensure sustained hygiene outcomes [14], [15]. The proposed system addresses this issue by enabling continuous real-time monitoring using sensor networks. Similar approaches combining sensor monitoring and data analytics have demonstrated improved visibility into sanitation usage patterns and system performance [15]. From empirical studies on smart sanitation systems, it has been reported that detailed usage data, including user frequency, duration, and activity type, can be effectively captured. For instance, field evaluations have shown that *"application of sensors and ICT features... informed comprehensive usage data including gender, age, and activity patterns"* [1]. This validates the feasibility of the proposed monitoring approach. Water efficiency is another critical parameter analyzed. Conventional sanitation systems consume large amounts of water due to fixed flushing mechanisms. In contrast, smart sanitation solutions have demonstrated significant savings, with reports indicating *"up to 97% reduction in water consumption compared to conventional toilets"* [1]. Similar findings in water management studies emphasize that controlled water usage through automated systems can substantially reduce wastage [7]. The proposed system also improves maintenance efficiency. Traditional sanitation systems rely on fixed schedules, which often result in either over-maintenance or system failure. Research in container-based sanitation systems indicates that *"fixed emptying schedules can lead to loss of service capacity or inefficient maintenance operations"* [9]. In contrast, adaptive and responsive maintenance based on real-time data significantly enhances operational efficiency. User behavior analysis further supports the need for adaptive systems. Studies have shown that sanitation use patterns vary by time, gender, and environmental conditions. For example, *"usage patterns are influenced by day-night cycles, with higher usage during daytime and variation in urination and defecation activities"* [1]. Additional studies on communal sanitation facilities also highlight behavioral differences across demographics, particularly in urban and low-resource settings [22].

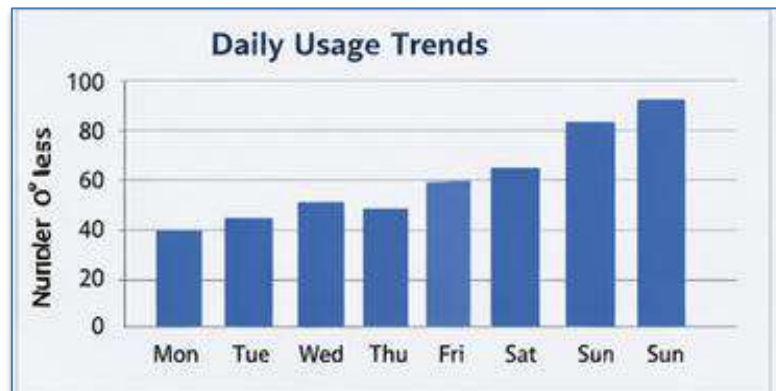


Figure 3: Usage Graph

From a public health perspective, sanitation plays a critical role in disease prevention. Research on disaster and emergency sanitation emphasizes that *“diarrheal diseases are transmitted predominantly through the faecal-oral route due to poor sanitation conditions”* [2], [3]. This highlights the importance of maintaining hygiene through timely, efficient cleaning, as implemented in the proposed system.



Figure 4: Health Graph

8. DISCUSSION

The integration of IoT technologies into sanitation systems represents a significant shift from traditional infrastructure-based approaches to intelligent, data-driven solutions.

One key insight from multiple studies is that monitoring is central to effective sanitation management. While earlier systems relied heavily on manual observation, it has been noted that *“manual monitoring is limited and often fails to provide accurate and timely information”* [1]. In contrast, automated systems enable continuous tracking and informed decision-making.

The adaptive cleaning mechanism proposed in this study addresses a major gap identified in existing sanitation systems. Traditional approaches do not account for dynamic usage patterns, leading to either excessive resource consumption or poor hygiene conditions. Research in sanitation system design emphasizes the need for flexibility and responsiveness, particularly in high-density and resource-constrained environments [6], [7].

Another important dimension is the applicability of such systems in emergency and disaster scenarios. Studies on sanitation in disaster-affected areas indicate that *“technical difficulties, flooding risks, and*

limited infrastructure require innovative sanitation solutions” [6], [3]. The proposed system, with its automated monitoring and resource-aware logic, is well-suited for such environments.

User acceptance is also a critical factor influencing the success of sanitation systems. Research on communal sanitation facilities shows that lack of privacy, safety, and cleanliness often discourages usage [22]. In contrast, smart sanitation systems that ensure cleanliness and safety tend to attract more users, particularly women and children, who are often underserved in traditional setups [1].

Despite these advantages, certain challenges must be acknowledged. Sensor reliability in harsh environments, maintenance costs, and scalability remain important considerations. Studies on sanitation technologies highlight that while innovation is essential, practical deployment requires cost-effective and robust solutions [10], [13].

9. CONCLUSION

This study presents an IoT-based smart sanitation monitoring and automated cleaning system to improve hygiene, efficiency, and sustainability in public sanitation facilities.

By integrating sensor networks, cloud-based monitoring, and adaptive cleaning algorithms, the proposed system effectively addresses key challenges in existing sanitation systems. These include a lack of monitoring, inefficient maintenance, excessive water use, and poor hygiene.

The findings are consistent with multiple research studies demonstrating that smart sanitation systems can significantly enhance operational efficiency and user experience. As highlighted in prior work, *“sensor-based monitoring and responsive maintenance improve system performance and reduce environmental and public health risks”* [1], [9].

Furthermore, the system aligns with broader smart city initiatives by promoting sustainable resource utilization and data-driven infrastructure management.

10. RECOMMENDATIONS:

Based on the analysis and synthesis of multiple research studies, the following recommendations are proposed:

The implementation of IoT-based sanitation systems should be prioritized in urban public infrastructure, particularly in high-density areas where sanitation challenges are more pronounced. Integration with smart city platforms can further enhance monitoring and control capabilities.

Future research should focus on large-scale deployment and real-world validation of the proposed system. Studies have shown that pilot implementations provide valuable insights into system performance and user behavior [10], [13].

There is also a need to incorporate advanced technologies such as machine learning for predictive maintenance and anomaly detection. This would further improve system efficiency and reduce operational costs.

Additionally, research on sanitation in disaster and emergency contexts should be extended to evaluate the effectiveness of smart systems under extreme conditions, as existing studies highlight the urgent need for innovative and resilient sanitation solutions [3], [6].

11. LIMITATIONS:

The proposed system provides a foundational framework for smart sanitation management that can be further improved by integrating advanced technologies, such as machine learning, to enable predictive analysis and optimization. Future extensions may include large-scale deployment, enhanced sensor calibration for diverse environmental conditions, and deeper integration with smart city infrastructure to improve system efficiency and adaptability. The cost benefit plays a very important role, as installing

integrated systems in different localities is not an easy task; it requires high-level facilities from governments.

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Intelligent Blockchain Systems for Healthcare: A Study of Benefits, Limitations, and Future Prospects

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Abstract: Blockchain technology combined with artificial intelligence (AI) is transforming smart healthcare systems by enhancing data security, interoperability, and transparency. The integration of AI with blockchain supports improved decision-making, reduces administrative workload, and enables efficient coordination of patient care through automated, trust-based processes. This study explores the applications of AI-driven blockchain in healthcare and evaluates its current state, key challenges, and future potential. The research highlights how blockchain improves healthcare by ensuring secure data sharing, streamlining processes, supporting telemedicine and remote monitoring, and enabling efficient consent management and medication traceability. To better understand this integration, the study proposes the Trust–Automation–Interoperability (TAI) synergy framework, which emphasizes three critical dimensions for building sustainable digital healthcare systems: trust, automation, and interoperability. Despite these advantages, several challenges remain, including scalability limitations, legal and regulatory uncertainties, interoperability issues, data storage constraints, and user adoption barriers. Additional concerns such as security risks, identity management, and cost factors further complicate implementation. Addressing these challenges is essential to fully realize the potential of AI-enabled blockchain in creating reliable, efficient, and trustworthy smart healthcare ecosystems.

Key Words: Artificial Intelligence (AI), Smart Healthcare Systems, Data Security, Interoperability, Transparency, Decision Support Systems, Healthcare Automation.

1. INTRODUCTION:

The swift progress in contemporary technologies like the internet of things (IoT), machine learning (ML), artificial intelligence (AI), and blockchain is transforming the healthcare sector [1], [2], [3]. Originally designed for cryptocurrencies, blockchain technology is transforming healthcare systems by offering security, interoperability, and transparency [4], [5], [6]. Blockchain technology can be utilized in every decision-making aspect of healthcare systems to securely manage and disseminate medical data, enhance interoperability, and facilitate transparent and decentralized management of patient information [7]. The global medical cloud computing market is expected to attain a value of \$197.45 billion by 2030 [8]. The blockchain system is anticipated to conserve as much as billion each year in expenses related to counterfeit medications by 2025 [9].

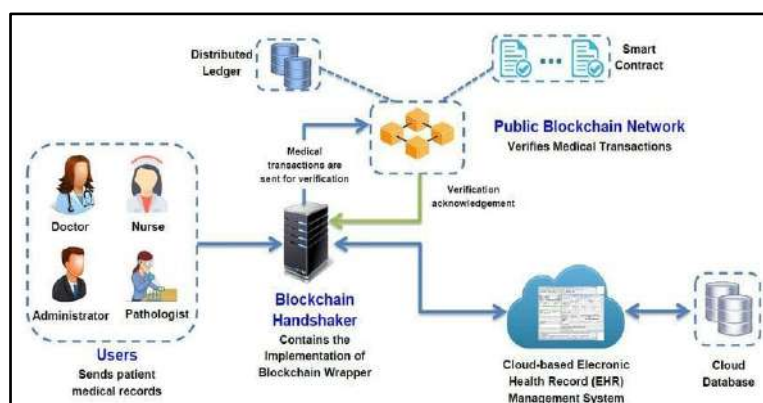


Fig 1. Smart Healthcare System

The decision-making process within traditional healthcare organizations encounters numerous challenges, such as fragmented medical records, insufficient interoperability among providers, permanent storage issues of sensitive data, difficulties in ensuring data accuracy, risk of data linkage attacks that threaten patient privacy, and the need to prevent illegal drug use [10]. Blockchain technology can tackle these issues by offering a secure and decentralized platform for the storage and exchange of patient data among various healthcare providers, while ensuring interoperability through established data formats and smart contracts [11]. Through tracking the source of pharmaceuticals, verifying their authenticity, and decreasing the prevalence of fake medications, blockchain can enhance transparency in the pharmaceutical supply chain [12].

Numerous healthcare systems are centralized control frameworks in which access to data is allowed by third parties, like the government or professionals needing prior records. Patients may have several consultants who need details regarding the patient's medical history. This raises the chances that information might be exposed, potentially leading to significant repercussions for the patient's confidentiality and the system's standing. Blockchain technology can safeguard against these scenarios and is beneficial in clarifying past evaluations and processes [13]. Blockchain offers a solution for smart contracts and emphasizes various components in the contracting process that enhance clarity of contract conditions [10]. Additionally, it safeguards and organizes data among all participants, forming a unified health record that can be accessed worldwide by doctors, practitioners, pharmacists, and other parties involved in managing the patient's health [14].

The blockchain framework has revolutionized the healthcare sector by introducing major improvements like e-health, medication prescription data, and insurance details [15]. These technologies may lessen the necessity for regular hospital visits, while home links can assist in avoiding hospitalizations or readmissions [9]. It enables access to disease symptoms and diagnoses for prompt treatments to patients, allows management of challenging situations, and alerts doctors to review past information about the patient [16]. Blockchain technology can eradicate fake medications, safeguard patients from consuming ineffective drugs, maintain digital registers, and guarantee the quality of pharmaceuticals [17]. The Gcoin blockchain technology [18] is fundamental in healthcare as it facilitates drug transactions and enhances transparency.

Additionally, blockchain technology allows medical devices to conduct accurate evaluations via trigger messages and diagnostics before the situation turns perilous. The sensors placed in different patient devices assist in gathering data and transmitting it to the doctor for evaluation. These systems have resulted in ongoing advancements in the healthcare sector. A blockchain-based data preservation system [19] can offer a storage solution that ensures authenticity and verification for users. This adds a further capability of alerting when there is an attempt to interfere [13]. The security of blockchain can demonstrate the reliability, safety, and confidentiality of healthcare systems and the vital aspects in the system [20].

A healthcare system spread across various medical facilities complicates the accessibility of patients' private information [9]. Figure 1 illustrates a typical arrangement of a smart healthcare system. A smart healthcare system (SHS) based on blockchain is a decentralized and secure platform that utilizes

blockchain technology to facilitate the safe storage and sharing of patient medical records and information among multiple healthcare providers. SHS ensures data integrity and interoperability, enhances patient privacy, and fosters efficient and transparent healthcare services through the use of smart contracts and decentralized consensus techniques [21], [22]. It presents multiple significant benefits, as it delivers an unchangeable platform for archiving and distributing medical records and patient information.

In artificial intelligence (AI), the incorporation of blockchain technology seems to be a pivotal element in transforming the realm of data management, security, and utilization. Fundamentally, blockchain offers a distributed, unchangeable dataset that underlies trust and transparency in online transactions [23]. Together with AI systems, blockchain guarantees both the integrity and confidentiality of extensive data sets while enhancing the reliability and verifiability of AI algorithms and their outcomes. This collaborative blend of AI and blockchain holds significant promise to transform numerous sectors by offering AI applications dependable data streams, quicker transactions, and enhanced security measures [24], [25]. Businesses can access unparalleled innovation prospects and handle risks by utilizing the synergistic benefits of AI and blockchain [26], [27].

This research investigates the possibilities of blockchain technology within the healthcare field, along with the associated opportunities and obstacles, by analyzing the current literature. The research seeks to evaluate the obstacles related to the adoption of blockchain technology in the healthcare sector. It also seeks to recognize the obstacles to technology adoption and solutions to address them. It emphasizes earlier studies and gathers essential details to comprehend the results of SHS and blockchain execution. The research finds that interoperability among healthcare organizations is crucial for health information, patient identification, data access authorization, and health data management.

2. LITERATURE REVIEW:

A method of systematic literature review (SLR) is utilized to discover, classify, and examine current research. The chosen studies are thoroughly analyzed to:

- Recognize existing uses of AI-driven blockchain in the healthcare sector.
- Assess advantages like safety, clarity, and automation.
- Emphasize constraints such as scalability issues, interoperability difficulties, and regulatory hurdles.

3. OBJECTIVES:

The primary motivations and goals of the research are outlined below:

- To identify prospects presented by blockchain technologies within the smart healthcare sector.
- To solve challenges that prevent blockchain technology from being used effectively and efficiently in smart healthcare systems and to make recommendations for the future.

4. RESEARCH METHODOLOGY:

This research employs a systematic and analytical approach to explore the combination of blockchain technology and artificial intelligence (AI) within smart healthcare systems. The approach aims to assess existing applications, highlight major challenges, and suggest a conceptual framework—the Trust–Automation–Interoperability (TAI) synergy model

➤ Research Design:

In order to understand new technologies and how they affect healthcare systems, a qualitative and exploratory research approach is used. The study integrates descriptive and analytical methods to evaluate the efficacy of blockchain solutions powered by AI. This approach facilitates a thorough assessment of current literature, technologies, and real-world applications.

➤ Data Collection:

The research depends on secondary data sources such as peer-reviewed journal articles, conference papers, industry reports, and white papers concerning blockchain, AI, and smart healthcare. Databases like IEEE Xplore, ScienceDirect, Springer, and Google Scholar are utilized to gather pertinent and up-to-date publications. The search is guided by terms like "blockchain in healthcare," "AI for smart

healthcare," and "interoperability in healthcare. "Only recent and high-quality studies are chosen to guarantee their reliability and relevance

5. CONCLUSION:

In light of the previous conversations, this study highlights how blockchain technology might improve smart healthcare systems by strengthening data security, privacy, transparency, and the decision-making process. The examination of current literature highlights the advantages and drawbacks of blockchain implementation, encompassing improved data integrity, fewer human errors, and cost savings, as well as obstacles like interoperability, regulatory ambiguity, and managing patient identities.

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Benefits and Challenges of Library Cooperation: A Study of Resource Sharing and Collaborative Library Services

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Abstract: In the modern era of information and knowledge, libraries have become important centers for the intellectual development of society. The huge amount of information, the increase in publishing costs and limited financial resources have made it difficult for a single library to provide all types of information resources. Against this background, the concept of Library Cooperatives or Library Consortia emerged. In this system, many libraries come together and share information resources, technology and services.

The aim of this research is to study the benefits and challenges of library Cooperation. This study has analyzed various aspects of library Cooperation using secondary information sources. The study revealed that library Cooperation increases the availability of resources, saves money and provides users with more comprehensive information services. However, lack of technical compatibility, copyright restrictions, administrative difficulties and lack of policy coordination are some of the major challenges. According to the study's findings, effective management, technical standardization, and coordination between institutions can make library Cooperation more effective.

Key Words: Library Cooperation, Resource Sharing, Library Consortium, Information Services, Academic Libraries, Collaborative Networks.

1.INTRODUCTION:

Knowledge and information are key components of the development of modern society. Libraries play a vital role in education, research and innovation. However, the increasing number of information resources, the rise in the cost of periodicals and the need for digital resources have made it economically difficult for individual libraries to purchase all the materials.

In this situation, the concept of library Cooperation developed. In this method, libraries from different institutions come together and share resources and services. This includes the following types of services: • Inter-Library Loan • Shared Catalogues • Digital Databases Access • Cooperative Collection Development Library Cooperation leads to more effective use of resources and more information is available to users. This system is extremely useful in all types of libraries.

2.RESEARCH OBJECTIVE:

- To Understanding the concept and importance of library Cooperation.
- To analyze the major benefits of library Cooperation.
- To identify the challenges in implementing library Cooperation.
- To suggest solutions to make library Cooperation more effective.

3.REVIEW OF LITERATURE:

The concepts of library Cooperation and resource sharing have been a topic of discussion in the library and information science field for many years. In the context of the increasing number of information resources, the rise in publishing costs, and the increasing information needs of users, various researchers have highlighted the importance of library Cooperation.

Ranganathan, S. R. (1963) explained the importance of Cooperation between libraries for the effective management of information resources. According to him, if libraries share resources through mutual Cooperation, information resources can be used more effectively and more comprehensive information services can be provided to users.

Kent, Allen (1978) while studying resource sharing systems in libraries stated that library networks and collaborative arrangements make the use of information resources more effective. According to him, resource sharing avoids unnecessary duplication and increases the availability of information resources.

Gorman, Michael (2000) highlighted the importance of a collaborative approach in modern library management. He noted that advances in information technology have provided libraries with new opportunities to share resources through collaborative networks.

Chowdhury, G. G. (2004) has explained the role of library Cooperation in the context of digital information management. He noted that the increasing use of e-journals, digital databases and online information resources has made it necessary for libraries to develop collaborative systems.

Kumar, P. S. G. (2010) explained the importance of library Cooperation in the context of library administration and management. According to him, library Cooperation makes information services more efficient and effective in situations of limited financial resources.

Singh, S. P. (2012) while studying library networks and information resource sharing systems showed that modern information technology has greatly increased the scope of library Cooperation. The need for collaborative networks is especially felt in academic libraries.

Taylor, Robert S. (1968) highlighted the importance of Cooperation between libraries in providing effective information services while analyzing the needs of users in the information retrieval process. According to his study, the availability of comprehensive information resources is essential to meet the information needs of users.

4.METHODOLOGY:

This study adopts a descriptive research method to examine the concept of library cooperatives, their benefits, and the challenges encountered during their implementation. In this study, secondary sources have been mainly used for data collection. Relevant information was collected by studying recognized books on library and information science, research articles, academic journals, conference proceedings and various online academic databases. The literature from these sources was studied to study the theoretical background, conceptual framework and practical experiences related to library Cooperation.

Secondary Data Collection Method was adopted for data collection. The necessary information was collected by comparative study of various research articles, reports and academic publications. Qualitative analysis of this information was done to classify the major trends, benefits and challenges in the library Cooperation system. Based on this analysis, an attempt has been made to explain the academic and practical importance of the library Cooperation system.

5.Results

The analysis of the collected information has revealed many positive effects of the library Cooperation system, as well as some limitations. In particular, library Cooperation plays an important role in increasing the availability of information resources, saving money, and improving the quality of information services.

6. Benefits of Library Cooperation

Library Cooperation systems first facilitate resource sharing. Books, journals and digital information resources available in different libraries can be used collaboratively. This allows materials not available in one library to be obtained from another library and leads to more effective use of information resources.

Another important benefit is cost reduction. In today's times, the cost of academic journals and digital databases is increasing at a rapid pace. In such a situation, if several libraries purchase journals or databases on a shared basis, the financial burden is reduced.

Library Cooperation provides users with expanded access to information resources. Students, researchers, and teachers have access to more reference materials on various subjects, which greatly helps their academic and research work.

This Cooperation also makes information services more efficient and effective (Improved Library Services). Users can get the required information faster due to easier information sharing.

Library Cooperation provides support for research. The quality of research is enhanced by providing researchers from various institutions with access to extensive reference materials.

In addition, this process increases professional Cooperation and communication among librarians from different institutions. It encourages the exchange of experiences, development of technical skills, and innovation in information management.

7. Challenges of Library Cooperation

Technological differences are also a major problem. The process of resource sharing is sometimes complicated by differences in software systems, database structures, and digital platforms used across libraries.

There are also copyright and licensing issues on the use of digital information resources. Many publishers place restrictions on the use of digital content, which limits resource sharing among libraries.

In addition, differences in policies and procedures across institutions create administrative problems. Differences in loan rules, utilization policies, and management procedures can hinder the Cooperation process.

Some libraries also face financial constraints due to limited funds. It is difficult to provide modern technological facilities, especially for libraries in smaller institutions.

In addition, the skilled staff required to effectively deliver modern IT-based services is often not available. The lack of technically skilled staff prevents effective implementation of the Cooperation system.

Overall, library Cooperation systems are extremely useful for more effective management of information resources; however, their successful implementation requires technical compatibility, effective administration, and proper financial planning.

8. Solutions for Effective Library Cooperation

To develop a compatible technological infrastructure in all libraries.

Creating clear policies and agreements (Policies and Agreements / MoU) for resource sharing.

Strengthening library networks and consortiums.

Organizing information technology and digital resource management training for librarians.

Providing adequate financial funding for collaborative projects.

Increasing the use and dissemination of Open Access resources.

Establishing regular communication and coordination mechanisms among participating libraries.

Developing a common catalog (Union Catalogue).

Making Inter-Library Loan (ILL) services more efficient.

9.CONCLUSION:

The findings of this research clearly show that library Cooperation systems have become an important strategic approach in modern information management. With the increasing number of information resources, the continuous increase in the cost of academic publications, and the increase in the information needs of users, it is becoming increasingly difficult for individual libraries to provide all the necessary resources. Therefore, sharing information resources through Cooperation between libraries in various institutions has become the need of the hour.

The study found that library Cooperation makes access to information resources more widespread and easier. In particular, resource sharing among academic and research institutions provides users with more reference materials on various subjects. This allows research work to be done more effectively and improves the quality of education.

Another important outcome of library Cooperation is the improvement in the quality of information services. Cooperation enables the information available in different libraries to be made available to users in a structured manner. With the help of digital technology, it has been possible to develop unified catalogues, shared databases and network-based services. This makes the process of finding information faster and more efficient.

However, some structural and technical limitations are also observed while implementing this system. The differences in technical infrastructure and automated management systems in different libraries make the Cooperation process somewhat complicated. In addition, copyright and licensing policies on the use of digital information resources can limit the process of resource sharing.

This also highlights the need for strategic coordination at the institutional level. For a library Cooperation system to function effectively, there must be clear rules, shared policies and effective management arrangements among the participating institutions. Otherwise, inconsistencies may arise in resource allocation, service utilization and management processes.

Therefore, based on this research, it can be said that library Cooperation systems can be very useful for effective management of information resources and knowledge dissemination. However, for its long-term success, special emphasis needs to be placed on technical compatibility, administrative coordination, and skill development in information technology.

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Library Consortia: Need for Libraries

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Abstract: Over in the last thirty years, academic libraries have increasingly turned to consortial collaboration to deal with rising subscription costs, fast-paced digital changes, and growing user expectations. The move from owning collections to accessing resources through shared models has made library consortia essential infrastructures for resource sharing and collective bargaining. Even though library consortia are becoming more important, studies on them are spread out across economic, technological, governance, and regional viewpoints. A new way of thinking is emerging for libraries. No matter how large a library might be, it cannot meet all the needs of its users due to various limitations. This is why the idea of library consortia has developed. The practice of groups of libraries pooling together to purchase e-information has gained significant importance in recent years. Library consortia are well established globally for sharing resources. The rapid increase in information, the rise of the internet, and especially the World Wide Web as a new way to store and access information have made the concept of consortia more relevant than ever before. This paper aims to explore or briefly discuss the concept, necessity, factors, benefits, and drawbacks of library consortia. A consortium is a form of cooperation among libraries that come together to share electronic resources. Due to limited budgets and the increasing cost of e-resources, library consortia serve as an alternative to overcome financial challenges.

Key Words: Library Consortia, Resource sharing, Library networking.

1. INTRODUCTION:

The past two decades have seen a significant shift in how library users seek information, and libraries have remained key players in supporting intellectual growth. However, with the rise of digital technology, libraries have become less central as the main physical location for learning, teaching, and research. Despite this, libraries still play a crucial role in evaluating, organizing, and delivering the right information, even when it comes from digital sources. The information revolution has transformed societies, moving them from traditional, agricultural, or industrial systems to information-based ones. Now, information is more accessible to everyone, and libraries, once just storage places, have broadened their roles to provide access to global knowledge. This information revolution has led libraries worldwide to adopt new ideas and technologies, helping them offer services more efficiently while reducing the cost of information. Libraries face a major challenge in maintaining extensive and varied collections, regardless of their type. Failing to address this challenge could jeopardize their mission and goals. As a result, collaboration and partnership on local, national, and international levels are essential for libraries today.

Cooperation takes many forms, ranging from simple interlibrary loan systems and reciprocal user access, to more complex resource sharing, joint storage, and coordinated collection development with publishers and vendors. These collaborative efforts are now more important than ever due to the rapid growth of data, advancements in communication, and the rising costs of obtaining library materials.

Ancient Perspective for Library co-operation:

In the past, library cooperation mainly involved sharing union catalogues, storage, collection development, and human resources at local, national, and regional levels. Another form of cooperation focused on interlibrary lending, allowing libraries to borrow materials not available locally. While library cooperation was practiced locally using available resources and networks, the information revolution expanded library services beyond physical locations, enabling access to diverse information formats. Library cooperation has been practiced in the West for a long time, though the extent and form have varied over time. In the early 1960s and 1970s, resource sharing was seen as the future of libraries and was successfully implemented in many countries. Later, there was interest in coordinated collection development, but this was eventually replaced by coordinated collection management, which is the current focus.

2. Definition:

Cooperation among groups to achieve common goals is essential in civilization. According to the Merriam-Webster Collegiate Dictionary, cooperation is "the action of cooperating with common effort; the association of persons for common benefit." It involves people working together to meet economic, social, and cultural needs. The Library of Congress Subject Headings define "library cooperation" as including interlibrary cooperation, resource sharing, library consortia, and related activities such as cooperative cataloguing, intellectual cooperation, international librarianship, and library storage centers. For libraries, this means working together to improve services for users through cooperative cataloguing, centralized processing, acquisition of materials, and exchange of bibliographic information, interlibrary loans, information networks, and storage centers.

When libraries seek to maximize the impact of limited resources, forming consortia represents a major step forward in cooperation, coordination, efficiency, and cost savings. A library consortium is defined as the cooperation, coordination, and collaboration between libraries to share information resources. While the idea of library consortia began in the 1960s as a way to reduce costs through resource sharing, such collaboration was not widespread until the 1980s. While concepts like collaboration, cooperation, and resource sharing are not new, the idea of consortia brings mutual benefits to member libraries, especially as new forms of information, such as electronic, digital, or virtual resources, become more common. Although libraries remain repositories of knowledge and retain their traditional character, they are under pressure to adapt to technological, socio-economic, institutional, and educational changes. High costs of acquiring materials and fixed budgets for academic libraries make it difficult for traditional libraries to provide effective, up-to-date services.

3. Library Consortia:

Consortia are the plural form of consortium, though it is commonly used as a singular term. The word consortium originates from the Latin "consort," meaning partnership. A library consortium refers to a group of libraries that unite to achieve shared goals that require collaboration and the exchange of resources. Such consortia primarily focus on sharing resources in digital or electronic formats. The purpose of a consortium is to accomplish objectives that individual members might not be able to achieve on their own. According to the Oxford English Dictionary, consortia refer to the temporary cooperation of a number of entities, such as powers, companies, or organizations, for a specific common purpose. It is an association of similar types of organizations or institutions that come together to provide and support common services for the benefit of their users. The development of the internet and the rise of electronic publishing have encouraged libraries to collaborate through consortia to access large, comprehensive packages of resources (Jeon & Menicucci, 2017).

The main reason for forming a consortium is to share information resources, boost research productivity, reduce costs, and foster participation based on mutual benefits (Arora et al., 2013; Bashirullah & Jayaro, 2006). Access to electronic resources through consortia has significantly enhanced research productivity. Factors such as the increasing number of publications and demand

for library services, the high cost of publications, declining library budgets, the growth in student enrollment in higher education, the automation of library processes, and the potential for qualitative storage have been key drivers behind the collaboration of academic libraries (Baathuli Nfila & Darko-Ampem, 2002; Moghaddam & Talawar, 2009).

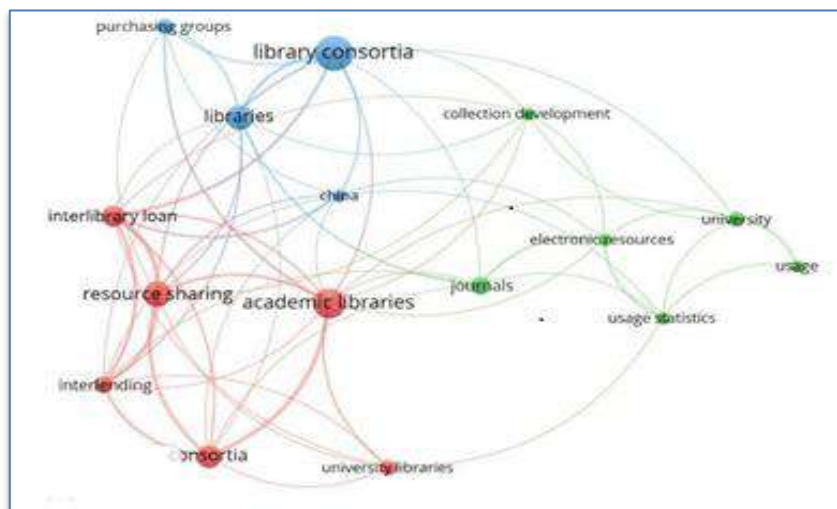


Figure1 AssociationofKeywords

Above three clusters are formed based. Figure 1 shows the cluster formation. Cluster line red colour shows 6 items such as academic libraries, consortia, inter-lending, interlibrary loan, resource sharing, and university libraries. This cluster centers more on the participatory and service-related functions of library consortium. In cluster 2, green in colour, there are 6 items namely, collection development, electronic resources, journals, university, usage, and usage statistics. Here, the concentration is more on internal assessment and inner functions. The third cluster in blue relates with the purchasing power and other related concerns which connects with the items of libraries, library consortia, and purchasing groups. Thereafter, based on these three clusters, WoS was consulted again to find out the co-relation among the published works based on the author's keywords. This would help to identify how this domain has been handled within the published literature.

4.E-Resources

An electronic resource refers to any material that needs a computer to access or any product that offers a collection of data. Today, libraries are moving towards incorporating new media, like electronic resources, into their collection development strategies to better meet the needs of their users. Examples of e-resources include e-journals, e-databases, e-books, e-magazines, digital library projects, electronic exhibitions, e-subject guides, e-newsletters, e-white papers, and e-conference proceedings. A lot of these electronic resources are freely available to anyone who has internet access.

The use of licensed electronic information resources is expanding, and in certain cases, it is becoming the primary or only way to access content. The growth of information and the limited resources available to libraries have led them to adopt new ideas and technologies for managing their collections and reducing the costs associated with information. The electronic environment, especially the World Wide Web, offers an opportunity to measure how these resources are being used more accurately. In the digital space, we can track which information is being accessed and used more precisely. A library consortium is a group of libraries that work together to achieve common goals. It is believed that the concept of e-journal consortia can be effective in helping libraries access e-journals without incurring extra costs.

5. Need of Library Consortia:

The pricing models of publishers and the rise of electronic publishing in scholarly journals offer new opportunities for libraries to provide quick and immediate access to information. Several factors support the need for consortia.

a) Information Explosion: With intense research happening across all areas of knowledge, there is a vast increase in the amount of information being generated. This information comes in many formats and forms. It is nearly impossible for individual libraries to handle all this information on their own. A consortium is better positioned to manage and preserve electronic resources effectively.

b) Shrinking Budget: The cost of books and other information resources continues to rise. Consortia are formed to increase the purchasing power of participating institutions, especially in times of financial strain for libraries and information centers. By joining a consortium, libraries can obtain electronic resources at a reasonable cost.

c) Diversity of User Need: Library users often want instant access to information and prefer content in digital formats. Web-based electronic resources are ideal for meeting these expectations.

d) Professionalization of Library Services: The role of library professionals has evolved from mere custodians to guides for knowledge. This shift presents challenges for libraries to stay at the forefront of their profession. The new role of librarians has increased the value of library consortia.

e) Quick Access: Researchers now expect journal articles in electronic form, as these are generally more affordable than print sources.

6. Advantages of Consortia:

Some of the key benefits of library consortia include:

- Accessible 24 hours a day.
- Ability to search bibliographies and full-text articles.
- Avoids duplication of resources.
- Provides access to a broader range of electronic resources at a lower cost.
- Helps in building a common resources database.
- Maximizes the use of available funds.
- Offers facilities for developing digital libraries.
- Accommodates the diverse needs of users.

7. Disadvantages of Consortia:

Some challenges associated with consortia include:

- Issues related to copyright and misuse of research material.
- Lack of printed copies of journals.
- Requires reliable internet access.
- Difficulty in distinguishing essential from non-essential journals.
- High initial costs for licenses and information and communication technology.
- Sustaining pressures from shrinking budgets, growing user demands, and rising costs of library resources.

8. Consortia Movement:

The human race is on the verge of entering a new era: the information age. This is an extension and successor to the agricultural and industrial civilizations that have shaped society so far. Microelectronics, particularly in the form of computers, plays a fundamental role in building an

information society. Many of these technological innovations originate from research universities, much like steel factories in industrial societies. Information is highly valuable, and those who create it hold a premium status in an information society. This status is earned through education, knowledge, and access to sources and retrieval systems. As communication technology advances, information seekers emerge who want specific, individualized information. Modern communication technologies are designed to offer interactivity, personalization, and real-time access, giving individuals more freedom from the limitations of mass media.

The concept of sharing has evolved over time, and so have the methods. Today, resource sharing often involves sharing computing resources, unlike the traditional sharing of bibliographic materials like books and journals through interlibrary loans or union lists. Many Indian universities and colleges lack the financial and managerial support needed to subscribe to all required journals and databases. As a result, libraries are forming consortia to facilitate knowledge sharing at significantly reduced costs. The emergence of consortia is a response to the desire for better resource sharing.

9. Formation of Consortia:

It is unclear exactly when the term "library consortium" was first introduced. While the specific date of its introduction remains uncertain, the idea of a consortium as an association or partnership has long been a fundamental part of librarianship. The existing literature shows that this concept is not new and refers to the cooperation, coordination, and collaboration between libraries to share information resources. However, the widespread use of the term "library consortium" did not begin until the 1980s. The main reason for this increased cooperation was the rapid growth in the number of publications, often referred to as the information explosion. Other contributing factors included rising costs of publications, limited budget allocations, and an increase in student enrollments. The growing demand for library services, along with the need to enhance inter-lending and improve library collections, also played a significant role.

Several specialized libraries and organizations in India, such as the Indian Institute of Astrophysics (IIA) Library, Inter-university Centre for Astronomy and Astrophysics (IUCAA) Library, National Centre for Radio Astrophysics (NCRA) Library, Physical Research Laboratory (PRL) Library, Raman Research Institute (RRI) Library, Tata Institute of Fundamental Research (TIFR) Library, Council of Scientific and Industrial Research (CSIR), and the Department of Atomic Energy, have established consortia to share access to electronic journal resources. The National Institute of Science Communication and Information Resources (NISCAIR) is also working on forming a consortium for CSIR laboratories to access e-journals. Consortia in India are still relatively new and require well-defined guidelines and methodologies for effective implementation.

10. Development of various consortia in India:

The formation of library consortia has become essential in order to facilitate the sharing of information. In India, numerous consortia have been established in various fields to promote resource sharing. Some of the notable consortia operating in the country include the UGC-INFONET Digital Library Consortium. The Information and Library Network (INFLIBNET) Centre is an autonomous institution under the University Grants Commission (UGC) and is responsible for developing infrastructure to support the sharing of library and information resources among academic and research institutions. The UGC INFONET network aims to provide high-speed internet access to approximately 150 institutions in its initial phase. INFLIBNET serves as a resource center, catering to the information needs of its member institutions by providing both electronic and print resources. The electronic subscription initiative under UGC-INFONET is expected to significantly enhance the sharing of both print and electronic resources among university libraries through a dedicated gateway portal. These portals allow members to access not only their own resources but also those of other participating libraries. The availability of resources in electronic format reduces the need for physical

storage and minimizes the problems associated with print media, such as wear and tear, shelving, and organization. Additionally, the possibilities of partnerships with publishers for adopting a consortium-based model for e-subscriptions are increasing. These journals will be accessible to all universities via the UGC-INFONET network. Furthermore, many new research publications are available online as freeware, making high-quality information more accessible to a broader academic audience at an affordable cost.

11. Issues Related to Consortia:

Although forming a library consortium may seem straightforward, some initiatives face challenges in implementation.

The following are some common barriers that hinder the effective functioning of consortia:

- Lack of awareness about the concept and its benefits.
- Incompatibility in technological systems.
- Licensing issues, particularly regarding time-limited access.
- Multiple memberships in different consortia.
- Difficulties in securing and managing budget allocations.
- Absence of strong professional associations to encourage participation.
- Challenges in transferring funds.

12. CONCLUSION:

Today's era of rapid information growth, library consortia play a crucial role and are highly beneficial. A library consortium represents a vast repository of knowledge and resources. Libraries must realize that working together can achieve far more than individual efforts. The collaborative nature of libraries enhances the efficiency and quality of services, and supports a more professional approach in the field of information research. Inexperienced users particularly benefit from the resources available through consortium participation (Szpunar & Bradley, 2023). It is advisable that regular discussions take place on matters such as budget allocation, membership issues, subscription increases, and resource management. Academic libraries can no longer afford to purchase information resources individually, as budgets are shrinking. Thus, the role of consortia becomes essential. While ensuring that the interests of all participating libraries are met, it is important to continuously assess user needs, gather feedback, and provide regular training and support. Libraries in India should collaborate to establish library consortia with the aim of offering and sharing electronic resources. By working through consortia, libraries can provide effective solutions to meet the information needs of users. Major challenges faced by libraries today include journal costs, budget cuts, user demands, the globalization of education, and the integration of various disciplines. However, leading bodies such as the UGC, AICTE, and CSIR are acting as negotiation platforms to offer discounted subscriptions to consortia of universities and institutions.

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Essential Soft Skills for Library and Information Science Professionals: A Systematic Review of Competencies and Curricular Integration

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Abstract: *The digital transformation of the 21st century has fundamentally altered the operational landscape of Library and Information Science (LIS). While technical proficiency remains a prerequisite, the modern library environment increasingly demands a sophisticated suite of soft skills to navigate complex user interactions and technological shifts. This paper provides a systematic review of essential soft skills, including communication, adaptability, and leadership, within the LIS context. By synthesizing recent literature (2020–2026), the study identifies a persistent gap between professional requirements and current LIS curricula, particularly in developing nations like India. The findings emphasize the need for a holistic pedagogical approach that integrates interpersonal competencies with technical training to ensure the continued relevance of library professionals in the era of Society 5.0.*

Keywords: *Soft Skills, LIS Education, Professional Competencies, Curriculum Development, Digital Transformation, India.*

1. INTRODUCTION:

The role of library professionals has undergone a significant transformation in recent decades, moving beyond traditional custodial functions to encompass dynamic and multifaceted responsibilities. This evolution is largely driven by rapid technological advancements, the proliferation of digital information, and changing user expectations. Consequently, the skills required for success in the library and information science (LIS) field have expanded beyond technical competencies to include a crucial set of soft skills. These interpersonal and intrapersonal attributes are increasingly recognized as vital for effective service delivery, collaboration, and professional growth in the modern library environment (Saunders & Bajjaly, 2022).

Despite growing recognition, limited studies have systematically evaluated soft skills integration in LIS curricula in developing countries, where the focus often remains on traditional cataloging and classification (Mubofu, 2023). While the global LIS landscape has shifted toward data services and AI-driven information retrieval, the pedagogical frameworks in many regions have not kept pace with these "human-centric" requirements. This paper addresses this critical gap by synthesizing contemporary research to define a comprehensive soft skills framework for LIS professionals.

1.1 RESEARCH GAP AND OBJECTIVES:

Current literature often treats soft skills as supplementary rather than foundational. There is a notable lack of analytical comparison between the soft skills required for traditional library roles versus those needed in digital-first environments (Yadav, 2022). Furthermore, the specific challenges of integrating these skills into the Indian LIS context remain under-explored.

The objectives of this study are:

1. To identify and categorize essential soft skills for modern LIS professionals.
2. To analyze the role of these skills in enhancing modern library services, including AI and digital literacy.
3. To examine the current state of soft skills integration in LIS education and propose a framework for curricular improvement.

2. The Evolving Landscape of Library and Information Science

Historically, libraries were primarily repositories of physical books, with librarians focusing on technical tasks such as cataloging and circulation. However, the advent of the Fourth Industrial Revolution has fundamentally reshaped this landscape. Modern libraries are now vibrant information hubs, offering access to diverse digital collections, facilitating digital literacy, and serving as community centers (Mabe & Bwalya, 2022).

In the contemporary environment, library professionals must manage complex data services, navigate AI-driven search engines, and provide research support in increasingly virtual spaces. For instance, the integration of Artificial Intelligence (AI) and Big Data in libraries requires not just technical understanding but the critical thinking to evaluate algorithmic bias and the communication skills to guide users through these tools (Siddiqui, 2025). This shift necessitates that library professionals possess a blend of technical expertise (hard skills) and well-developed soft skills often termed “human skills” to navigate complex information environments effectively (Samosir, 2025).

3. Conceptual Framework of Soft Skills in LIS

Soft skills, often contrasted with hard skills, refer to a cluster of personal attributes and communication proficiencies that enable individuals to interact harmoniously with others. In the LIS context, these skills are crucial for building relationships and fostering a positive user experience (Lowry, 2022).

Zeynali-Tazehkandi et al. (2025) provide a robust categorization of LIS competencies into three primary sets: soft skills, hard skills, and research skills. Their framework emphasizes that soft skills are the “connective tissue” that allows technical knowledge to be applied effectively in social and professional settings. Table 1 summarizes the core soft skills identified across recent LIS literature.

Table 1: Framework of Essential Soft Skills for LIS Professionals

Category	Key Skills
Communication	Verbal/Written, Public Speaking, Active Listening
Interpersonal	Teamwork, Networking, Professional Ethics
Cognitive	Problem-Solving, Critical Thinking, Creativity
Self-Management	Adaptability, Time Management, Lifelong Learning
Leadership	Project Management, Mentoring, Advocacy

4. Analytical Review of Core Soft Skills

Rather than viewing soft skills as a static list, it is essential to analyze their functional impact on library operations.

4.1 Communication and Interpersonal Competencies

Communication skills have been identified as a critical competency across multiple studies (Desai, 2019; Saunders & Bajjaly, 2022), highlighting their role in enhancing user engagement. In the digital age, this extends to “digital empathy” the ability to provide support through virtual reference services with the same clarity and warmth as in-person interactions (Shlenova, 2024). Furthermore, interpersonal skills such as networking are no longer optional; librarians must act as “information brokers” who build bridges between the library and external stakeholders (Zeynali-Tazehkandi et al., 2025).

4.2 Adaptability and Cognitive Flexibility

The rapid pace of technological change makes adaptability the most vital survival skill for LIS professionals. As noted by Rion et al. (2026), students who exhibit high levels of adaptability are more successful in navigating the transition from academic theory to professional practice. This is closely linked to critical thinking, which allows librarians to evaluate the credibility of information in an era of “fake news” and misinformation (Makhafola, 2025).

4.3 Leadership and Management

Even in non-managerial roles, librarians exercise leadership through project management and advocacy. In the Indian context, leadership is often tied to the ability to advocate for library resources within institutional hierarchies (Thapa, 2021). Effective time management and meeting management are essential for the collaborative nature of modern technical services (Lowry, 2022).

5. Implications for LIS Education and Policy

Despite the recognized importance of these attributes, a significant “skills gap” persists. Many LIS programs, particularly in developing nations, remain focused on the “custodial” aspects of the profession (Mubofu, 2023).

5.1 Curriculum Integration and Real-World Examples

To bridge this gap, educators must move beyond descriptive teaching. For example, instead of merely defining “customer service,” curricula should include role-playing scenarios involving difficult patron interactions or the marketing of digital repositories (Sibiya, 2023). In India, bodies like the University Grants Commission (UGC) and LIS curriculum committees should mandate the inclusion of “Professional Development” modules that focus specifically on soft skills (Thapa, 2021).

5.2 Policy-Level Recommendations

4. **Standardization:** Develop a national competency framework for LIS that explicitly includes soft skills.
5. **Experiential Learning:** Increase the weightage of internships and practicums where students are evaluated on teamwork and communication (Mohanani & PV, 2020).
6. **Continuing Education:** Professional bodies should offer certified workshops on emotional intelligence and leadership for mid-career librarians.

6. CONCLUSION AND FUTURE DIRECTIONS: Soft skills are no longer supplementary but fundamental to the success of library professionals in the 21st century. The dynamic nature of the information landscape demands individuals who are not only technically proficient but also adept

communicators, collaborators, and adaptable learners. While this review has synthesized the essential competencies, future research should focus on empirical studies that measure the direct impact of soft skills training on library user satisfaction. Additionally, longitudinal studies on the career progression of LIS graduates with high "human skill" scores would provide valuable insights into the long-term value of these competencies.

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Open Educational Resources and INFLIBNET in NEP 2020 Era

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Abstract: Open Educational Resources (OER) have significantly transformed the landscape of higher education by enabling free, flexible, and equitable access to knowledge. In the Indian context, the INFLIBNET Centre plays a pivotal role in developing and disseminating digital academic resources that support teaching, learning, and research. This paper examines the integration of OER initiatives within the framework of the National Education Policy 2020 (NEP 2020), which emphasizes digital learning, inclusivity, and open access to educational content. Using a descriptive and analytical methodology based on secondary data, the study highlights key INFLIBNET initiatives such as Shodhganga, e-PG Pathshala, and SWAYAM, which have strengthened the digital infrastructure of higher education in India. The findings reveal that OER contributes to accessibility, affordability, and academic collaboration, aligning closely with the vision of NEP 2020. However, challenges such as the digital divide, lack of awareness, quality assurance issues, and technological barriers continue to hinder the effective implementation of OER. The study concludes that while OER and INFLIBNET initiatives are instrumental in advancing India's digital education ecosystem, addressing these challenges is essential to fully realize their potential in achieving inclusive and sustainable educational development.

Key Words: Open Educational Resources, INFLIBNET, NEP 2020, Digital Learning, Open Access, Higher Education, E-resources, Digital Libraries.

1. RESEARCH OBJECTIVES:

1. Examine NEP 2020's provisions relevant to digital education and OER, and how they shape policy directions.
2. Explain OER concepts in global and Indian contexts, highlighting definitions, benefits, and international frameworks.
3. Review India's OER initiatives, including government programs and policies predating or following NEP 2020.
4. Analyze INFLIBNET Centre's role under NEP 2020: detailing its platforms (e.g., Shodhganga, N-LIST, e-PG Pathshala, etc.) and how they support OER and open access goals.
5. Identify implementation challenges, including infrastructure, licensing, and capacity issues.
6. Provide case examples/impact data (e.g., usage stats, repository growth) to assess outcomes of OER/INFLIBNET initiatives.
7. Offer recommendations for policy and practice to strengthen OER adoption and INFLIBNET's contributions in the NEP 2020 era.

NEP 2020: Relevant Provisions

The National Education Policy 2020 (NEP 2020) underscores a major shift towards digital learning and knowledge sharing. It calls for creation of “open, interoperable, evolvable, public digital infrastructure” for education

- . Key actions include pilot studies of online education (via NETF, IGNOU, IITs, etc.), strengthening platforms like SWAYAM and DIKSHA, and building digital content repositories

- . For example, NEP 2.6 mandates a national repository of high-quality resources on literacy and numeracy hosted on DIKSHA

- . Similarly, section (d) of the NEP recommends a “digital repository of content including creation of coursework, learning games & simulations, AR/VR” to be developed

- . NEP also addresses the digital divide, directing use of TV/radio broadcasts and multilingual content to reach underserved learners

- . Overall, NEP 2020 aligns with global trends (SDG4) by promoting digital infrastructure and open access as foundational pillars of educational reform.

OER Concepts: Global and Indian Context

Definition: UNESCO defines OER as “learning, teaching and research materials in any format and medium that reside in the public domain or are under copyright that have been released under an open license, that permit no-cost access, re-use, re-purpose, adaptation and redistribution by others”

- . In other words, OER are free, openly licensed educational resources (textbooks, course modules, videos, assessments, etc.) intended for maximal sharing and reuse. This concept is rooted in the belief that knowledge should be freely shared; OER facilitate “the freedom to share knowledge” by lowering barriers to access and use

- . Global initiatives like the 2019 UNESCO OER Recommendation and World OER Congresses further emphasize OER’s role in equitable education. The Recommendation calls on countries to develop supportive policies and open licensing to maximize the quality, inclusivity, and sustainability of educational resources

Advantages:

The open-licensed nature of OER allows educators to adapt materials to local contexts, leading to cost savings (no textbook fees) and enhanced pedagogy. Studies cite benefits such as expanding access (especially in low-resource settings), facilitating self-learning, improving content quality through crowd feedback, and fostering collaboration

- . For example, openly accessible repositories mean a rural student can freely obtain top-quality e-books or lectures from premier institutions. OER also align with Sustainable Development Goal 4 by promoting inclusive education: learners with disabilities or in remote areas can access materials online or via offline tools without financial burden.

Global Context: The OER movement is driven by UNESCO and educational bodies worldwide. UNESCO (2019) formalized a multi-country strategy on OER, and organizations like Creative Commons champion open licensing. OECD and education commissions advocate OER as a means to modernize education. Examples of global OER platforms include MIT OpenCourseWare, Khan Academy, Wikipedia (crowd-sourced knowledge), and the OER Commons (public digital library)

. Governments increasingly integrate OER into policy: e.g., Canada, UK, and Brazil have national OER strategies. NEP 2020 explicitly references these global trends by promoting “open access” and digital dissemination (see NEP 23.6, 24.3, 24.4, etc.)

Indian OER Context: India’s education policy landscape has progressively supported OER even prior to NEP 2020. Key initiatives includes:

National Digital Library (NDL) – A centralized digital repository launched by MHRD, providing multi-format educational content in many Indian languages. NDL aims to serve students and lifelong learners across levels, including special support for differently-abled users.

SWAYAM – The Government’s MOOC platform (“Study Webs of Active-Learning for Young Aspiring Minds”) offers free online courses in diverse subjects, enabling enrollment for anyone.

National Repository of Open Educational Resources (NROER) – A portal launched by NCERT/CIET to aggregate quality OER (textbooks, videos, lesson plans) covering all school grades and subjects. NROER is a collective multilingual platform connecting educators, with materials under open licenses.

Vidya-Daan – An initiative to enable content creation by volunteers; individuals or organizations can contribute educational content for rural areas and disadvantaged learners.

Virtual Labs – A project providing remote-access science labs to institutions lacking physical infrastructure (benefiting engineering/technical education).

Open Courseware (OCW) projects – Several IITs, IISc, and CEC produce video lectures and course materials (e.g., NPTEL).

These efforts predate or coincide with NEP 2020 and reflect India’s OER ecosystem. They demonstrate government and academic bodies endorsing OER principles to further NEP goals of access, equity, and quality. For instance, as one study notes, the National Knowledge Commission advocated OER and open access to overcome educational material shortages.

Initiative	Description	Target Users
DIKSHA	Digital Infrastructure for Knowledge Sharing – National platform for school education content (videos, assessments, interactive modules).	School students & teachers
SWAYAM	MOOC platform – free online university-level courses; integrated with UGC/AICTE programs (NPTEL, etc.).	College students, lifelong learners
NDL India	National Digital Library – Aggregates books, articles, videos across subjects and languages; supports multilingual access.	All learners (school to higher education)
NROER	National Repository of OER – CIET-run portal for school-level OER (textbooks, videos, simulations) across K-12 subjects.	School teachers & students
INFLIBNET – Shodhganga	Digital repository of Indian research theses and dissertations; universities submit Ph.D. theses for open access.	Researchers, academicians
INFLIBNET – e-PG Pathshala	Postgraduate e-content portal – curriculum-based interactive materials and e-books across ~70 PG subjects.	University PG students & faculty
INFLIBNET – N-LIST	Library consortium – provides participating colleges login-access to 6,500+ e-journals and ~200,000 e-books (national subscription).	College librarians, faculty, students

UGC MOOCs	Online PG courses on SWAYAM – UGC coordinates MOOCs; INFLIBNET acts as technical partner.	University students
NCERT e-content	CIET/NCERT-created e-books and multimedia for school curricula, often shared via state portals or NROER.	School teachers & students

INFLIBNET Centre: Role and Platforms

The INFLIBNET (Information and Library Network) Centre is an Inter-University Centre (IUC) of the UGC, tasked with leveraging technology to improve access to academic resources. Its mission explicitly includes facilitating “creation of open access digital repositories in every educational institution” for hosting educational and research content

. In practice, INFLIBNET has developed several key initiatives that support OER and NEP 2020 goals:

Shodhganga – Established in 2010, Shodhganga is a national digital repository of Indian theses and dissertations. Research students from participating universities deposit their Ph.D. theses, which become openly accessible to the global scholarly community. The platform captures, indexes and preserves ETDs under an open-access model. This extensive archive exemplifies OER principles by making original research free to consult; it also aids research quality and transparency by preventing duplication of effort. (INFLIBNET also offers ShodhShuddhi, a plagiarism-checking service integrated with Shodhganga, but that is a quality-control tool rather than content.)

e-PG Pathshala – A flagship MoE-UGC project (under the National Mission on Education through ICT) executed by INFLIBNET. It provides high-quality, curriculum-based e-content for all postgraduate subjects. The portal contains interactive learning modules, e-textbooks, videos, and assessments in 70 subjects spanning arts, sciences, social sciences, etc. Over 22,000 modules (text and video) are available on e-PG Pathshala

e-Adhyayan – a sister initiative offering 700+ e-books derived from PG Pathshala courses. All content on e-PG Pathshala is openly available to students and faculty nationwide. The platform has had tens of millions of visitors since its launch (see Impact below). The portal also links to UGC-MOOCs: INFLIBNET is the technical partner creating PG courses on SWAYAM (UGC’s MOOC platform). Additionally, INFLIBNET’s ILMS (Offline Learning) provides offline access to e-PG Pathshala content to universities lacking internet.

Open Access Initiatives – Beyond content platforms, INFLIBNET actively fosters open science. Its website promotes Open Access (OA) best practices and hosts tools like Vidwan (expert database) and IRINS (research info system). Importantly, the Centre champions the setup of institutional repositories: according to its goals, it aims to “promote digitization of legacy documents and creation of content in e-format” and “promote setting up of open access digital repositories in universities”.

Policy and Implementation Challenges

Despite the supportive policy environment, implementing OER and digital resources faces several challenges:

Digital Divide: NEP 2020 itself acknowledges persistent gaps in access. Large rural and low-income populations lack reliable internet or devices. To mitigate this, NEP calls for use of broadcast media (TV/radio) and multilingual content. However, in practice many schools and colleges still lack consistent digital connectivity. According to one study, factors like computer anxiety and teachers’ limited tech skills impede virtual labs and e-learning adoption

Addressing infrastructure inequity (broadband, devices) is critical to ensure OER reach all learners.

Licensing and Copyright: Effective use of OER requires clarity on copyrights. UNESCO recommends open licenses (e.g. Creative Commons) for all public educational materials

In India, many resources are copyrighted or lack clear reuse guidelines. Ensuring government-created content (NCERT textbooks, videos) is released under open licenses is essential. Also, educators need training to legally adapt and remix materials. Without such policies and awareness, institutions may hesitate to share even internally-developed resources.

Quality Assurance: The success of OER hinges on maintaining high standards. Stakeholders worry that freely contributed resources may be of uneven quality. NEP addresses this by proposing rating systems and backup dissemination plans. Still, systematic peer review of OER is uncommon in India. Initiatives like ShodhShuddhi (plagiarism checking) improve integrity for research, but classroom OER quality control needs strengthening (e.g., NCERT/CIET oversight). Libraries and academic councils could play roles in curating and endorsing quality OER.

Awareness and Capacity: Many educators remain unaware of OER or lack skills to use them. A reported NEP implementation activity involved 369 webinar sessions (PM eVidya) to orient teachers on digital tools, free software, and OER.

This highlights the government's effort, but greater scale is needed. Teacher education curricula must include OER pedagogy. Professional incentives are also weak; promotions and accreditation often emphasize publications or R&D, not OER creation. Changing institutional culture to value open sharing will take sustained advocacy.

Institutional and Policy Gaps: While NEP 2020 sets broad directions, detailed guidelines for OER adoption are limited. For example, there is no single national "OER policy" document in India; actions are often piecemeal across ministries. Some have called for a dedicated cell or roadmap for OER under NEP. Similarly, funding models for OER production (e.g. grants for content creation) are not well defined. The fragmented governance between central and state bodies can slow standardized adoption. Aligning UGC, NCERT, and state education boards on common OER frameworks is an ongoing policy challenge.

Case Examples and Impact Assessment

Shodhganga Impact: Since its inception, Shodhganga has significantly enhanced research visibility. Theses are openly accessible removing cost barriers to cutting-edge Indian scholarship. Universities report improved research outcomes due to easy access to prior theses. For instance, the uptake of thematic clusters and research trends is facilitated by Shodhganga's search tools. The platform's scale (6 lakh theses from 950+ universities) Demonstrates INFLIBNET's pivotal role in knowledge dissemination.

e-PG Pathshala Usage: e-PG Pathshala's content has drawn millions of users. The portal shows 33 million+ total visitors since 2014

. Many postgraduate students across India rely on its modules and e-books for coursework. Feedback reports suggest improved learning outcomes: interactive content and self-assessments on e-PG Pathshala help students grasp complex topics more effectively. The availability of multilingual content also aligns with NEP's emphasis on regional languages. Through UGC-MOOCs integration, some PG courses on SWAYAM have incorporated e-PG Pathshala materials, expanding their reach further.

DIKSHA and School OER: While managed by NCERT/CIET rather than INFLIBNET, DIKSHA's role is noteworthy. It hosts school-level OER aligned to curriculum. For example, NEP's foundational literacy modules on DIKSHA have been downloaded and used by state education boards. DIKSHA's large user base (reported tens of millions of sessions during the COVID-19 online schooling push) indicates OER can scale dramatically when government-backed

Virtual Labs and OER: The Virtual Labs project (under MoE) has integrated with DIKSHA and NROER, providing open-access lab simulations. During the pandemic, these labs saw usage spike as students accessed science experiments virtually. Challenges such as computer literacy and broadband bottlenecks were noted, but overall the initiative exemplifies innovation in OER.

Overall, impact data shows that INFLIBNET's repositories and e-content have markedly improved access. Thousands of educators and students have cited saving costs on textbooks, while researchers worldwide now cite Indian theses via Shodhganga. These outcomes align with NEP's vision of "equitable access to the highest-quality education"

. However, measuring learning outcomes directly is difficult; most evidence is usage and repository growth.

Policy/Practice Recommendations

Building on NEP 2020 and observed gaps, we recommend:

National OER Policy & Licensing: Develop explicit guidelines mandating open licensing (e.g. CC BY/CC BY-SA) for publicly funded educational content at all levels. This ensures NEP's call for open digital infrastructure translates into legally open materials. The government could follow UNESCO's lead by requiring new textbooks, e-courses and research outputs to be released as OER (with author attribution). A national OER cell could coordinate this effort across ministries, UGC, and state boards.

Expanded Capacity-Building: Institute regular training for educators on creating/using OER and digital pedagogy. For example, extend the PM e-Vidya webinars into a sustained program under the National Educational Technology Forum (NETF). Include OER creation in teacher education curricula (B.Ed, D.El.Ed) and ICT certification. Reward faculty who develop high-quality OER through recognition in promotion criteria or awards.

Infrastructure Investment: Increase funding for educational broadband and devices, prioritizing rural and disadvantaged areas. Leverage public-private partnerships to provide low-cost tablets or community learning centers. Improve DIKSHA/SWAYAM platform scalability and offline access (e.g., via apps or USB drives). Ensure that content is multilingual – NEP's emphasis on all Indian languages must be operationalized by supporting translations of OER.

Strengthen INFLIBNET: Given INFLIBNET's success, boost its resources. For instance, expand Shodhganga to include M.Phil theses (Shodhganga currently focuses on Ph.D.) and undergrad projects. Improve search, analytics, and interlinking (ShodhChakra is one effort in this direction). For e-PG Pathshala, encourage contributions from new subject experts and periodic updates. Provide grants to develop localized content (e.g. state-specific modules). At the same time, ensure N-LIST evolves by negotiating more open-access collections and integrating with NDLI for a seamless user experience.

Quality and Curation Mechanisms: Establish peer review committees for OER content (similar to curriculum committees). Encourage academic societies to curate specialized OER collections. Implement user-rating features on platforms (as NEP suggests) to surface high-quality resources. Coordinate with accreditation bodies (NAAC, NBA) to include digital resource usage metrics in institutional evaluation.

Monitor and Research: Regularly assess OER usage and outcomes. Government agencies (MoE, NCERT, INFLIBNET) should publish annual OER reports (like UNESCO's State of OER). Invest in research on learning impacts of OER in India, to refine strategies. Share best practices among states and institutions, perhaps via a national OER summit.

Implementing these recommendations will help India realize NEP 2020's aspirations through OER and INFLIBNET-enabled openness, ultimately broadening high-quality educational access.

2.CONCLUSION:

In the NEP 2020 era, Open Educational Resources and digital libraries have become cornerstones of India's educational transformation. NEP's vision of an "open learning ecosystem" with robust digital infrastructure provides strong policy backing for OER. The INFLIBNET Centre, as an ICT nucleus for higher education, has leveraged this environment to expand open-access platforms – from Shodhganga's massive theses repository to the rich e-content of e-PG Pathshala. These initiatives embody OER ideals: they remove paywalls, enable resource reuse, and foster lifelong learning.

The analysis shows clear progress: vast collections of materials are available free online, reaching millions of learners. Yet, significant work remains. Bridging infrastructure gaps, clarifying copyright for open use, and building capacity are imperative to fully capitalize on OER's potential. Importantly, NEP 2020 should catalyze more integrated action – aligning INFLIBNET's efforts with national educational goals.

As India pursues 21st-century education, the synergy of NEP's policies and INFLIBNET's platforms can drive an inclusive knowledge society. Strengthening this synergy – through policy fine-tuning and grassroots implementation – will ensure that open educational resources truly empower every learner and educator across the country.

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Digital Time Travel: Innovative Approaches to Cultural Heritage through AR and VR

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Abstract: The rapid evolution of immersive technologies has transformed the preservation and interpretation of cultural heritage. Augmented Reality (AR) and Virtual Reality (VR) offer innovative approaches to reconstruct, visualize, and interact with historical artifacts, monuments, and intangible traditions. This paper presents an in-depth analysis of AR and VR applications in cultural heritage, focusing on digital reconstruction, immersive storytelling, and user-centered design. A comprehensive framework integrating data acquisition, modeling, visualization, and interaction is proposed. The study highlights the impact of immersive technologies on user engagement, learning outcomes, and heritage conservation. Furthermore, challenges such as technological limitations, ethical considerations, and sustainability are critically examined. The findings suggest that AR and VR not only enhance accessibility and engagement but also play a crucial role in safeguarding heritage for future generations.

Key Words: Augmented Reality, Virtual Reality, Cultural Heritage, Digital Preservation, Immersive Technology, Heritage Tourism

1. INTRODUCTION:

Cultural heritage represents the tangible and intangible expressions of human civilization, encompassing monuments, artifacts, traditions, and historical narratives. Preserving these elements is essential for maintaining cultural identity and historical continuity. However, traditional methods of preservation often face limitations such as physical degradation, restricted accessibility, and inability to provide immersive experiences.

The emergence of Augmented Reality (AR) and Virtual Reality (VR) has revolutionized the field of cultural heritage by enabling interactive and immersive engagement. AR enhances real-world environments by overlaying digital content, while VR creates entirely virtual environments that allow users to experience reconstructed historical settings.

With increasing global interest in digital heritage, immersive technologies are being widely adopted in museums, archaeological sites, and educational institutions. These technologies provide new opportunities for storytelling, engagement, and preservation, making heritage accessible to a broader audience.

This paper explores innovative approaches to cultural heritage through AR and VR, focusing on their applications, benefits, challenges, and future prospects.

2. LITERATURE REVIEW:

The integration of immersive technologies into cultural heritage has gained significant attention in recent years. Researchers have explored various applications, including virtual reconstructions, interactive museum exhibits, and educational simulations.

Virtual Reality has been widely used to recreate historical environments, allowing users to explore lost or damaged sites. These reconstructions are often based on archaeological data, historical records, and 3D modeling techniques. Studies indicate that VR experiences enhance user engagement and provide a deeper understanding of historical contexts.

Augmented Reality, on the other hand, is particularly effective in enhancing on-site experiences. By overlaying digital information onto physical environments, AR enables users to visualize historical structures in their original form. For example, visitors to archaeological sites can use AR applications to view reconstructions of ruins as they existed in the past.

Comparative studies suggest that VR provides higher immersion, while AR offers better contextual integration. The combination of both technologies has been shown to maximize user engagement and learning outcomes.

Recent research also highlights the role of immersive storytelling in enhancing emotional engagement. By integrating narratives with AR/VR environments, users can experience history in a more meaningful and interactive way.

3. METHODOLOGY:

This study adopts a conceptual and analytical research approach, supported by a structured framework for implementing AR and VR in cultural heritage.

3.1 Framework for AR/VR-Based Heritage Systems

The proposed framework consists of four key stages:

1. **Data Acquisition**
 - 3D laser scanning
 - Photogrammetry
 - Archival research
2. **Digital Reconstruction**
 - 3D modeling of artifacts and environments
 - Texture mapping and rendering
 - Historical accuracy validation
3. **Visualization and Integration**
 - AR overlay systems
 - VR immersive environments
 - Multi-platform compatibility
4. **User Interaction and Evaluation**
 - Gesture-based interaction
 - User feedback analysis
 - Learning assessment

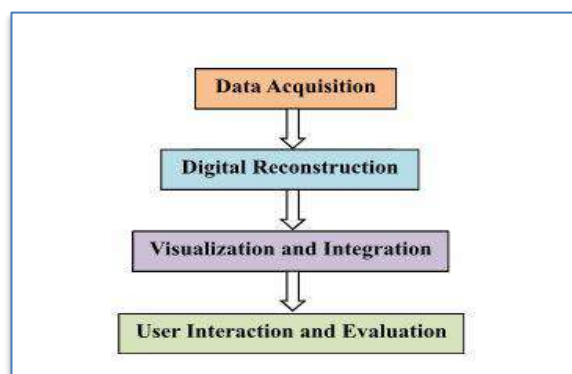


Figure 1: AR/VR Cultural Heritage System Architecture

This flowchart illustrates a multi-stage technological framework designed to transform physical heritage into immersive digital experiences. The process begins with the Data Acquisition Layer, where researchers gather spatial and historical information through methods like 3D laser

scanning and photogrammetry. These raw inputs are then refined during the Digital Reconstruction phase to build accurate, textured 3D models. Once the virtual assets are ready, they are funneled through AR/VR integration and interaction layers to enable user engagement via mobile interfaces or head-mounted displays. Ultimately, this workflow aims to produce a significant educational impact by ensuring long-term cultural preservation through high-tech simulation.

3.2 AR/VR based Cultural Heritage Model - Case Study of Ajanta Caves: The application of AR technology to heritage sites such as the Ajanta Caves and the Taj Mahal demonstrates the potential of immersive systems in cultural preservation. High-resolution 3D scanning and photogrammetry are used to capture structural and artistic details. These data are processed to create accurate digital models, which are integrated into AR platforms. Visitors can interact with these models through mobile devices or AR glasses, enabling visualization of historical reconstructions and architectural details. This approach enhances visitor engagement, facilitates educational interpretation, and supports long-term digital preservation of culturally significant monuments.

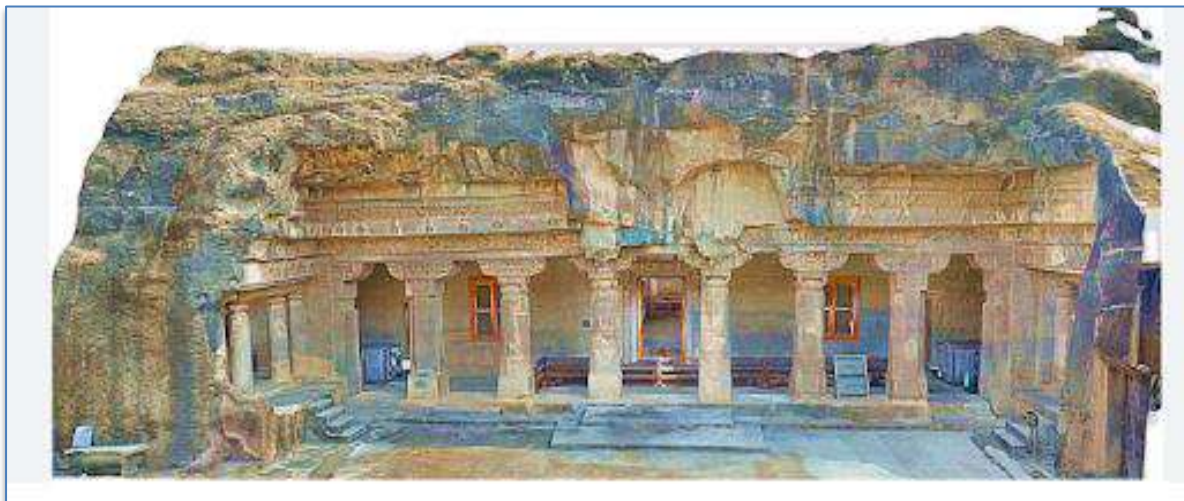


Figure 2: Digital heritage of Ajanta Caves through VR technology

4. Innovative Approaches in Cultural Heritage

4.1 Virtual Reconstruction of Heritage Sites

One of the most impactful applications of Virtual Reality (VR) in the domain of cultural heritage is the digital reconstruction of historical sites that have been partially damaged, completely destroyed, or are physically inaccessible due to geographical, political, or environmental constraints. Through the integration of advanced 3D modeling, simulation techniques, and immersive visualization, VR enables the creation of highly detailed and interactive virtual environments that faithfully represent the architectural, cultural, and spatial characteristics of heritage sites.

The reconstruction process typically involves the collection of geometric and visual data using techniques such as laser scanning, photogrammetry, and archival research. These data are then processed to develop accurate three-dimensional models, incorporating architectural details, textures, and environmental elements. In cases where physical evidence is incomplete, historical records, archaeological findings, and expert interpretations are utilized to reconstruct missing components, ensuring that the virtual representation closely approximates the original structure.

Virtual Reality provides users with the ability to navigate and interact within these reconstructed environments in a fully immersive manner. Unlike traditional visualization methods, VR allows users to experience heritage spaces at a human scale, offering a realistic sense of depth, perspective, and spatial organization. Users can virtually walk through ancient corridors, examine intricate architectural features, and observe the site from multiple viewpoints, thereby gaining a deeper understanding of its historical and cultural significance.

This approach is particularly valuable for preserving endangered heritage sites that are at risk due to natural disasters, climate change, urban expansion, or conflict. By creating digital replicas, it becomes possible to safeguard detailed information about these sites even if the original structures are lost or further degraded. Moreover, VR-based reconstruction serves as an essential documentation tool, providing a permanent and accessible record for researchers, conservationists, and future generations. In addition to preservation, virtual reconstruction significantly enhances accessibility to heritage sites that are otherwise difficult to visit. Remote locations, restricted archaeological zones, or fragile environments can be experienced virtually without causing physical disturbance. This is especially beneficial for educational institutions, where students and researchers can explore historically significant sites without the limitations of travel, cost, or safety concerns.

Furthermore, VR-based reconstructions support interactive learning by enabling users to engage with heritage content in a dynamic and experiential manner. Features such as guided virtual tours, interactive annotations, and simulation of historical events allow users to contextualize their experience and develop a more comprehensive understanding of the site. This immersive engagement fosters greater interest, retention, and appreciation of cultural heritage.

Overall, the use of Virtual Reality for reconstructing historical sites represents a significant advancement in heritage preservation and interpretation. By combining technological precision with immersive experience, it provides a powerful means to document, protect, and disseminate cultural heritage in a way that transcends physical and temporal limitations.

4.2 Augmented Reality for On-Site Experience

Augmented Reality (AR) significantly enhances on-site visitor experiences by integrating digital information with the physical environment in real time. Unlike traditional guided tours, AR enables visitors to interact with heritage sites through mobile devices or wearable technologies such as AR glasses, creating a more engaging and personalized exploration. By overlaying digital content onto the actual surroundings, AR provides historical reconstructions that allow users to visualize monuments or structures in their original form, even when only ruins remain. Informational annotations appear contextually, offering detailed descriptions of architectural features, historical events, and cultural significance without interrupting the viewing experience. In addition, interactive animations can illustrate construction techniques, daily life scenes, or historical transformations, making abstract information more tangible and easier to understand. This immersive layer of interpretation bridges the gap between past and present, enabling visitors to gain deeper insights while physically navigating the site. Furthermore, AR reduces dependency on physical signage and guides, promoting self-directed learning and enhancing accessibility for diverse audiences. As a result, AR serves as a powerful tool for enriching cultural heritage interpretation and improving visitor engagement.

4.3 Immersive Storytelling and Narrative Design

Storytelling is a fundamental aspect of interpreting cultural heritage, as it connects audiences with the historical and cultural significance of a site. Augmented Reality (AR) and Virtual Reality (VR) enable the development of narrative-driven experiences in which users actively engage with historical events, environments, and characters. Through immersive visualization and interactive elements, users can explore different perspectives and contexts, making the experience more meaningful and engaging. This approach fosters emotional connection and curiosity, allowing users to better relate to the past. Consequently, immersive storytelling not only enhances visitor engagement but also improves understanding and long-term knowledge retention.

4.4 Gamification and Serious Games

Gamification and serious games in Augmented Reality (AR) and Virtual Reality (VR) environments offer innovative approaches to cultural heritage education by transforming learning into an interactive experience. These applications incorporate game-based elements such as challenges, rewards, and storytelling to engage users actively. Participants can undertake virtual missions, solve historically themed puzzles, and navigate simulated environments that replicate past civilizations or events. This interactive involvement encourages critical thinking, problem-solving, and exploration. By making learning enjoyable and participatory, gamified AR/VR systems enhance user motivation, improve knowledge retention, and provide a deeper understanding of cultural and historical contexts.

4.5 Digital Twin Technology in Heritage

Digital twin technology is emerging as a valuable tool in the preservation and management of cultural heritage. A digital twin is a dynamic virtual replica of a physical heritage site that continuously integrates real-time and historical data. These models enable ongoing monitoring of structural conditions, environmental impacts, and potential deterioration. By providing accurate and up-to-date representations, digital twins assist experts in planning restoration strategies and evaluating conservation measures without disturbing the original structure. Additionally, they support risk assessment and predictive analysis, helping to prevent damage. This approach ensures long-term sustainability and informed decision-making in heritage conservation.

5. RESULTS AND DISCUSSION:

5.1 Impact on User Engagement

Parameter	Traditional Methods	AR/VR-Based Methods
Engagement	Moderate	Very High
Accessibility	Limited	Global
Interaction	Low	High
Learning Retention	Moderate	High

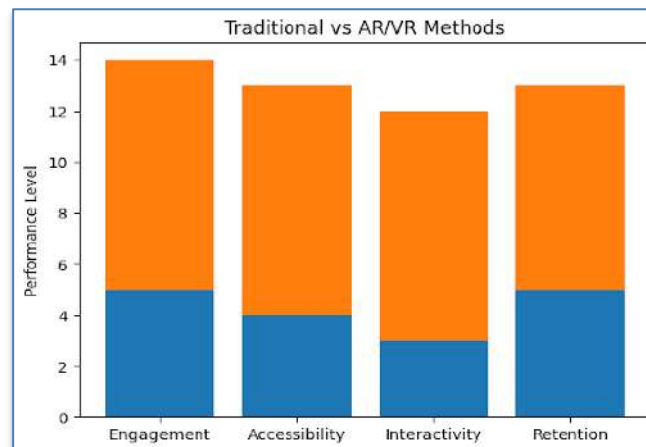


Figure 3: Engagement Comparison

5.2 Learning Outcomes

Immersive technologies such as Augmented Reality (AR) and Virtual Reality (VR) have shown a strong positive impact on learning outcomes in cultural heritage contexts. These technologies create interactive and engaging environments that allow users to experience information rather than passively receive it. By enabling active participation, AR/VR enhances comprehension and encourages deeper cognitive processing. Users can visualize complex structures, explore historical settings, and interact with digital elements, which strengthens conceptual understanding. As a result, learners demonstrate improved recall and retention of information compared to traditional methods. This experiential approach makes learning more effective, engaging, and meaningful.

5.3 User Experience Analysis

User experience in cultural heritage applications is significantly enhanced through the complementary use of Augmented Reality (AR) and Virtual Reality (VR). AR contributes by providing contextual awareness, enabling users to view digital information seamlessly integrated with the physical environment. This allows real-time interaction with heritage elements while maintaining a connection to the actual site. In contrast, VR offers a fully immersive experience, allowing users to explore reconstructed environments in depth without physical constraints. When combined, these technologies create a holistic and engaging user experience that balances contextual understanding with immersive exploration, thereby improving interaction, accessibility, and overall satisfaction.

6. Applications

6.1 Heritage Tourism

AR and VR enhance tourism by providing virtual tours and interactive guides. Tourists can explore heritage sites remotely, increasing accessibility and interest.

6.2 Education and Training

Educational institutions use AR/VR to teach history and archaeology through immersive simulations.

6.3 Museum Exhibitions

Museums integrate AR/VR to create interactive exhibits, attracting a wider audience and improving visitor engagement.

6.4 Conservation and Restoration

Digital preservation techniques ensure that heritage data is stored and accessible for future generations.

7. Challenges

Despite their advantages, AR and VR technologies face several challenges:

- High development and implementation costs
- Limited access to advanced hardware
- Data accuracy and authenticity issues
- Ethical concerns regarding reconstruction
- Technical limitations such as latency and resolution

8. Future Scope

The future of cultural heritage lies in the integration of AR/VR with emerging technologies such as:

- Artificial Intelligence (AI)
- Internet of Things (IoT)
- Extended Reality (XR)
- Metaverse platforms

These technologies will enable more immersive, collaborative, and intelligent heritage experiences.

9. CONCLUSION:

AR and VR technologies have significantly transformed cultural heritage preservation and presentation. By enabling immersive, interactive, and accessible experiences, these technologies bridge the gap between past and present. The proposed framework demonstrates how AR and VR can be effectively integrated into heritage systems.

While challenges remain, ongoing advancements in technology and interdisciplinary research will further enhance the role of immersive technologies in cultural heritage. The adoption of AR and VR is essential for preserving cultural identity and ensuring that future generations can experience and appreciate historical heritage.

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Tracing Women's Evolution from Patriarchal Oppression to Empowerment in Manju Kapur's Novels

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Abstract: Manju Kapur stands out as a sharp observer of everyday Indian family life in contemporary English fiction. Through her five key novels—*Difficult Daughters* (1998), *A Married Woman* (2002), *Home* (2006), *The Immigrant* (2008), and *Custody* (2011)—she steadily uncovers and challenges the deep-rooted patriarchal systems that shape women's lives. This paper follows the clear path her stories trace: starting with the heavy weight of tradition right after Partition, moving through small and bold acts of defiance, and ending with women claiming real control over their lives in today's globalised India. By highlighting the inner emotional battles, physical yearnings, and financial hurdles faced by her female characters, Kapur's writing sparks a wider social awareness. It pushes readers, particularly in cities and smaller towns, to examine long-held ideas about gender roles and to see genuine hope for personal freedom. Using ideas from radical and Marxist feminism, the discussion shows how Kapur's heroines grow from being trapped by male-dominated rules to becoming creators of their own futures. In this way, her novels add fresh energy to on-going conversations about women's rights in Indian society.

Key Words: Manju Kapur, patriarchal structures, feminist literature, female agency, social change, Indian English fiction.

1.INTRODUCTION:

For generations, Indian culture has been shaped by patriarchal systems, extended families, arranged unions, caste-based marriages, and the strong emphasis on carrying forward the male line. These elements have consistently limited women's roles and voices. Manju Kapur's stories go beyond simply showing this pattern; they map out how it slowly breaks down through the real-life journeys of her central female figures. Her books span from the 1940s setting of *Difficult Daughters* in Amritsar to the fast-changing, image-conscious Delhi in *Custody*. Across this timeline, women shift from quietly accepting their limited place to actively building their own sense of self, wants, and independence. This paper presents Kapur's work as more than just realistic storytelling—it serves as a tool for opening minds. By laying bare the hidden emotional and practical burdens of male-centred rules while also showing small triumphs, her novels draw readers into rethinking how men and women relate to each other in modern India.

2.Manju Kapur: Chronicler of Everyday Women's Lives

Raised in Amritsar and trained in Delhi, Kapur spent years teaching English literature at Miranda House before focusing entirely on writing. Her books draw directly from the experiences of educated, city-based, middle-class women—the very group that enjoys some modern advantages yet

still feels the pull of older restrictions. Instead of dramatic or exaggerated scenes, she uses calm, deeply thoughtful writing to expose how patriarchy works quietly through daily routines like household duties, wedding expectations, and community standards. Her main characters are realistic and layered: they balance personal longings with family obligations and changing times. They are not perfect fighters or helpless figures but believable women finding their way through complex situations.

The Roots of Control:

Set during the turbulent years around India's Partition, *Difficult Daughters* centres on Virmati, the oldest girl in a traditional Amritsar household. Overloaded with home responsibilities and her mother's frequent pregnancies, she looks for relief in higher studies and a secret bond with her married teacher, Harish. The story clearly shows how male authority works through family loyalty, social status tied to caste, and even the push for national unity that often ignores women's own needs. When Virmati runs away and marries, she faces rejection from her community, but she keeps studying in Lahore and wonders about her own limits. The tale is framed by her daughter Ida piecing together her mother's past, highlighting how these pressures pass from one generation to the next. In this early period after independence, Kapur shows that pushing back is possible but comes at a high price, and broader awareness stays mostly personal.

Steps toward Defiance:

Moving into the 1980s and 1990s, Kapur's women start questioning home life more openly. In *A Married Woman*, Astha is a responsible wife and mother in Delhi who discovers real emotional and physical connection in a same-sex relationship with the activist Peeplika, all against the backdrop of the Babri Masjid events. The book links private feelings with larger social shifts, turning Astha's body and wishes into a form of quiet protest against expected straight marriage and family roles. Here, ideas from radical feminism (breaking down fixed gender ideas) and Marxist feminism (examining money and power inside marriage) come together naturally. *Home* takes a closer look at the traditional joint-family setup. Sona and Nisha deal with the strict rules of the Banwari Lal household, where women earn respect mainly by having children and fitting in. Nisha tries a short business idea and a cross-caste love match as ways to claim some space, but family expectations soon pull things back in line. Kapur points out that women often keep these rules alive—mothers-in-law and sisters-in-law enforce them because they have absorbed the same thinking. These two books mark a middle stage where standing up moves from lone efforts to connections with others, laying groundwork for wider understanding.

Claiming Real Strength:

In the 2000s, Kapur's leading women reach for financial, personal, and legal control. Nina in *The Immigrant* moves to Canada, faces disappointment in her marriage and the clash of cultures, and finally builds independence through her career and a new relationship outside marriage. The novel examines both the heavy expectations of Indian family life (like pressure to marry late) and the loneliness that can come with Western-style freedom, yet it supports Nina's choice to shape her own path. *Custody* takes this further with the strongest examples of women taking charge. Shagun walks out of an empty marriage to be with her husband's superior and fights hard in court over their children, refusing to pretend for society's sake. At the same time, Ishita, looked down upon for not being able to have children, finds new meaning in mothering her husband's daughter from his first marriage. The book reveals biases in India's legal system, the way children become bargaining chips, and unfair judgments on women's bodies and choices. Shagun's bold break and Ishita's steady rebuilding offer two different feminist approaches: direct confrontation and careful adjustment. Both show that women can gain real influence even when laws and customs still favour men.

Creating Consciousness:

Kapur's books play three important roles in building social change. They bring hidden struggles into the open—such as the pain of being judged for infertility, unequal rules around affairs, and the

unseen work women do at home. They make women's ambitions and feelings seem normal and rightful, not strange or selfish. And by avoiding simple, tidy endings, they force readers to face the real, on-going conflicts in today's Indian women's lives. At a time when movements like post-Nirbhaya and #MeToo have heightened awareness, her stories connect strongly with younger readers in towns and cities, offering honest criticism mixed with quiet optimism.

Her approach fits within the larger tradition of South Asian women writers who focus on daily life, yet it reaches everyday readers more directly. By writing about the educated middle class—the people who influence public talk and policy—Kapur's novels quietly shape views on marriage, separation, child care, and girls' education in ways that pure academic writing often cannot.

3.CONCLUSION:

Manju Kapur's novels serve as a powerful channel for the many ordinary middle-class Indian women whose everyday struggles against male-dominated rules, unspoken longings, constant emotional duties, and overlooked dreams have stayed hidden inside homes and outside public view. From Virmati's limited options in the strict, post-Partition setting of *Difficult Daughters* to the firm steps taken by Shagun and Ishita as they rebuild their lives after broken marriages and court fights in *Custody*, Kapur carefully captures both the private hurts and the small gains of women who seldom get a chance to speak out. Her characters—realistic blends of strength and doubt—expresses the bottled-up feelings of daughters, wives, mothers, and in-laws caught between old responsibilities and new chances for self-discovery.

Through these deeply personal accounts, Kapur turns hidden suffering into something shared and valid. Her writing does not lecture; it draws readers in with understanding, helping the unheard find expression via figures who reflect the true situations of many educated but still restricted women in India's cities and towns. This creates a bridge from individual stories to group awareness, slowly but surely encouraging people to examine old power structures and picture fairer ways of living.

Kapur's entire collection acts as both a record and a spark for progress. Her books show that stories can provide words for what has gone unsaid, respect for those often overlooked, and steady pressure against male-centred systems. By giving a platform to the silent, Manju Kapur goes beyond simply noting shifts in society—she helps bring them about, confirming that thoughtful writing continues to be one of the strongest ways to reshape thinking and, in time, the world around us.

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Cooperative as pillars of Atamanirbhar Bharat

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Abstract: *The vision of Atamanirbhar Bharat (Self-Reliant India) emphasizes sustainable, inclusive, and decentralized economic development. In this context, cooperative institutions play a determining role in strengthening bottom-up economies and fostering collective self-reliance. These institutions enable small and marginal farmers, artisans, and rural entrepreneurs to access credit, technology, and markets, thereby reducing production costs and dependence on external sources. Co-operatives enable small and marginal farmers, artisans, and rural entrepreneurs to access credit, technology, and markets, thereby reducing production costs and dependence on external sources. This paper explores the pivotal linkages between cooperative institutions and the Atmanirbhar Bharat mission, Skill India, Invest India, Make in India focusing on areas such as training programmes, manufacturing, Dairy, and food processing. The study argues that strengthening cooperative frameworks can significantly reduce import dependency, enhance local production capacities, and ensure equitable distribution of economic gains.*

Key Words: *Atamanirbhar, sustainable, co-operative, pivotal, Mission.*

1. INTRODUCTION: India is witnessing a resurgence of its cooperative culture, with grassroots institutions emerging as powerful engines of socio-economic empowerment and inclusive growth. A remarkable example of the transformative power of cooperatives in India comes from **Rajasthan's Borkheda Gram Seva Sahakari Samiti**. Established in **1954** with just 15 members and a share of only Rs. 30, the society has grown into a thriving institution with **over 8,299 members** and share of **Rs. 107.54 Lakh today**—more than **70%** of whom belong to **marginalised communities**. Over the decades, it has evolved far beyond its agricultural roots. It now operates a **Mini Bank** with three branches and, in **2018–19** alone, it mobilised deposits worth **₹4.55 crore**. Its **e-Mitra Plus centre** provides critical citizen services ranging from insurance and Aadhaar-linked facilities to caste and income certificates and utility bill payments. The cooperative society has been honoured with the **NCDC National Cooperative Excellence Award (2010)** and the **NCDC Zonal Award (2018)**. This transformation is not an isolated case—it is part of a nationwide movement to revitalise the cooperative sector.

The long term objective of Indian Economy is to achieve high level of development that will ensure the wellbeing of all its citizens to achieve this objective country need to achieve economic growth that is increased productivity and production which lead to higher National Income and Wealth. Rapid economic growth may fulfil the present needs of the nation but will not able to sustain the growth for the long term. The future generations have to pay a price for such growth in the form of environmental problems, health problems, and Unemployment. Economic expansion, when pursued in isolation, often fails to translate into broad-based welfare improvements. Recognizing this limitation, inclusive growth and sustainable development have emerged as a critical development paradigm that prioritizes both economic efficiency and social equity. Inclusive growth seeks to ensure that all sections of society actively participate in economic processes and benefit from their outcomes. Sustainable development is defined as development is defined as development that meets the needs of the present without

compromising the ability of future generation to meet their own needs. It has emerged as the guiding principle for long term global development.

India has made remarkable achievements in terms of economic growth since the economic reforms of 1991. In 1991, India's GDP stood at \$266 billion, while in 2021 it was projected to be \$ 3.05 trillion nominal (IMF). India is the 6th largest economy by nominal GDP. The Human Development Index (HDI) is a composite statistic produced by the UNDP. India is now one of the fastest-growing economies globally. However, this growth has not resulted in a corresponding increase in its **HDI**. According to the Human Development Report of 2025-26, India ranks 133 out of 193 countries with HDI value 0.685 which was 0.676 in 2022. So India increased only by 0.009 points and categorised as medium human development on the HDI index. This brings the question that whether India's growth has been inclusive and will it be sustainable. In order to make growth inclusive and sustainable India has to work on achieving the UN mandated SDGs. The government of India launched some ambitious programmes to achieve economic development like Make in India, Skill India, Invest India and Atmanirbhar Bharat. Cooperative and Atmanirbhar Bharat are interconnected, with cooperatives acting as vehicles for rural empowerment, community-based economic growth, and local value addition to achieve self-reliance.

Policy Measures of Atmanirbhar Bharat

Atmanirbhar Bharat or Self-Reliant India, is a comprehensive economic vision launched by PM Narendra Modi in May 2020, aimed at making India self-sufficient and reducing import dependence. Atmanirbhar Bharat is to promote local manufacturing, reduce import dependency, and empower vulnerable sectors. Key policy measures include MSME credit support, structural agricultural reforms, defence indigenization, PLI schemes, and tax reforms focused on "Economy, Infrastructure, Systems, Vibrant Demography, and Demand".

Three fundamental pillars of Sustainable development are:

Economic Growth: Creating efficient and sustainable productivity and employment opportunities.

Social Inclusion: Ensuring equal access to education, healthcare, and financial services regardless of background.

Environmental Sustainability: Protecting resources and ecosystems for future generations while pursuing growth.

2. Methodology

Research design

The study is **descriptive in nature** and is based on **secondary data**. It compiles published information related to **cooperate and government flagship programs**, the pivotal linkages between cooperative institutions and the Atmanirbhar Bharat mission, Skill India, Invest India, Make in India. No advanced or complex statistical tools are used in the analysis. Data are collected from **reputed research agencies**.

3.Objective: To highlight the contribution of cooperatives and Government Initiatives in growth and development of Atmanirbhar Bharat.

Cooperative and Atmanirbhar Bharat

Journey of cooperatives

- Pre-Independence Era (1904–1947): Started with the Cooperative Credit Societies Act, 1904. It was later updated by the 1912 Act, and in 1919, cooperation became a provincial subject, allowing local legislation.
- Post-Independence Era (1947–1990s): Cooperatives became part of national planning. The focus shifted to agricultural marketing, credit, and industrial development, resulting in the formation of bodies like the National Cooperative Development Corporation (NCDC) in 1963.

- White Revolution Era (1970s onwards): The success of cooperative dairying (e.g., Amul) popularized the cooperative model as a successful tool for rural empowerment.
- Liberalization and Modernization (2000s–Present): Introduction of the Multi-State Cooperative Societies Act, 2002 allowed for broader operational freedom.

Government Flagship Programmes

Make in India: Launched on September 25, 2014, by Prime Minister Narendra Modi, the **Make in India** initiative is a flagship program designed to transform India into a global manufacturing hub, fostering innovation, boosting high-quality infrastructure, and enhancing skill development. It focuses on 27 sectors—including defence, automobiles, electronics, and renewable energy—aiming to increase manufacturing growth and create jobs.

"Make in India" and Indian cooperatives are merging through the "Sahakar Se Samridhi" vision, leveraging over 8.44 lakh societies to boost local manufacturing, create self-employment, and empower rural economies. The new Ministry of Cooperation is enhancing this synergy by establishing multi-purpose PACS (Primary Agricultural Credit Societies) to foster small-scale production in dairy, fisheries, agriculture, and village industries.

Some Most Successful Cooperatives in India

Cooperative	Sector	Notable Achievement
AMUL (GCMMF)	Dairy	India's largest dairy cooperative; played a pivotal role in the "White Revolution" which helped India become the world's largest milk producer; turnover above 7.3 billion.
IFFCO	Fertilizer	India's largest fertilizer cooperative and the world's largest cooperative by GDP per capita; with revenue above 7.3 billion (FY23), its remarkable growth earned it a place in Fortune India 500 list.
Karnataka Milk Federation (Nandini)	Dairy	Second-largest dairy cooperative in India; operates with 15 milk unions across Karnataka, procuring milk from primary dairy coop societies; serves both urban and rural markets, benefiting over 1,500 members.
Indian Coffee House Society	Consumer/Restaurants	Managed by a network of worker cooperatives; approx. 400 coffee outlets.
Uralungal Labour Contract Cooperative Society	Labour Cooperative Society	Oldest labour cooperative society in India; With a membership of around 1415 individuals, ULCCS has successfully completed more than 7500 projects

Atamanirbhar Bharat: Atmanirbhar Bharat Abhiyan: On 12 May 2020, the Prime Minister Narendra Modi announced a package of 20 lakh crore to revive the economy suffering the effects of the COVID-19 pandemic. The primary objective of programme was to make India self-reliant. The main beneficiaries of the programme would be labourers, farmers and MSMEs. The five pillars of the programme are the economy, infrastructure, technology-driven system, demography and demand.

Skill India: Skill India (July 2015) and the cooperative sector are collaborating to enhance employability, with over 8 lakh stakeholders trained through the National Council for Cooperative Training (NCCT) in four years. This partnership aligns with "Sahkar se Samridhi (prosperity through

cooperation), focusing on capacity building, vocational training, and empowering women-led cooperatives via initiatives like NCUI Haat.

Between 2021–22 and 2024–25, more than 8 lakh participants have undergone professional, diploma, and short-term capacity-building programmes. In 2024–25 alone, 3.15 lakh individuals were trained, a sharp rise reflecting the government’s intensified focus on strengthening grassroots cooperatives. The aim is to create professionally trained leadership, improve governance standards, and transform cooperatives into modern, competitive economic institutions.

Sahakar Pragya initiative: Year wise details of No. of Training programs conducted under Sahakar Pragya initiative, in promoting cooperative education and skill development across the country, are as under:

Year	Training Programs conducted
2018-19	40
2019-20	66
2020-21	121
2021-22	256
2022-23	246
2023-24	194
2024-25 (22.11.2024)	156
Total	1079

The specific programs offered under Sahakar Pragya to improve operational and managerial skills in cooperatives are as follows: -

- Training on Developing Managerial Skills for Agricultural Cooperatives and Rural Financing Institutions
- Training on General Management in Primary Level Cooperatives
- Training on Accounts and Book-keeping in Primary Level Cooperatives
- Training on Business Development and Assets Management for Primary Level Cooperatives
- Training on Role of Women Directors in Governance and Business Development in Cooperatives/SHG

Year wise details of No. of co-operators benefitted all over the country though training conducted under Sahakar Pragya initiative, details are as under:

Year	Participants Benefitted
2018-19	1227
2019-20	1848
2020-21	8076
2021-22	19927
2022-23	18364
2023-24	11864
2024-25 (22.11.2024)	53546
Total	114852

(This was stated by the Minister of Cooperation, Shri Amit Shah in a written reply to a question in the Lok Sabha.)

Skill India Digital Hub (Sidh) And Unified Skilling Ecosystem

The Skill India Digital Hub (SIDH) was launched in September 2023 as a Digital Public Infrastructure (DPI) to bring together the entire skilling ecosystem on a single platform.

SIDH has improved access to skilling opportunities by enabling learners to discover and enroll in courses across sectors through a single interface. The platform has enhanced transparency by digitizing assessment and certification processes, enabling secure digital credentials and reducing manual interventions.

The progress in on boarding of stakeholders on Skill India Digital Hub (SIDH) at the national level is as follows:

Category	Nationwide Count
Training Providers (after Desktop Assessment)	13,035
Assessment Agencies	2,626
Candidates enrolled under PMKVY	33,47,294
Candidates certified under PM Vishwakarma (PMV)	23,74,295
Candidates enrolled under Other Govt. Schemes	11,01,996
Candidates enrolled through Digital Learning Partners (DLP)	32,46,385

Source : Ministry of Skill Development and Entrepreneurship (MSDE)

Invest India (2010): It is the national investment promotion agency, facilitates partnerships and capital inflows, while India's cooperative sector—with over 840,000 societies and 320 million members—acts as a massive grassroots engine for economic growth in agriculture, dairy, and finance. Recent reforms aim to modernize cooperatives, integrating them into e-commerce and digital services to foster rural self-reliance. It Supported by a unique partnership between the central and state governments and industry associations, Invest India serves as the first point of contact for global and domestic investors. It provides comprehensive, end-to-end support across all stages of the investment lifecycle.

Invest India plays a vital role in connecting investors, industry, and government to ensure the successful execution of investment projects. The agency focuses on promoting investments in high-impact sectors such as Electronics & Semiconductors, Renewable Energy, Electric Vehicles, Capital Goods, Textiles, Food & Agriculture, Pharmaceuticals, Chemicals & Critical Minerals, and Infrastructure. With a commitment to innovation, sustainability, and job creation, Invest India continues to drive India's transformation into a leading global investment destination.

Export Sector:

Agriculture: A notable achievement is the substantial increase in agricultural exports. Horticulture continues to thrive, with **production in 2023-24** (First Advance Estimates) estimated at **355.25 Million Tonnes**, marking a 1.15% increase in cultivated area compared to the previous year. In the fiscal year 2022–23, **India's agricultural exports reached \$53.1 Billion**, with the Agricultural and Processed Food Products Export Development Authority (APEDA) contributing 51% of these exports. During April–December 2023, 18 out of 23 principal commodities in APEDA's export basket showed positive growth, underscoring India's robust performance in the global agri-market. India is also the largest producer and exporter of cereal products, with rice (both Basmati and non-Basmati) accounting for

nearly 95% of total cereal exports. In FY 2023–24, key export destinations included Saudi Arabia, Iran, Iraq, Benin, the United Arab Emirates, and Vietnam.

India's agriculture and allied sectors are pivotal for economic development. It leverages technology, sustainability, and diversification to meet domestic needs and enhance global competitiveness. These initiatives promise significant economic contributions, improved food security, improved livelihoods for millions of farmers across the country, and nutritional security for billions of consumers worldwide.

Automobile: The automobile sector has a turnover of **\$240 Billion**, with exports exceeding 5.3 Million units across all categories in fiscal year 2024-25, including **7,70,000 units passenger vehicles and 4.19 Million 2-wheelers**. Global automotive companies like Skoda Auto Volkswagen India, exporting 30% of their production, and Maruti Suzuki, **exporting around 2,80,000 units annually, exemplify this trend.**

The sector has attracted over **\$37 Billion in FDI over the past 25 years**, highlighting India's growing prominence in the global automotive landscape. It is the 4th largest manufacturer of passenger vehicles and the largest manufacturer of 2-wheelers and 3-wheelers globally

India is currently placed as one of the top seven global auto component suppliers. Over the past five years, the Indian auto component market has recorded a strong CAGR of about 10%. India holds 4% of the global auto component market share, with a market size of about \$75 Bn. Indian Auto Component Industry size is ~\$80.2 Billion (FY 25) growing with a CAGR of ~14% (FY20-25). India is emerging as a global hub for auto component sourcing, and the industry exports over 28% of its production annually. India's auto component export market is expected to reach \$100 Billion by 2026. India is the world's 3rd largest automotive market worth \$151 Billion.

Biotechnology: India's biotechnology sector has emerged as a key pillar of economic growth and innovation, playing a central role in healthcare, agriculture, industrial sustainability, and climate resilience. India's bio economy has grown significantly from **\$10 billion in 2014 to \$165.7 billion in 2024, reflecting a growth of 17.9%**. The sector now **contributes approximately 4.25% to the national GDP** and is **projected to cross USD 300 billion by 2030, with an ambitious target of USD 1 trillion by 2047.**

Defence: India's defence manufacturing sector is rapidly emerging as a cornerstone of the country's strategic and economic ambitions. The government has prioritised this sector, reflecting its significance in national security and economic growth. **Defence exports surge to a record high of ₹23,622 crore in Financial Year 2024-25, a growth of 12.04% over 2023-24.** This impressive growth demonstrates India's expanding role as a global defence exporter. The government's 'Atmanirbhar Bharat' (Self-Reliant India) initiative further reinforces this focus, encouraging domestic companies to develop cutting-edge defence products and reduce dependency on imports.

Textile industry: The textile industry in India gains a pivotal role in knitting the tapestry of dynamism and growth of the sector with about a **4.5%** share in the global textile and apparel trade. India possesses the capability to manufacture the entire value chain, and its products are exported to more than 100 countries. The sector provides employment to over 45 Million people, the Indian textile market currently ranks **fifth globally**.

Current Initiatives (2026)

Upcoming events and active global strategies include:

- **Mann-i-fest 2026 (February 25, 2026):** An immersive experience in Mumbai focused on co-creating inclusive workplaces for persons with disabilities in corporate India.
- **REHAB INDIA 2026 (July 7, 2026):** An international exhibition showcasing accessibility products to improve career prospects for people with disabilities.

- **UN 2030 Agenda:** Ongoing implementation of the Sustainable Development Goals (SDGs), specifically **SDG 10** (Reduced Inequalities) and **SDG 8** (Decent Work and Economic Growth).

Conclusion: A new Bharat is emerging where progress is measured not only in GDP, but in dignity and opportunity. Cooperative institutions have emerged as a milestone in advancing the vision of *Atmanirbhar Bharat* by promoting inclusive, sustainable, and co-operative development. This paper highlighted the growth of Indian Economy due to Cooperatives and Government contribution towards sustainable development. Due to extensive presence of cooperatives across rural and semi-urban India enables them to effectively address issues of poverty, unemployment, and regional imbalances. By facilitating access to credit and training, strengthening agricultural marketing systems, and encouraging local production, increasing exports, reducing imports, cooperatives empower communities to become economically self-reliant.

Although the COVID-19 pandemic has adversely impacted a majority of population including smaller enterprises and cooperatives. The stringent lockdown measure have resulted in migration of a section of skilled and semi-skilled workforce back to their village and they are looking for employment there. But now Indian Economy overcome by the crisis of pandemic and again the Cooperatives are playing as a powerful instruments of socio-economic transformation. Strengthening this sector will be very important in building a resilient, self-reliant, and equitable Indian economy.

Prime Minister Narendra Modi rightly said that “For India, Co-operatives are the basis of culture, a way of life. India sees a huge role of co-operatives in its future growth.”

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‘From Individual talent to collective enterprise: Status of Cooperatives in the Orange Economy with Special Reference to Performing Arts

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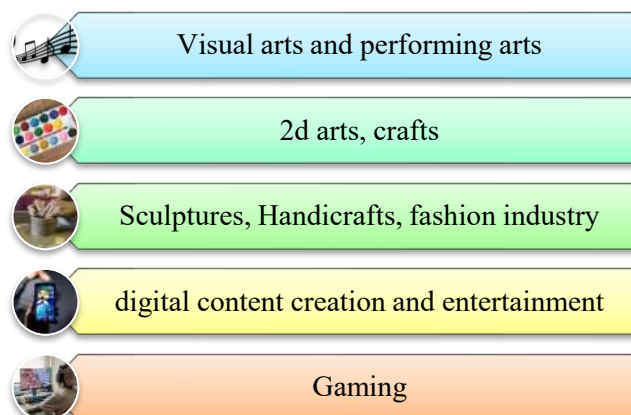
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Abstract: As popularized by Inter-American Development Bank, the concept of ‘Orange economy’ have started rooting into the contemporary world, even in India. The orange or creative economy implies all economic activities that are based on creativity, culture, arts and intellectual property rather than physical resources. Due to enormous increase in the influence of social media, the employment generation in creative content has increased to larger extent. As given by Press Information Bureau of India, The media and entertainment sector were valued at approximately ₹2.5 trillion in 2024. (PIB Delhi, 2026) The sector supports over 10 million livelihoods, directly and indirectly. This paper throws a light on boosting of orange economy through the lenses of a few case studies of cultural groups. It further tries to reflect policy implications for the development of cooperatives in creative field and projects the future of ‘Indian Orange Economy’.

Key Words: Orange economy, contemporary world, creativity, entertainment sector, cultural cooperatives.

1. INTRODUCTION:

‘Orange economy’ includes all economic activities involving creativity and innovation in culture, art or heritage related goods/ services. The creative economy is an evolving concept based on the contribution and potential of creative assets to contribute to economic growth and development. It embraces economic- cultural- social aspects interacting with technology, intellectual property and tourism objectives: it is a set of knowledge-based, and thus more localized, economic activities with a development dimension and cross-cutting linkages at macro and micro levels to the overall economy. (Creative economy, 2026) Following are the examples of components in the orange economy.



1.1 types of professions under orange economy (source: primary)

In India's context, the Orange Economy represents the confluence of its ancient heritage and modern innovation. It emphasizes both traditional artisanship—such as Madhubani paintings and handlooms—and emerging digital arts like animation, AR/VR content, and music streaming platforms. It is inherently inclusive, with vast potential to provide jobs and entrepreneurial opportunities in rural as well as urban areas. According to industry estimates, India's creative economy is growing at over 12% annually, contributing nearly \$150 billion to GDP and employing over 8 million people. Yet, despite its size and impact, the creative economy remains largely informal, and many segments are underrepresented in national economic planning. (Waves summit and orange economy in India, 2025)

The word 'cooperative' suggests a group of people coming together, cooperating each other for mutual benefit. These organizations are owned, managed and controlled by their members and usually registered under government. Consumer/producer cooperatives, credit cooperatives, housing/ business cooperatives, even cooperative housing societies are commonly seen in the economy. But the concept of 'cooperatives' in 'Orange economy' is underexplored and rare in Indian landscape. This paper explores some music groups in reference to the concept of 'cooperatives'. It tries to provide challenges faced by these groups and possible solutions to them.

2.LITERATURE REVIEW:

The Orange Economy refers to the sector of the economy based on creativity, culture, and innovation. It includes industries such as music, dance, theatre, crafts, design, film, media, publishing, gaming, architecture, and visual arts. (Waves summit and orange economy in India, 2025) In Africa and the Middle East, the sectors employ around 2.4 million people and create around 1.9 million jobs in Latin America and the Caribbean region. Few developing countries have formal and quality educational opportunities for young people interested in a career in the cultural and creative sectors. Awareness raising and sensitization about cultural and creative professions can support the aspirations of youth and help develop a positive image of the creative professions. (solutions for youth employment , 2020)

While initially focused on traditional art and culture industries, the Orange Economy has evolved to incorporate new sectors driven by technological advancements, such as telecommunications, robotics, coding, and digital content creation. Beyond direct creative output, the Orange Economy also involves the development of essential infrastructure and supportive policies that cultivate an environment conducive to creativity. (S.Amutha, 2025)

There are some examples of cooperatives in orange economy like, Indian Performing Right Society, SEWA (creative artisans wing), cooperative of Italian Filmmakers, Magnum photos, Associated Press, etc. The Indian Performing Right Society Limited (IPRS) is a Government authorized Copyright Society and a non-profit organization registered under the Copyright Act, of 1957. IPRS legitimizes the use of Copyrighted Music by issuing Music Licenses to 'Music Users' and collects Royalties for such use, for and on behalf of their members. IPRS helps authors, composers, and music publishers get their fair share of royalties, while also helping Music Users play music legally. (home- IPRS, n.d.) **Self Employed women's association (sewa)** is the single largest National trade union centre in India for the women workers of the informal economy. It includes women from unorganized handmade, traditional art sector, who don't get employment on regular basis. (self employed women's association , n.d.)

Cooperatives in orange economy is largely an unexplored area. It is important to create awareness about the existence of cooperatives for such groups. More and more interaction with several arts, professional groups can help bringing them to the mainstream of the economy and avail the benefits through establishing cooperatives.

3. RESEARCH METHODOLOGY:

Being primarily qualitative, this research involves case study approach for tracing the examples of semi-formal groups in orange economy. It is exploratory and descriptive research based on both primary and secondary data. The primary data is collected through self-experiences of researcher, interaction with group members of various music bands and music academies with semi-structured questions in an interview through telephonic mode. The samples are chosen through purposive sampling technique as out of diverse art forms, research focuses on performing arts in general and music in particular. The sample size taken for analysis is 5. Out of which 3 are the music bands and 2 are music academies. The variety is kept on purpose, to understand differences in contribution of bands and academies to Orange economy.

4. RESEARCH OBJECTIVES:

- To understand the concept of 'Orange economy' and 'cooperatives'
- To study the profession of performing arts, especially music.
- To trace the development of cooperatives in 'Orange economy' with a few case studies.

5. SCOPE OF STUDY:

For studying cooperatives in creative economy, many fields like music, dance, handicrafts, fashion industry, digital content creation, theatres, paintings, sculptural art, gaming, media entertainment etc. can be considered. This research focuses on only music, the performing art. The samples are taken from Thane district of Maharashtra, particularly in and near Dombivali region.

6. LIMITATIONS:

- **Consideration of only 'music' groups:** The creative industry is growing rapidly with Live events contributing to 100 ₹ billion, digital media to 802 ₹ billion, online gaming to 232 ₹ billion in the year 2024 as per the report of PIB India. There are several professions and sub-professions for which a comprehensive research could be done. However, this research focuses only on music bands and academies.
- **Limited sample size:** This case-based study involves data collection and analysis from 5 music groups in and around Dombivali (Maharashtra). Cross-sectional data from other music groups could be considered for comparative and comprehensive understanding.
- **Limited transparency:** As the chosen cooperatives are working full-time in music field, the research lacks total transparency from respondents regarding financial questions.

7. Data analysis and interpretation:

The researcher collects data from 3 music bands and 2 music academies. It is important to know that, all these institutes are private institutes and hence they can't avail the fund/ subsidy/ social security benefits under GoI. Following is the detailed analysis of data collected.

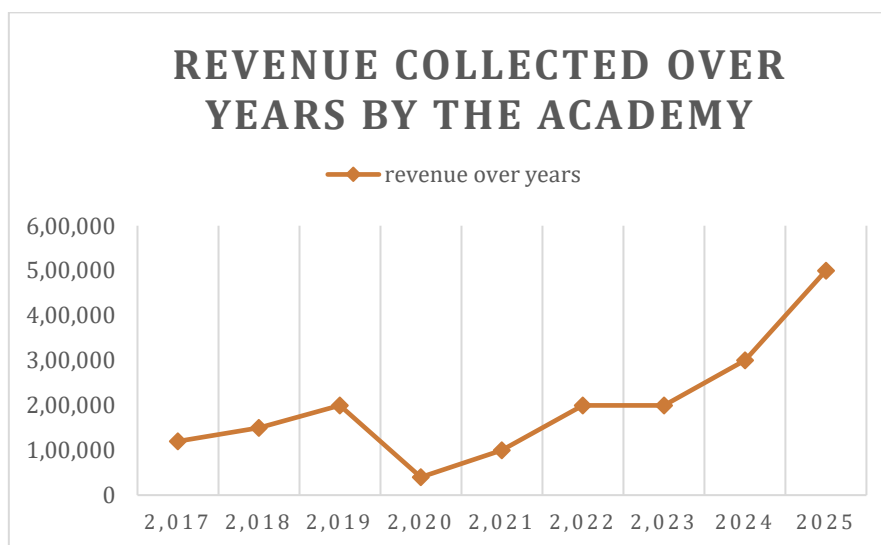
Case study 1: SAAZ Sangeet Academy (Established in 2017)

The first case study comes through the researcher's self-experience. Researcher herself is the part of this institution since last one year. The semi-formal interview with the founder of academy was

conducted. This Dombivali based academy undertakes teaching vocals and several instruments to the students in offline mode. The detailed information collected is stated as follows:

- Establishment year: 2017
- Founding member: Sri. Anand Pendharkar
- Number of members in group: 7
- Main source of revenue: Coaching
- Tentative income collected monthly: 50,000-70,000/-₹
- Mentoring available for: classical vocal, semi-classical vocal, harmonium, table-pakhwaj, guitar, keyboard, Ukulele
- Classes taken at: 1BHK flat taken on rental basis, with 7 keyboards, 5 harmoniums, 7 tabla pairs, 4 guitars, 1 ukulele

The interview revealed that since 2017, except for COVID-19 crisis, the institution is continuously witnessing the growth in number of students taking admission to the institution. The revenue collected by academy annually is shown in the graph given below. The reasons for sharp decline in revenue in the year 2020-2021 is COVID- 19 pandemic. As coaching of music vocals/ instruments seemed difficult initially. Increased revenue in past few years is the result of introduction of keyboard and guitar mentoring along with other instruments and vocals. The revenue generation is shown in the graph given below.



(source: primary)

Further, the group members have started performing as a band since last few months. The founder also said that they will be setting up a 'Karaoke group' which will increase the revenues more. However, as this institute is private, they don't receive any concession from government or any charitable trusts/ NGOs. The cooperative entirely runs on the fees paid by students. Every mentor receives income as per number of students he/she teach.

8. CHALLENGES:

- Uncertain/ sudden dropouts: As the academy is engaged with art and not merely academic education, the students, when faced any small problem, might leave the academy.

- Difficult to survive in crisis times: During the cases of lockdowns, the functioning of academy stops totally. The performing arts needs practical lessons to be taught. So, unforeseen crisis is not good for such academies.
- Problems with delay in revenue generation: Although this problem doesn't occur regularly, sometimes there is delay in fee payment by students. As the mentors are dependent on academy for their income, this will create acute shortage of funds for them.
- Competition: There are several academies/ private music classes located in Dombivali and nearby areas, which are the competitors for Saaz sangeet academy.

Case study 2: RaaGeet (music band) (Established in 2013)

Being the great contributor to the orange economy, Mumbai based, RaaGeet band performs popular songs while educating the audience on the Classical Raag behind them. By explaining how classical music is connected to our heart, body and mind, the listeners gets mesmerized. The band is engaged in live shows and also creating digital content. The band has completed more than 1000 live shows both nationally and internationally, with 4-5 shows monthly.

- Establishment: 2013
- Number of members in the group: 8-10
- Main source of revenue: live shows
- Tentative revenue generation per show: 3,00,000/- to 4,00,000/- ₹

Along with the musicians and vocalists, the show offers employment to the makeup artists, spot boys, photographers, videographers, light-sound operators and many more. The band was active on social platforms since COVID 19 and is continued to be active with more youth joined actively as a community. The challenges faced by many live concert bands are more or less same, which are mentioned in Case study 4.

Case study 3: ABHANGA REPOST (Music band) (established in 2015)

This is a 'contemporary folk fusion music band' emerged in Mumbai (Maharashtra). This band is contributing to the 'Orange economy' to larger extent, as the band is engaged in performing the *Abhangas* written by various saints in Maharashtra in rock/ pop/ western style. The main motive of band is to catch the attention of Gen-z generation towards the roots of Maharashtrian *Varkari* heritage. The band have completed 500-600 live programs till date and are also engaged over a social media platform.

- Establishment: formally in 2015
- Number of members in a group: 6 to 8
- Main source of revenue: live concerts
- Tentative revenue generated per show: 75,000 to 1,00,000₹

The band involves 2 lead vocalists, 2 guitarists, 2 percussionist and 1 harmonium player. Apart from performers, they are generating employment for hundreds of back stage artists. Before getting popular, they started their journey with a simple performance in marathi new year celebration rally in Mumbai. They undertake donations for social cause and also perform in various shows to raise funds for various NGOs. Further, they have released two music albums and are actively working to release more. The challenges faced:

- Controversy in the initial phase: The band composes *abhangas* in rock/ pop style, which initially was not welcomed by the audience. However, with the growing awareness about intentions of band, people started appreciating them.
- Diversity in budget of every show and lack of social security: As the performance made by team varies across places, they don't get equal pay everywhere. Sometimes, band gets very less remuneration, which is not sufficient for individual artist. As the artists are dependent on live shows, they lack fix regular income generation.

Case study 4: UDAAN (Rangat Arts production) (Music band) (Established in 1999)

Mumbai based music band Udaan is having artists living in sub-urbs of Mumbai. Main source of revenue for UDAAN is live concerts in and outside Mumbai, sometimes even abroad. They have successfully completed thousands of concerts till date with specifically filmy, retro- and semi classical music and are continued to grow with the same colours. Their detailed information is given below:

- Establishment year: 1999
- Number of members in a group: 3 producers + 5 musicians + 3 singers = 11 (the number of singers and musicians vary with differences in budget; however, only fixed members are considered)
- Main source of revenue: live concerts
- Tentative revenue generated per show: 3-4 lakhs

The band performs 50 to 70 live concerts throughout the year, with seasonal fluctuations. They have performed several shows to raise donations for Jayant Jagruti Centre.

Challenges:

- Uncertainty and lack of fixed income: The major shortcoming of this industry is 'uncertainty'. "Whenever war starts, or pandemic comes, we are jobless", one of the artist in the band says. Similarly, during slack seasons, the crowd doesn't gather for the show resulting into financial losses, both to producers and artists.
- Technology Crisis: The word 'crisis' is used over here, as the essence of live programs is taken over by 'Karaoke' programs, where only vocal artists are used, and the job of other musicians, namely percussionist, guitarist, keyboardist etc. is replaced with electronic track music.

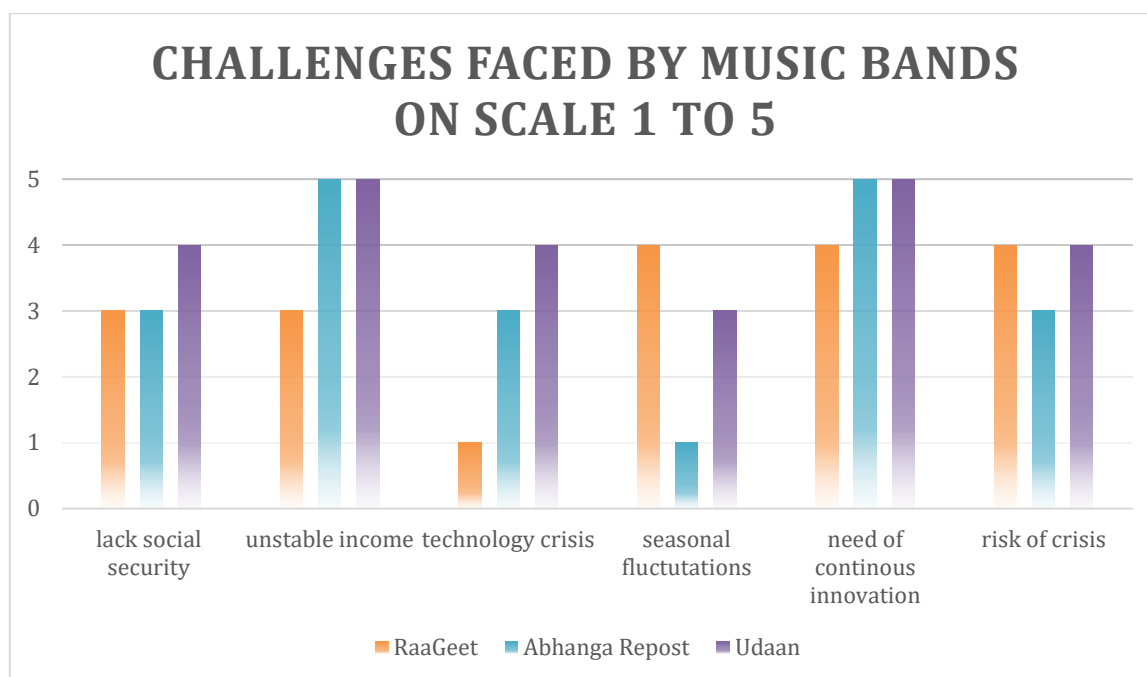
Case study 5: Hindustani Sangeet Academy (Established in 2000)

Dombivali (Maharashtra) based music academy is grooming thousands of students, both online and offline. Having a 2 BHK worth classroom, the academy has 7 sets of tablas, 7 harmoniums, 5 tanpura-tabla machines as their assets. Although main source of revenue is coaching, the mentors are also engaged in live concerts as performers or accompanist. HSA also performs for raising donations for Mahavir International.

- Establishment year: 2000
- Founding members: Sri. Mahesh Kulkarni and Sri. Vinayak Naik
- Number of members in a group: 8
- Main source of revenue: coaching
- Monthly revenue generated: 2,00,000-2,50,000₹
- Mentoring available for: classical- semi classical vocal, harmonium, tabla-pakhwaj, flute, and classes for kathak have also started recently.

The mentors take part in live concerts and also teach online to the students who can't attend the class offline. Even this academy suffers from competition, and uncertainty of retaining students, yet, being comparatively stable in the market, they don't face much of these challenges.

In a nutshell, music academies who are dependent fully on music as a profession, generates minimum subsistent income for the artists on an average. The seasonal fluctuations, students dropout, competition, difficulties in crisis time are some common challenges faced by every music group. Following is a graphical analysis of challenges faced by sample music bands on the scale of 1 to 5 where, 1= least, 5= most.



(source: primary)

The major shortcoming of orange economy in the light of performing arts, would be 'unstable income' and 'lack of social security'. The chosen samples, while answering, highlighted these challenges as very serious problems for artists and even the marginalized segment who act as helping hand to boost the economy, like light-sound operators, cleaners at auditoriums/ theaters, transporters, hair-make-up-costume artists etc. One more common problem cited by every band is 'innovation'. Once the show is performed several times, the band has to innovate with something new, and contemporary. Otherwise, audience loose interest. The details of findings are given in the following chapter.

9.FINDINGS AND RECOMMENDATIONS:

After the interviews conducted with the mentors of academies and band members of certain groups, the research reveals the need of forming cooperatives in orange economy with the following highlights:

- Lack of Cooperatives in music academy and live show bands:** It is observed that with 1-2 founding members, the academy/ band starts its operations. As the time progresses and number of students in academy increases, then these founding members approaches other members to join the group. These members cooperate each other, work together for self and professional growth. But, as they are not registered to the government as a 'cooperative', they don't avail any subsidy or government facilities that are given under cooperatives act. There are possibilities of conflicts over profit sharing as well. Besides, the research predicts the benefits of forming cooperatives among music bands. The music bands usually cooperate with musicians, producers, make-up artists, light- sound arrangers, transporters, costumers, and off course the promoters, advertisers, producers to make any live show a grand success. If they form cooperative, lives of thousands of marginalized people would lit up by social security like government schemes of insurance, minimum wages, worker's rights etc.
- Variety in music bands:** There are numerous music bands operating in urban, metropolitan areas of the country. They differ in theme, style, size, language, budget but they all contribute to preserve the heritage of country and also generates employment. The chosen samples simply explains the degree of variety that music bands offer.

- **Emerging scope in orange economy:** It is observed that the people joining music band or academy are more from the age group 10-40. If they are assured with social security or other required policies, they will contribute to boost the orange economy through their talents, skills, and creativity. The youngsters, often are reluctant to join this sector due to insufficient social security. So, forming cooperatives can really help to solve this problem by protecting their rights, providing employment, insurance, etc. in 2024 alone, the organized segment of the live events industry was valued at ₹20,861 crore, with a 15% year-on-year growth, outperforming traditional verticals like television and print. (broadcasting, 2025)
- **Contribution to social welfare:** Music bands or academies do contribute for social cause by performing to raise donations, or sometimes donating directly to NGOs or other needy institutions. There are music groups, like echobeats, who involve specially challenged artists in their band. This can be the promising example of growth of orange economy.
- **Preventing predatory technology:** Due to over-popularity of 'karaoke' music, many live musicians are suffering from unemployment. It is important to frame policy in such way that the jobs of such artists remains intact. Further, AI is also entering into music composition, lyrics writing etc., which might reduce the scope of music composers and lyricists.
- **Ancillary industry multiplier effect:** this sector directly and indirectly contributes to thousands of jobs like transporters, hospitality, catering, sound engineers, videographers, content creators, etc.
- **Cultural diplomacy and spread:** Although the effects are not visible directly, this sector will increase cultural spread, particularly Indian culture and tradition internationally. Abhangas, RaagaGeet have audience from even abroad, which clearly indicates that the linguistic or geographical differences are not hurdles in the development of orange economy.
- **Need for development of infrastructure:** for live shows, amphitheatres, large halls, auditoriums are necessary. Similarly, the assets such as music instruments, it's repairing needs to be tackled. In India, we still lack necessary infrastructure for the development of music sector.

10.CONCLUSION:

Indian orange economy have started flourishing, especially after WAVES. India occupies a dominant position in creative sector with talents spread across different geographies of the country, creating compelling contents through its rich cultural heritage. However, it lacks institutional upliftment and social security like other sectors. Policy measures and implementation is crucial to get this sector formalized. Forming cooperatives will help music bands and academies to perform better and contribute to the development of creative economy.

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Contribution of Library and Information Services to Achieving Sustainable Development Goals: A Case Study of INFLIBNET

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Abstract: This paper aims to define the role of Library Networks in supporting the Sustainable Development Goals in the global quest, as the United Nations calls for. Library Networks play important roles in supporting SDGs – particularly SDG-4 Quality Education, SDG-5 Gender Equality, SDG-10 Reducing Inequalities, and SDG-17 Partnerships. To this end, this paper seeks to discuss how Library Networks in India can function as a service provider in the achievement of these goals through integrating their services, collections, and policies into the INFLIBNET.

The United Nations' 2030 Agenda for Sustainable Development outlines 17 Sustainable Development Goals (SDGs) designed to end poverty, protect the planet, and ensure prosperity for all. Achieving these ambitious targets requires equitable access to information, knowledge, and digital infrastructure. Library and Information Services (LIS) have emerged as crucial catalysts in this global effort. This paper explores the intersection of LIS and the SDGs, utilizing the Information and Library Network (INFLIBNET) Centre in India as a primary case study. By analyzing INFLIBNET's digital initiatives—such as e-ShodhSindhu, Shodhganga, VIDWAN, and SOUL—this study demonstrates how national-level library networks bridge the digital divide and provide a scalable framework for developing economies to promote quality education, foster innovation, and reduce educational inequalities.

1. INTRODUCTION

Historically, libraries were seen as quiet places filled with books. Now, they serve as active centres for community engagement, digital skills, and sharing knowledge. In today's knowledge-driven economy, Library and Information Services (LIS) are key to societal growth.

In 2015, the United Nations adopted the 2030 Agenda, which includes 17 Sustainable Development Goals (SDGs). The International Federation of Library Associations and Institutions (IFLA) has repeatedly claimed that access to information is crucial for achieving the SDGs. Without reliable data, research, and accessible information networks, policymakers struggle to create effective solutions for issues like climate change, poverty, and health crises. Additionally, citizens cannot fully engage in democratic and economic processes.

Transitioning from these global objectives to actionable national strategies requires robust institutional frameworks. To understand how LIS operationalizes these goals at a macro level, this paper examines the **Information and Library Network (INFLIBNET) Centre**, an autonomous Inter-University

Centre of the University Grants Commission (UGC) in India. INFLIBNET serves as a vital artery for India's higher education system, proving that strategic LIS interventions can directly drive sustainable development.

2. Sustainable Development Goals (SDGs):

The Sustainable Development Goals (SDGs), also known as the Universal Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. The 17 SDGs are integrated—they recognize that action in one area will affect outcomes in others, and that development must balance social, economic and environmental sustainability. Countries have committed to prioritize progress for those who're furthest behind. The SDGs are designed to end poverty, hunger, AIDS, and discrimination against women and girls. The creativity, knowhow, technology and financial resources from all of society is necessary to achieve the SDGs in every context.

17 SDGs as follows



The Intersection of LIS and the SDGs

While LIS indirectly supports all 17 goals by providing foundational knowledge, it most directly impacts the following SDGs:

- **SDG 4 (Quality Education):** Libraries provide lifelong learning opportunities, essential reading materials, and digital literacy training.
- **SDG 9 (Industry, Innovation, and Infrastructure):** Academic and research libraries offer the scholarly literature necessary for scientific discovery, technological innovation, and R&D.
- **SDG 10 (Reduced Inequalities):** By offering free or heavily subsidized access to high-quality information, public and academic libraries level the playing field between elite institutions and marginalized or rural communities.
- **SDG 16 (Peace, Justice, and Strong Institutions):** Libraries promote academic integrity, transparency, and public access to government and institutional data.
- **SDG 17 (Partnerships for the Goals):** Library consortia and networks exemplify institutional collaboration to achieve shared objectives.

3. INFLIBNET: An Overview

Established in 1991, INFLIBNET's primary mandate is to modernize university libraries in India and connect them through a nationwide high-speed data network. It aims to promote scholarly communication among academicians and researchers, optimizing information resource utilization through shared cataloging, inter-library loans, and massive digital repositories. Serving thousands of colleges and universities, INFLIBNET represents a paradigm shift from isolated institutional libraries to a collaborative, national digital LIS infrastructure.

4. Mapping INFLIBNET Services to Specific SDGs

INFLIBNET's portfolio of services provides a perfect blueprint for how a national LIS framework can actively contribute to the United Nations' 2030 Agenda.

4.1. Quality Education (SDG 4) & Reduced Inequalities (SDG 10)

A major barrier to equitable higher education in developing nations is the prohibitive subscription cost of international scholarly journals and databases. This financial bottleneck often creates an insurmountable knowledge divide between well-funded central universities and resource-constrained rural colleges.

- **e-ShodhSindhu & N-LIST:** Formed by merging three earlier consortia, e-ShodhSindhu provides access to over 10,000 peer-reviewed journals and databases to higher education institutions. Crucially, its N-LIST (National Library and Information Services Infrastructure for Scholarly Content) program extends this access to thousands of government-aided and rural colleges across India. By ensuring that a student in a remote village has access to the same world-class literature as a scholar at a premier institute, INFLIBNET actively **reduces inequalities (SDG 10)** and guarantees equitable **quality education (SDG 4)**.
- **e-PG Pathshala:** This initiative provides high-quality, interactive e-content across various postgraduate disciplines. As an open educational resource (OER), it supports lifelong learning and inclusive education.

4.2. Industry, Innovation, and Infrastructure (SDG 9)

Innovation thrives on the accessibility of prior research. Duplication of research efforts wastes valuable national resources.

- **Shodhganga & ShodhGangotri:** Shodhganga is a massive digital repository of Indian electronic theses and dissertations (ETDs), currently hosting over 500,000 full-text Ph.D. theses. ShodhGangotri hosts approved research synopses. By mandating open access to theses, INFLIBNET ensures that Indian research is globally visible. This open infrastructure accelerates **innovation (SDG 9)** by allowing researchers to build upon existing work rather than reinventing the wheel.
- **SOUL (Software for University Libraries):** INFLIBNET developed this state-of-the-art integrated library management software. Deployed in thousands of academic libraries, SOUL represents a critical upgrade to India's institutional **infrastructure (SDG 9)**, standardizing LIS operations nationwide.

4.3. Peace, Justice, and Strong Institutions (SDG 16)

Strong institutions require transparency, accountability, and a commitment to truth and originality.

- **Shodh-Shuddhi:** Under this initiative, INFLIBNET provides plagiarism detection software (such as Drillbit Extreme) to higher education institutions across India. By actively combating academic misconduct and enforcing originality in research, INFLIBNET fosters a culture of academic integrity, thereby strengthening educational **institutions (SDG 16)**.

4.4. Partnerships for the Goals (SDG 17)

The SDGs emphasize that global and national challenges cannot be solved in silos.

- **VIDWAN & IRINS:** VIDWAN is a premier database of profiles of scientists, researchers, and faculty members working in India. The Indian Research Information Network System (IRINS) showcases the scholarly communication activities of institutions. These platforms create a scholarly network that facilitates collaboration across universities, government R&D labs, and international borders. By connecting experts, INFLIBNET actively builds the **partnerships (SDG 17)** necessary to tackle complex global issues like climate change and public health.
- **IndCat:** The online Union Catalogue of Indian Universities pools the bibliographic records of participating institutions, exemplifying how institutional cooperation maximizes resource utilization.

5. Challenges and Future Directions

While INFLIBNET's contributions to the SDGs are substantial, challenges remain. The effectiveness of digital LIS initiatives relies heavily on underlying IT infrastructure. In many rural parts of India, erratic internet connectivity and power supply hinder the full utilization of platforms like e-ShodhSindhu or Shodhganga. Additionally, there is a continuous need for capacity building and digital literacy training for library professionals and students to maximize the use of these scholarly resources. To sustain this momentum, future policy directions for LIS networks like INFLIBNET must prioritize enhancing semantic web technologies for advanced resource discovery, broadening open-access mandates, and aggressively integrating regional and marginalized languages into digital repositories to ensure true, nationwide inclusivity.

6. Conclusion

The journey toward the 2030 Sustainable Development Goals is deeply intertwined with the democratization of information. As demonstrated by the INFLIBNET Centre, Library and Information Services are not peripheral to this mission; they are foundational.

Through consortia-based resource sharing, open-access repositories, and research networking platforms, INFLIBNET has dramatically reduced educational inequalities, spurred academic innovation, and fostered institutional integrity across India. The case of INFLIBNET serves as a powerful model for other developing nations, proving that robust, nationally coordinated Library and Information Services are indispensable tools for achieving sustainable socio-economic development.

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सहकार्याद्वारे 'इतरांची सेवा' : भारतीय तात्त्विक दृष्टिकोन

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प्रस्तावना : भारतीय तत्त्वज्ञान ही केवळ सैद्धांतिक विचारसरणी नसून ती जीवनाचे मार्गदर्शन करणारी व्यापक सांस्कृतिक परंपरा आहे. भारतीय चिंतनाचा मूलभूत उद्देश मानवाचे कल्याण आणि आत्मिक प्रगती साध्य करणे हा आहे. या दृष्टिकोनातून पाहिले असता 'इतरांची सेवा' आणि 'सहकार्य' ही मूल्ये भारतीय तत्त्वज्ञानात अत्यंत महत्त्वाची मानली गेली आहेत. भारतीय संस्कृतीत 'वसुधैव कुटुंबकम्' ही संकल्पना मानवतेच्या सार्वत्रिक ऐक्याची घोषणा करते. या संकल्पनेनुसार संपूर्ण विश्व हे एक कुटुंब मानले जाते. त्यामुळे प्रत्येक व्यक्तीचे कर्तव्य म्हणजे इतरांच्या हितासाठी कार्य करणे होय.

भारतीय परंपरेत 'इतरांची सेवा' ही केवळ सामाजिक बांधिलकी नसून ती आध्यात्मिक साधनेचा एक महत्त्वाचा भाग मानली जाते. 'नर सेवा हीच नारायण सेवा' हा विचार याच दृष्टिकोनाचे प्रतीक आहे. याचा अर्थ असा की प्रत्येक मानवामध्ये ईश्वराचे अस्तित्व आहे आणि त्यामुळे इतरांची सेवा करणे म्हणजे ईश्वराची सेवा करणे होय.

वेद, उपनिषद, भगवद्गीता, बौद्ध आणि जैन तत्त्वज्ञान तसेच भारतीय संत परंपरेमध्ये सेवा आणि करुणा यांना विशेष महत्त्वपूर्ण स्थान दिले गेले आहे. या सर्व परंपरांचा मूलभूत संदेश असा आहे की, मानवाने स्वार्थी वृत्ती सोडून समाजाच्या कल्याणासाठी प्रयत्न करावेत.

आजच्या आधुनिक काळात स्पर्धा, व्यक्तिवाद आणि भौतिकवाद यांच्या वाढत्या प्रभावामुळे मानवी मूल्यांमध्ये फार मोठ्या प्रमाणात घट होताना दिसून येत आहे. अशा परिस्थितीत भारतीय तात्त्विक परंपरेतील 'सहकार्याद्वारे इतरांची सेवा' हा विचार अत्यंत महत्त्वाचा ठरतो. हा विचार सामाजिक ऐक्य, नैतिकता आणि मानवतेच्या विकासासाठी प्रेरणा देतो.

1.उद्दिष्टे :

1. भारतीय तत्त्वज्ञानातील सेवा आणि सहकार्य या संकल्पनांचे तात्त्विक विश्लेषण करणे.
2. वेद, उपनिषद, भगवद्गीता, बौद्ध व जैन तत्त्वज्ञानामध्ये इतरांच्या सेवेला दिलेले स्थान स्पष्ट करणे.
3. भारतीय संतपरंपरेतील परोपकार आणि मानवसेवेच्या विचारांचा अभ्यास करणे.
4. सहकार्य आणि परोपकार या मूल्यांचे भारतीय तात्त्विक परंपरेतील स्थान अभ्यासणे.
5. आधुनिक समाजात सहकार्याद्वारे सेवा या तत्त्वाचे महत्त्व स्पष्ट करणे.

2.गृहीतके :

1. भारतीय तत्त्वज्ञानात 'इतरांची सेवा' ही मानवजीवनातील एक मूलभूत नैतिक मूल्य मानली जाते.
2. सहकार्याच्या माध्यमातून समाजात समता, न्याय, बंधुता आणि सामाजिक समन्वय निर्माण होतो.
3. भारतीय तात्त्विक परंपरेतील सेवा-भावना आधुनिक सामाजिक विकासासाठी उपयुक्त ठरू शकते.

3.संशोधन पद्धती :

'सहकार्याद्वारे इतरांची सेवा' हा भारतीय तात्त्विक दृष्टिकोन या विषयाच्या अभ्यासासाठी मुख्यतः गुणात्मक आणि तात्त्विक-विश्लेषणात्मक संशोधन पद्धतीचा अवलंब करण्यात आला आहे. यात वेद, उपनिषद, भगवद्गीता, बौद्ध आणि जैन तत्त्वज्ञान तसेच भारतीय संतपरंपरेतील साहित्य यांचा ग्रंथसमीक्षा पद्धतीने अभ्यास करण्यात आला

आहे. विविध तत्त्वज्ञांच्या विचारांचे तात्त्विक आणि संकल्पनात्मक विश्लेषण करून 'सेवा', 'परोपकार' आणि 'सहकार्य' या संकल्पनांचे स्वरूप स्पष्ट करण्याचा प्रयत्न करण्यात आला आहे.

4. भारतीय तत्त्वज्ञानातील सेवा संकल्पना :

भारतीय तत्त्वज्ञानात 'सेवा' ही संकल्पना अत्यंत व्यापक व अर्थपूर्ण आहे. सेवा म्हणजे केवळ आर्थिक मदत किंवा दानधर्म नव्हे, तर निःस्वार्थ भावनेने इतरांच्या हितासाठी कार्य करणे म्हणजे सेवा होय. भारतीय विचारसरणीमध्ये प्रत्येक जीवामध्ये दैवी तत्त्व किंवा आत्मतत्त्व आहे असे मानले जाते. या दृष्टीने पाहता इतरांची सेवा करणे म्हणजे त्या आत्मतत्त्वाचा किंवा दैवी तत्त्वाचा आदर करणे होय.

'परोपकाराय पुण्याय पापाय परपीडनम्' या उक्तीनुसार परोपकार करणे हे पुण्याचे कार्य आहे, तर इतरांना दुःख देणे हे पाप मानले गेले आहे. भारतीय धर्मग्रंथांमध्ये 'परोपकार' या संकल्पनेला विशेष महत्त्व दिले गेले आहे. परोपकार म्हणजे इतरांच्या कल्याणासाठी स्वार्थाचा त्याग करून केलेले कार्य.

१. वेद आणि उपनिषदांमधील सेवा-भावना :

वेद आणि उपनिषदांमध्ये सेवा भावना ही मानवी जीवनातील एक महत्त्वाची नैतिक व आध्यात्मिक मूल्य म्हणून मांडलेली आहे. 'सर्वे भवन्तु सुखिनः' ही प्रार्थना सर्व मानवांच्या सुखाची कामना करते. ऋग्वेद, यजुर्वेद, सामवेद आणि अथर्ववेद या वेदांमध्ये समाजहित, सहकार्य आणि परस्पर साहाय्य यांवर भर दिला गेला आहे. वेदांनुसार मानवाने केवळ स्वतःच्या हिताचा विचार न करता समाजाच्या कल्याणासाठी कार्य करावे. "संगच्छध्वं संवदध्वं" हा ऋग्वेद मधील मंत्र एकत्र येऊन कार्य करण्याची आणि परस्पर सहकार्याची शिकवण देतो.

उपनिषदांमध्ये सेवा ही आध्यात्मिक साधनेचा एक भाग मानली आहे. इशा उपनिषद व तैत्तिरीय उपनिषद यामध्ये "मातृदेवो भव, पितृदेवो भव, आचार्यदेवो भव, अतिथिदेवो भव" असा उपदेश आढळतो. याचा अर्थ आई-वडील, गुरु आणि अतिथी यांची देवतासमान सेवा करावी असा आहे. या विचारातून कुटुंब व समाजातील सेवाभावाचे महत्त्व स्पष्ट होते. वेद-उपनिषदांनुसार सेवा ही केवळ सामाजिक कर्तव्य नसून ती आत्मिक उन्नतीचे साधन आहे. दुसऱ्यांच्या कल्याणासाठी केलेली निःस्वार्थ सेवा मनुष्याला परमार्थ, सद्भाव आणि समत्वाची जाणीव करून देते.

२. भगवद्गीतेतील कर्मयोग आणि सेवा :

भगवद्गीतेमध्ये कर्मयोगाची संकल्पना मांडताना निःस्वार्थ कर्माचे महत्त्व सांगितले आहे. गीतेनुसार मनुष्याने आपल्या कर्तव्याचे पालन करताना फलाची अपेक्षा न ठेवता समाजहितासाठी कार्य करावे. कर्मयोगाचा मुख्य आधार "निष्काम कर्म" आहे. असे निःस्वार्थ कर्म समाजाच्या कल्याणासाठी केले जाते. कर्मयोगाच्या माध्यमातून व्यक्ती स्वतःच्या आध्यात्मिक व आत्मिक उन्नतीसोबतच समाजाच्या कल्याणासाठीही कार्य करते.

सेवा ही कर्मयोगाचा एक महत्त्वाचा भाग आहे. सेवा म्हणजे इतरांच्या भल्यासाठी निःस्वार्थपणे केलेले कार्य. गरजूंना मदत करणे, समाजासाठी काम करणे आणि कर्तव्यभावनेने जीवन जगणे हे सेवा भावाचे उदाहरण आहेत. कर्मयोगानुसार, प्रत्येक सेवा ही ईश्वराची सेवा मानली जाते.

३. बौद्ध तत्त्वज्ञानातील करुणा :

बौद्ध तत्त्वज्ञानात करुणा ही अत्यंत महत्त्वाची नैतिक व आध्यात्मिक संकल्पना आहे. करुणा म्हणजे इतरांच्या दुःखाबद्दल संवेदनशीलता बाळगून ते दुःख दूर करण्याची प्रामाणिक इच्छा. बौद्ध धर्मानुसार सर्व जीव दुःखाने ग्रस्त आहेत, म्हणून प्रत्येक जीवाबद्दल सहानुभूती, प्रेम आणि मदतीची भावना ठेवणे हीच खरी करुणा होय. गौतम बुद्ध यांनी आपल्या उपदेशात करुणेला मानवी जीवनातील सर्वोच्च सद्गुण मानले आहे. त्यांच्या मते करुणा ही केवळ भावना नसून ती आचरणात उतरवली जाणारी नैतिक वृत्ती आहे. करुणा व्यक्तीला स्वार्थापासून दूर नेऊन सर्व प्राणिमात्रांच्या कल्याणासाठी कार्य करण्यास प्रेरित करते.

बौद्ध तत्त्वज्ञानात करुणा ही चार ब्रह्मविहारांपैकी (मैत्री, करुणा, मुदिता, उपेक्षा) एक महत्त्वाची भावना मानली जाते. करुणा म्हणजे इतरांच्या दुःखाचे निवारण करण्याची इच्छा, तर मैत्री म्हणजे सर्वांप्रती प्रेमभावना. या चार भावनांचा अभ्यास व आचरण केल्यास मन शुद्ध होते आणि व्यक्ती आध्यात्मिक प्रगतीकडे वाटचाल करते. करुणेचा संबंध बौद्ध धर्मातील अहिंसा, दया आणि सहअस्तित्व या मूल्यांशीही जोडलेला आहे. जेव्हा व्यक्ती करुणेचा स्वीकार करते तेव्हा ती कोणालाही त्रास देत नाही, उलट इतरांच्या दुःखात सहभागी होऊन त्यांना मदत करण्याचा प्रयत्न करते. त्यामुळे समाजात शांतता, सहकार्य आणि बंधुभाव निर्माण होतो

४. जैन तत्त्वज्ञानातील अहिंसा :

जैन तत्त्वज्ञानात अहिंसा ही सर्वात मूलभूत आणि सर्वोच्च नैतिक संकल्पना मानली जाते. जैन धर्माच्या आचार-विचारांची संपूर्ण रचना अहिंसेच्या तत्वावर आधारलेली आहे. जैन तत्त्वज्ञानानुसार प्रत्येक सजीवामध्ये आत्मा असतो आणि सर्व जीवांना जगण्याचा समान अधिकार आहे. त्यामुळे कोणत्याही जीवाला मन, वचन किंवा कर्माने इजा करणे म्हणजे हिंसा होय. अशा प्रकारची हिंसा टाळणे म्हणजेच अहिंसा.

जैन धर्मात अहिंसेला केवळ शारीरिक हिंसा टाळण्यापुरते मर्यादित ठेवलेले नाही, तर विचार, शब्द आणि कृती या तिन्ही स्तरांवर अहिंसा पाळण्याचा आग्रह आहे. कोणाविषयी वाईट विचार करणे, अपमानास्पद बोलणे किंवा प्रत्यक्ष इजा करणे हे सर्व हिंसेचे प्रकार मानले जातात. म्हणूनच जैन साधू-साध्वी अत्यंत काटेकोरपणे अहिंसा पाळतात. ते चालताना जमिनीवरील सूक्ष्म जीवांना इजा होऊ नये म्हणून सावधपणे चालतात, तसेच अन्नपानातही अनेक निर्बंध पाळतात.

जैन तत्त्वज्ञानात जीवांचे पाच प्रकार सांगितले आहेत—एकेंद्रिय, द्वेन्द्रिय, त्रैन्द्रिय, चतुर्देन्द्रिय आणि पंचेन्द्रिय. या सर्व जीवांबद्दल करुणा आणि संवेदनशीलता ठेवणे ही अहिंसेची खरी भावना मानली जाते. त्यामुळे जैन धर्मात शाकाहाराला विशेष महत्त्व दिले जाते. प्राणीहत्येपासून दूर राहणे आणि पर्यावरणाचे संरक्षण करणे हेही अहिंसेचेच अंग मानले जाते

५. संत परंपरेतील सेवा :

भारतीय संत परंपरेत 'सेवा' ही अत्यंत महत्त्वाची आणि पवित्र संकल्पना मानली जाते. संतांच्या मते सेवा म्हणजे केवळ बाह्य कर्म नव्हे, तर ती निःस्वार्थ भावनेतून केलेली मानवसेवा आणि ईश्वरभक्ती आहे. समाजातील दुःखी, गरीब आणि गरजू लोकांची मदत करणे हीच खरी ईश्वरसेवा आहे, असा संतांचा संदेश होता.

संत तुकाराम यांनी "जे का रंजले गांजले, त्यासी म्हणे जो आपुले" या अभंगातून दुःखितांच्या सेवेला ईश्वरभक्तीचे स्वरूप दिले. तसेच संत ज्ञानेश्वर यांनी सर्व जीवांत परमात्मा आहे, या अद्वैत विचारावर भर देत सर्वांशी करुणा व सेवाभाव ठेवण्याचा उपदेश केला. संत एकनाथ आणि संत नामदेव यांनीही समाजातील भेदभाव दूर करून मानवसेवा हीच खरी भक्ती आहे असे सांगितले.

संत परंपरेतील सेवा ही समता, करुणा आणि परस्पर सहकार्य या मूल्यांवर आधारित आहे. या सेवेचा उद्देश केवळ व्यक्तीचा नाही, तर संपूर्ण समाजाचा नैतिक आणि आध्यात्मिक विकास घडवणे हा आहे. त्यामुळे संत परंपरेत सेवा ही धर्म, नैतिकता आणि सामाजिक सुधारणा यांचे महत्त्वाचे साधन मानली जाते.

संत तुकाराम, संत कबीर, संत नामदेव यांसारख्या संतांनी समाजातील सर्व लोकांना समान मानले. त्यांच्या शिकवणीत परस्पर सहकार्य, करुणा आणि समाजसेवा या मूल्यांवर विशेष भर दिला आहे. संत तुकाराम म्हणतात की समाजातील दुर्बल आणि गरजू लोकांची सेवा करणे हेच खरे धर्म आहे. संत परंपरेतील सेवा म्हणजे निःस्वार्थपणे केलेली मानवसेवा आणि सर्व जीवांमध्ये ईश्वर पाहण्याची जीवनदृष्टी होय.

5. आधुनिक समाजातील महत्त्व ;

आजच्या आधुनिक समाजात व्यक्तिवाद आणि स्पर्धेचा प्रभाव वाढत आहे. आजच्या जागतिकीकरणाच्या आणि स्पर्धात्मक समाजव्यवस्थेच्या काळात सहकार्य आणि सेवा या मूल्यांचे महत्त्व अधिक वाढले आहे. अशा परिस्थितीत सहकार्य आणि सेवा या मूल्यांची गरज अधिक जाणवते. शिक्षण, आरोग्य, पर्यावरण संरक्षण आणि सामाजिक न्याय या क्षेत्रांमध्ये सामूहिक सहकार्य अत्यंत आवश्यक आहे.

6. निष्कर्ष:

भारतीय तत्त्वज्ञानामध्ये 'इतरांची सेवा' हा एक अत्यंत महत्त्वाचा नैतिक आणि आध्यात्मिक मूल्यदृष्टिकोन मानला जातो. 'वसुधैव कुटुंबकम्', 'परोपकाराय पुण्याय', 'नर सेवा हीच नारायण सेवा' यांसारख्या संकल्पना भारतीय संस्कृतीत सहकार्य, परस्परावलंबन आणि परोपकार यांची जाणीव करून देतात. भारतीय तत्त्वज्ञानात व्यक्तीच्या आत्मोन्नतीसाठी केवळ व्यक्तिगत साधना पुरेशी नसून समाजाशी एकात्मता आणि इतरांच्या कल्याणासाठी केलेली सेवा हीही महत्वपूर्ण मानली जाते.

भारतीय तात्त्विक परंपरेत सहकार्य आणि सेवा या संकल्पनांचा अभ्यास विचारात घेतला जाणार आहे. वेद, उपनिषद, भगवद्गीता, बौद्ध व जैन तत्त्वज्ञान तसेच संतपरंपरेतील विचारांचा संदर्भ घेऊन 'सहकार्याद्वारे इतरांची सेवा' या मूल्याचे तात्त्विक विश्लेषण केले आहे. भारतीय तत्त्वज्ञानानुसार प्रत्येक व्यक्ती ही समाजाचा अविभाज्य घटक असून तिचे नैतिक कर्तव्य म्हणजे इतरांच्या कल्याणासाठी प्रयत्न करणे होय.

आधुनिक समाजात व्यक्तिवाद, स्पर्धा आणि भौतिकवाद वाढत असताना मानवी मूल्यांचे संवर्धन करण्यासाठी भारतीय तत्त्वज्ञानातील सेवा-भावना आणि सहकार्याची संकल्पना अधिक महत्त्वाची व मोलाची ठरते. सहकार्याच्या माध्यमातून इतरांची सेवा करणे हे मानवतेच्या विकासासाठी अत्यंत आवश्यक तत्त्व मानले जाते.

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भारतातील सहकारी चळवळ: एक आढावा

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सारांश: भारतामधील सहकारी संस्था ग्रामीण आणि अर्ध-शहरी अर्थव्यवस्थेत अत्यंत महत्त्वपूर्ण आहेत. या संशोधनात सहकारी संस्थांचा इतिहास, कायदे, कर्ज सहकारी संस्था, सुधारणा आणि आव्हाने यांचा सखोल अभ्यास केला आहे. सहकारी चळवळीची सुरुवात १९०४ मध्ये मध्ये सहकारी पतसंस्था कायदा पासून झाली. स्वातंत्र्यपूर्व काळात शेतकऱ्यांना आर्थिक मदत पुरवण्यासाठी आणि सावकारकडून शोषण टाळण्यासाठी या संस्थांची स्थापना झाली. १९१२ आणि १९१९ मध्ये कायद्यांत सुधारणा करून संस्थांचा कार्यक्षेत्र वाढवला गेला. स्वतंत्र भारतात राज्य सहकारी कायदे, बहु-राज्य सहकारी संस्था कायदा, १९८४ आणि १९७५ संवैधानिक सुधारणा, २०११ यांमुळे सहकारी संस्थांना स्वायत्तता, सदस्यकेंद्रित लोकशाही आणि कायदेशीर संरक्षण मिळाले. संशोधनात कर्ज सहकारी संस्था यावर विशेष लक्ष आहे. यामध्ये प्राथमिक कृषी पतसंस्था (PACS) चे कार्य, उद्दिष्टे, फायदे, आव्हाने आणि आधुनिक सुधारणा यांचा सखोल अभ्यास केला आहे. PACS शेतकऱ्यांना कृषी कर्ज, बचत योजना, आर्थिक मार्गदर्शन आणि स्थानिक आर्थिक समावेशन यासाठी महत्त्वपूर्ण संस्था आहेत. या संस्थांमुळे ग्रामीण भागातील शेतकरी आर्थिक स्थैर्य आणि स्वावलंबन साधू शकतात. अखेर या अभ्यासातून स्पष्ट होते की सहकारी संस्था ग्रामीण भारतात आर्थिक समावेशन, स्थिर उत्पन्न, रोजगार निर्मिती आणि सदस्यकेंद्रित लोकशाही वाढवण्यासाठी अत्यंत महत्त्वपूर्ण आहेत. सुधारित प्रशासन, डिजिटलीकरण आणि धोरणात्मक सुधारणा केल्यास या संस्थांचा परिणाम अधिक टिकाऊ आणि प्रभावी होऊ शकतो.

बिजशब्द: सहकारी संस्था, कर्ज सहकारी संस्था, PACS, कायदे, सदस्यकेंद्रित लोकशाही, आर्थिक समावेशन, ग्रामीण विकास, इतिहास.

१. प्रस्तावना:

सहकार ही संकल्पना केवळ भारतापुरती मर्यादित नसून ती एक जागतिक चळवळ आहे. आंतरराष्ट्रीय स्तरावर सहकार चळवळीने आर्थिक समावेशन, गरिबी निर्मूलन आणि शाश्वत विकासासाठी महत्त्वपूर्ण योगदान दिले आहे. विविध देशांमध्ये सहकारी संस्था कृषी, बँकिंग, उत्पादन आणि सेवा क्षेत्रात यशस्वीपणे कार्यरत आहेत. या चळवळीला आंतरराष्ट्रीय स्तरावर संस्थात्मक पाठबळ मिळाल्यामुळे तिचा विस्तार आणि प्रभाव अधिक वाढला आहे. भारतामध्ये सहकार चळवळीची सुरुवात १९०४ च्या सहकारी पतसंस्था कायद्यापासून झाली आणि कालांतराने ती ग्रामीण व शहरी अर्थव्यवस्थेचा एक महत्वाचा घटक बनली. राष्ट्रीय स्तरावर सहकारी संस्थांनी शेती, दुग्धव्यवसाय, साखर उद्योग, बँकिंग आणि गृहनिर्माण या क्षेत्रांत मोठे योगदान दिले आहे. विशेषतः स्वातंत्र्यानंतर सरकारने सहकार क्षेत्राला प्रोत्साहन देऊन सर्वसमावेशक विकासाचे प्रभावी साधन म्हणून त्याचा वापर केला. राज्य स्तरावर पाहता, महाराष्ट्रासारख्या राज्यांनी सहकार चळवळीत आघाडी घेतली आहे. साखर कारखाने, दुग्धसंस्था, पतसंस्था आणि विविध सहकारी संघटनांनी ग्रामीण भागातील आर्थिक विकासाचा चालना दिली आहे. राज्यातील सहकारी संस्थांनी रोजगारनिर्मिती, उत्पादनवाढ आणि स्थानिक विकासात महत्वाची भूमिका बजावली आहे.

सहकारी संस्थांची कार्यपद्धती लोकशाही तत्वांवर आधारित असून “एक सदस्य, एक मत” या तत्त्वामुळे सर्व सदस्यांना समान संधी मिळते. त्यामुळे सामाजिक समानता, ऐक्य आणि स्वावलंबन वाढीस लागते. तथापि, सहकार चळवळीसमोर व्यवस्थापनातील कमतरता, राजकीय हस्तक्षेप आणि आर्थिक अडचणी यांसारखी आव्हाने

देखील आहेत. त्यामुळे या चळवळीचा आंतरराष्ट्रीय, राष्ट्रीय आणि राज्य स्तरावर सखोल अभ्यास करणे आवश्यक ठरते. या संशोधनामध्ये सहकार चळवळीचा विविध स्तरांवरील विकास, तिचे योगदान, अडचणी आणि भविष्यातील संधी यांचा सर्वंकष अभ्यास करण्यात येणार आहे.

२. साहित्य समीक्षा:

२.१ आंतरराष्ट्रीय स्तरावर केलेल्या अभ्यासानुसार, सहकारी संस्था आर्थिक समावेशन आणि शाश्वत विकासासाठी प्रभावी साधन मानल्या जातात. अनेक संशोधकांनी असे नमूद केले आहे की, सहकार चळवळ ही लघु आणि मध्यम उत्पन्न गटांसाठी आर्थिक स्थैर्य निर्माण करण्यास मदत करते. तसेच, या संस्था लोकशाही तत्त्वांवर आधारित असल्यामुळे सामाजिक समानता वाढविण्यातही त्यांचा महत्त्वाचा वाटा आहे. Principles and Practice of Cooperation या ग्रंथात T. N. Hajela यांनी सहकार चळवळीची मूलतत्त्वे, इतिहास आणि विविध देशांतील विकास यांचे विश्लेषण केले आहे. त्यांनी सहकार ही आर्थिक आणि सामाजिक परिवर्तनाची प्रभावी साधन असल्याचे स्पष्ट केले आहे.

२.२ राष्ट्रीय स्तरावर, भारतातील सहकार चळवळीवर अनेक अभ्यास करण्यात आले आहेत. काही संशोधनांमध्ये सहकारी संस्थांनी ग्रामीण विकास, शेती उत्पादनवाढ, कर्जसुविधा आणि रोजगारनिर्मितीत दिलेल्या योगदानावर भर दिला आहे. विशेषतः दुग्ध आणि साखर सहकारी संस्थांच्या यशस्वी मॉडेल्सचा अभ्यास करून सहकार चळवळीची परिणामकारकता अधोरेखित करण्यात आली आहे. Cooperative Management and Administration या पुस्तकात लेखक Kamat यांनी सहकारी संस्थांचे व्यवस्थापन, रचना आणि कार्यपद्धती यांचे सविस्तर वर्णन केले आहे. त्यांनी सहकारी संस्थांमधील लोकशाही तत्त्वे आणि सदस्यांच्या सहभागाचे महत्त्व अधोरेखित केले आहे. Cooperation in India या पुस्तकात V. K. R. V. Rao यांनी भारतातील सहकार चळवळीचा विकास आणि तिचे आर्थिक परिणाम यांचे सखोल विश्लेषण केले आहे. तसेच Cooperative Movement in India या पुस्तकात R. D. Bedi यांनी भारतातील सहकार चळवळीचा ऐतिहासिक विकास, विविध क्षेत्रांतील विस्तार आणि त्याचे सामाजिक-आर्थिक परिणाम मांडले आहेत.

२.३ राज्य स्तरावर, विशेषतः महाराष्ट्रातील सहकारी संस्थांवर केलेल्या अभ्यासांमध्ये असे दिसून येते की, साखर कारखाने, पतसंस्था आणि दुग्धसंस्था यांनी ग्रामीण अर्थव्यवस्थेला मोठी चालना दिली आहे. काही संशोधनांनी सहकारी क्षेत्रातील व्यवस्थापनातील त्रुटी, राजकीय हस्तक्षेप आणि आर्थिक अडचणी यांसारख्या समस्यांवरही प्रकाश टाकला आहे. Theory and Practice of Cooperation या ग्रंथात B. S. Mathur यांनी सहकारी संस्थांचे सैद्धांतिक आणि व्यावहारिक पैलू स्पष्ट केले आहेत. त्यांनी सहकार क्षेत्रातील अडचणी आणि सुधारणा यावरही भर दिला आहे.

तथापि, उपलब्ध साहित्याचा आढावा घेतल्यास असे लक्षात येते की, सहकार चळवळीचा सर्व स्तरांवर (आंतरराष्ट्रीय, राष्ट्रीय आणि राज्य) एकत्रित व तुलनात्मक अभ्यास मर्यादित प्रमाणात झाला आहे. त्यामुळे या संशोधनामध्ये या तिन्ही स्तरांचा एकत्रित अभ्यास करून सहकार चळवळीचे व्यापक चित्र मांडण्याचा प्रयत्न करण्यात येणार आहे.

३. संशोधन उद्दिष्टे:

- सहकारी संस्थांच्या इतिहासाचा अभ्यास करून त्यांच्या विकासाची आणि सामाजिक-आर्थिक योगदानाची समज करून घेणे.
- सहकारी संस्थांशी संबंधित विविध कायदे आणि नियमांचे विश्लेषण करून त्यांची कार्यपद्धती समजावून घेणे.
- प्राथमिक कृषी पतसंस्था (PACS) यांच्या रचनेचा, कार्याचा आणि ग्रामीण अर्थव्यवस्थेतील भूमिकेचा अभ्यास करणे.
- सहकारी संस्थांचे फायदे ओळखून त्यांचा सदस्य आणि समाजावर होणारा सकारात्मक परिणाम स्पष्ट करणे.
- सहकारी संस्थांसमोरील आव्हाने ओळखून त्यावर उपाययोजना व सुधारणा सुचवणे..

४. संशोधन पद्धती:

प्रकार: गुणात्मक आणि वर्णनात्मक संशोधन, केस स्टडीसह.

स्रोत:

- प्राथमिक: PACS सदस्य व व्यवस्थापकांचे मुलाखती
- द्वितीयक: कायदे, पुस्तके, शोधनिबंध, सरकारी अहवाल

माहिती गोळा करण्याची पद्धत: साहित्य समीक्षा, मुलाखती, केस स्टडी, दस्तऐवज विश्लेषण
विश्लेषण: सैद्धांतिक व तुलनात्मक विश्लेषण, PACS कार्यप्रणालीचे फायदे, आव्हाने व सुधारणा तपासणे.

५. सहकारी कायद्यांचा ऐतिहासिक विकास

५.१ स्वातंत्र्यपूर्व काळातील सहकार चळवळ

भारतामधील सहकारी चळवळीची सुरुवात २०व्या शतकाच्या सुरुवातीस झाली. त्या काळात बहुसंख्य लोक शेतीवर अवलंबून होते आणि शेतकऱ्यांना आर्थिक अडचणींचा सामना करावा लागत असे. सावकारांकडून घेण्यात येणारे उच्च व्याज आणि कर्जदात्यांचा दबाव कमी करण्यासाठी सहकारी संस्थांची निर्मिती झाली. १९०४ मध्ये सहकारी पतसंस्था कायदा लागू करून सहकारी संस्थांना कायदेशीर मान्यता मिळाली. या काळातील सहकार मुख्यतः शेतकऱ्यांच्या आर्थिक हितासाठी आणि ग्रामीण भागातील स्थैर्य साधण्यासाठी केंद्रित होता.

५.१.१ सहकारी पतसंस्था कायदा, १९०४:

भारतामधील सहकारी चळवळीचा कायदेशीर पाया सहकारी पतसंस्था कायदा, १९०४ या कायद्याद्वारे ठेवला गेला. हा भारतातील पहिला सहकारी कायदा मानला जातो आणि त्याचा उद्देश शेतकऱ्यांना आर्थिक स्थैर्य प्रदान करणे व सावकारांचा दबाव कमी करणे हा होता.

१. पार्श्वभूमी

१९व्या शतकाच्या शेवटी भारतातील शेतकऱ्यांची स्थिती अत्यंत कमजोर होती. त्यांना सावकारांकडून उच्च व्याजदराने कर्ज घ्यावे लागत होते, ज्यामुळे आर्थिक दबाव वाढत होता. या परिस्थितीत, शेतकऱ्यांना सुरक्षित कर्ज देण्यासाठी आणि त्यांचा आर्थिक सक्षमता वाढवण्यासाठी या कायद्याची निर्मिती झाली.

२. उद्दिष्टे: शेतकऱ्यांना कमी व्याजदराने सुरक्षित कर्ज उपलब्ध करणे, सदस्यांमधील आर्थिक सहकार्य आणि विश्वास वाढवणे, ग्रामीण भागात आर्थिक स्थैर्य निर्माण करणे, कर्जदारांच्या दडपणापासून शेतकऱ्यांचे संरक्षण करणे.

३. मुख्य वैशिष्ट्ये

सदस्यत्व: संस्थेत सदस्य ठराविक भू-स्वामी किंवा शेतकरी असले पाहिजेत.

नोंदणी: संस्थांना स्थानिक प्रशासनात नोंदणी करणे अनिवार्य.

भांडवल: सुरुवातीची भांडवली मर्यादा ठरवली, जी सदस्यांच्या योगदानावर आधारित होती.

लोकशाही तत्त्व: “एक सदस्य, एक मत” या तत्त्वावर आधारित सदस्यांचा अधिकार.

व्यवस्थापन: संस्थेचे सर्व आर्थिक आणि प्रशासकीय निर्णय सदस्यांच्या संयुक्त निर्णयावर आधारित.

४. मर्यादा

सुरुवातीला हा कायदा फक्त कर्जपुरवठ्यावर केंद्रित होता, उत्पादन, विपणन किंवा इतर सहकारी क्षेत्रांचा विचार नव्हता. संस्थांचा विस्तार हळूहळू झाला कारण प्रशासनाकडून मार्गदर्शन आणि निरीक्षण कमी होते. काही शेतकऱ्यांना कायद्याची माहिती नसल्यामुळे संस्थेत सामील होणे कठीण होते.

५. महत्त्व

भारतातील सहकारी चळवळीचा पायाभूत आधार असून शेतकऱ्यांना आर्थिक स्थैर्य मिळाले आणि सावकारांचा दबाव कमी झाला तसेच सदस्यांमधील सहकार्य आणि विश्वासाची संकल्पना बळकट झाली.

पुढील १९१२ व १९१९ च्या कायद्यांसाठी मार्गदर्शक ठरले

५.१.२ सहकारी संस्था कायदा, १९१२

१. पार्श्वभूमी

१९०४ च्या सहकारी पतसंस्था कायद्याने शेतकऱ्यांना कर्जपुरवठा उपलब्ध करून दिला, पण हा कायदा केवळ पतसंस्थांपुरताच मर्यादित होता. १९१२ मध्ये सहकारी संस्था कायदा लागू करून सहकारी चळवळीला अधिक व्यापक स्वरूप देण्यात आले. या कायद्याद्वारे केवळ कर्जपुरवठा नाही, तर उत्पादन, विपणन आणि इतर सहकारी संस्थांनाही कायदेशीर मान्यता मिळाली.

२. उद्दिष्टे

विविध प्रकारच्या सहकारी संस्थांना कायदेशीर मान्यता देणे, सदस्यांच्या आर्थिक हितासाठी सहकार वाढवणे, ग्रामीण विकास आणि उत्पादनवाढीला चालना देणे, सहकारी संस्थांचे अधिक प्रभावी व्यवस्थापन सुनिश्चित करणे.

३. मुख्य वैशिष्ट्ये

सदस्यत्व: फक्त विशिष्ट समुदाय किंवा भू-स्वामी/शेतकरी सदस्य असू शकतात.

नोंदणी: संस्थांना नोंदणी अनिवार्य.

संस्थात्मक विस्तार: पतसंस्था, उत्पादन संस्था, विपणन संस्था अशा विविध प्रकारच्या सहकारी संस्थांना मान्यता.

लोकशाही तत्त्व: प्रत्येक सदस्याला “एक सदस्य, एक मत” हक्क.

कायदेशीर संरक्षण: संस्थांना कायदेशीर व्यक्तिमत्व मिळाले, ज्यामुळे व्यवहारात विश्वास निर्माण झाला.

४. महत्त्व

सहकारी चळवळीला व्यापक स्वरूप दिले. केवळ कर्जपुरवठा नव्हे, तर ग्रामीण उत्पादन, विपणन व आर्थिक विकासावर भर दिला.

५.२ स्वातंत्र्यानंतर काळातील सहकार चळवळ

५.२.१ राज्य सहकारी कायदे

स्वातंत्र्यानंतर सहकारी संस्थांचा विकास अधिक स्थानिक आणि प्रभावी करण्यासाठी राज्य सरकारांनी स्वतंत्र राज्य सहकारी कायदे तयार केले. या कायद्यांद्वारे प्रत्येक राज्याला सहकारी संस्थांचे नियमन, नोंदणी आणि व्यवस्थापन करण्याचा अधिकार मिळाला. या काळात सहकारी संस्थांचा मुख्य उद्देश शेतकऱ्यांना आर्थिक सहाय्य देणे, उत्पादन व विपणन क्षेत्रांचा विकास करणे आणि ग्रामीण भागातील आर्थिक स्थैर्य साधणे हा होता. राज्य कायद्यांमुळे सहकारी संस्थांना स्थानिक गरजेनुसार विस्तार आणि स्थिरता मिळाली.

५.२.२ महाराष्ट्र सहकारी संस्था कायदा, १९६०

महाराष्ट्र सहकारी संस्था कायदा, १९६० हा राज्यस्तरीय सहकारी कायद्यांचा महत्त्वाचा भाग आहे. स्वातंत्र्यानंतर राज्य सरकारला सहकारी संस्थांचा विकास आणि नियमन करण्यासाठी स्वतंत्र अधिकार प्राप्त झाले. या कायद्याचे प्राथमिक लक्ष शेतकऱ्यांना आर्थिक सहाय्य उपलब्ध करून देणे, उत्पादन आणि विपणन क्षेत्रांचा विकास करणे आणि ग्रामीण भागातील आर्थिक स्थैर्य साधणे असे होते.

या कायद्याने सहकारी संस्थांना कायदेशीर व्यक्तिमत्व दिले आणि सदस्यांमधील लोकशाही तत्त्वांना बळकटी दिली. सदस्यांना “एक सदस्य, एक मत” हक्क देऊन संस्थांचे व्यवस्थापन पारदर्शक आणि समावेशक बनवले गेले. तसेच या कायद्याने संस्थांचे व्यापक स्वरूप निश्चित केले- त्यात उत्पादन संस्था, विपणन संस्था, पतसंस्था आणि दुग्ध सहकारी संस्था यांचा समावेश होता.

सैद्धांतिक दृष्टिकोनातून, हा कायदा सहकारी संस्थांना स्थायित्व, पारदर्शकता आणि सामाजिक व आर्थिक जबाबदारी यांची हमी देतो. यामुळे सहकारी संस्थांचा ग्रामीण विकास, उत्पादनवाढ आणि रोजगारनिर्मितीमध्ये प्रभावी सहभाग सुनिश्चित होतो. हा कायदा पुढील राष्ट्रीय कायदे आणि सुधारणा (बहु-राज्य सहकारी संस्था कायदा, १९८४, संविधानातील ९७वा सुधारणा कायदा, २०११) यासाठी पाया निर्माण करणारा ठरला.

५.२.३ प्रमुख वैशिष्ट्ये

वैशिष्ट्य	वर्णन
नोंदणी	संस्थांना स्थानिक सहकारी रजिस्ट्रारकडे नोंदणी करणे अनिवार्य; नोंदणीमुळे संस्थेला कायदेशीर व्यक्तिमत्व प्राप्त होते.
सदस्यत्व	संस्थेत स्थानिक शेतकरी, कृषक आणि ग्रामीण लोकांचा समावेश; सदस्य “एक सदस्य, एक मत” तत्त्वावर आधारित मतदानाचा हक्क राखतात.
लोकशाही तत्त्व	संस्थेचे सर्व निर्णय सदस्यांच्या संयुक्त निर्णयावर आधारित; व्यवस्थापन पारदर्शक व सहभागी.
संस्थात्मक स्वरूप	उत्पादन संस्था, विपणन संस्था, पतसंस्था, दुग्ध सहकारी संस्था यांचा समावेश; विविध क्षेत्रांमध्ये सहकारी संस्था काम करू शकतात.
व्यवस्थापन	संस्थेचे आर्थिक, प्रशासकीय व सामाजिक निर्णय सदस्यांच्या सहभागाने घेतले जातात; समिती किंवा संचालक मंडळाद्वारे कामकाज केले जाते.
नियमन व देखरेख	राज्य सरकार किंवा सहकारी विभाग संस्थांचा नियमित आढावा घेते, आर्थिक स्थैर्य आणि कायदेशीर पालन सुनिश्चित करते.

५.२.३ बहु-राज्य सहकारी संस्था कायदा, १९८४

स्वातंत्र्यानंतर भारतातील सहकारी संस्थांचा विकास मुख्यतः राज्यस्तरीय कायद्यांनुसार झाला होता. मात्र काही सहकारी संस्था एकापेक्षा अधिक राज्यांमध्ये कार्य करत असल्यामुळे त्यांना राष्ट्रीय स्तरावर नियमनाची आवश्यकता निर्माण झाली. या गरजेच्या पार्श्वभूमीवर १९८४ मध्ये बहुराज्यीय सहकारी संस्था कायदा लागू करण्यात आला. हा कायदा बहु-राज्य सहकारी संस्थांचे नोंदणी, व्यवस्थापन, आर्थिक नियमन, सदस्यत्व आणि पारदर्शकता सुनिश्चित करतो. कायद्याद्वारे संस्थांना राष्ट्रीय स्तरावर कायदेशीर मान्यता मिळाली आणि राज्यस्तरीय मर्यादांपेक्षा जास्त विस्तृत कार्यक्षेत्र उपलब्ध झाले.

या कायद्याचे उद्दिष्ट बहु-राज्य सहकारी संस्थांचा विकास प्रभावी, पारदर्शक आणि सदस्यकेंद्रित करणे हे आहे. संस्थांना बँकिंग, उत्पादन, विपणन, दुग्ध उद्योग व इतर सहकारी क्षेत्रात कार्य करण्याची परवानगी आहे. सदस्यांना “एक सदस्य, एक मत” हक्क दिले गेले आहेत, ज्यामुळे व्यवस्थापनात लोकशाही तत्त्व आणि पारदर्शकता राखली जाते.

कायद्याचे प्रभावी पालन केंद्रीय सरकार किंवा बहुराज्यीय सहकारी संस्थांचे निबंधक द्वारे सुनिश्चित केले जाते. संस्थांनी वार्षिक बैठक घेणे, आर्थिक अहवाल तयार करणे, ऑडिट करणे आणि इतर कायदेशीर अटींचे पालन करणे अनिवार्य आहे.

वर्णनात्मक दृष्टीने पाहता, हा कायदा बहु-राज्य सहकारी संस्थांना राष्ट्रीय स्तरावर स्थायित्व, विश्वासार्हता आणि विकासाची संधी प्रदान करतो. यामुळे ग्रामीण विकास, उत्पादन, विपणन आणि रोजगारनिर्मितीमध्ये संस्थांचा प्रभाव वाढला. या कायद्यामुळे पुढील सुधारणा, जसे की १७वी घटनादुरुस्ती, २०११, सुलभ आणि प्रभावी रित्या लागू होऊ शकल्या.

मुख्य वैशिष्ट्ये

वैशिष्ट्य	वर्णन
नोंदणी	बहु-राज्य सहकारी संस्था केवळ बहुराज्यीय सहकारी संस्थांचे निबंधक कडे नोंदणी करू शकतात; नोंदणीमुळे संस्थेला राष्ट्रीय स्तरावर कायदेशीर व्यक्तिमत्व प्राप्त होते.
सदस्यत्व	सदस्य एक किंवा अनेक राज्यांमधील शेतकरी, कृषक किंवा इतर सहकारी लोक असू शकतात
व्यवस्थापन	संस्थेचे निर्णय मंडळ (Board of Directors) द्वारे घेतले जातात; लोकशाही तत्त्व (एक सदस्य, एक मत) लागू.
नियमन व देखरेख	केंद्रीय सरकार किंवा सहकारी विभाग संस्थेची नियमित तपासणी करतो.
उद्दिष्ट आणि क्षेत्र	उत्पादन, विपणन, बँकिंग, दुग्ध उद्योग व इतर सहकारी क्षेत्रात कार्य करण्यास परवानगी.
कायद्याचे पालन	आर्थिक अहवाल, वार्षिक बैठक, ऑडिट आणि अन्य कायदेशीर अटींचे पालन अनिवार्य.

५.२.४ संविधानातील ९७वा सुधारणा कायदा, २०११

पार्श्वभूमी:

भारतात सहकारी संस्थांना आर्थिक व सामाजिक विकासासाठी महत्वाचे माध्यम मानले जाते. तथापि, राज्यस्तरीय कायदे असूनही सहकारी संस्थांमध्ये पारदर्शकता, सदस्यांचा सक्रिय सहभाग आणि सामाजिक व आर्थिक जबाबदारी सुनिश्चित करणे आवश्यक होते. या गरजेच्या पार्श्वभूमीवर २०११ मध्ये ९७ वा घटनादुरुस्ती कायदा लागू करण्यात आला. या दुरुस्ती कायद्याचा समावेश घटनेच्या भाग IXB (सहकारी संस्था) मध्ये करण्यात आला आणि सहकारी संस्थांना घटनात्मक दर्जा मिळाला..

• उद्दिष्टे:

- सहकारी संस्थांना संविधानिक दर्जा देऊन कायदेशीर स्थैर्य सुनिश्चित करणे.
- सदस्यकेंद्रित लोकशाही तत्त्वांना बळकटी देणे
- संस्थांमध्ये पारदर्शकता, जबाबदारी आणि व्यवस्थापन सुधारणा सुनिश्चित करणे.

- आर्थिक समावेशन, ग्रामीण विकास आणि सामाजिक न्याय साधणे.
- सहकारी संस्थांना आधुनिक आर्थिक व सामाजिक गरजांशी सुसंगत करणे.

वैशिष्ट्ये:

- संस्थांना संविधानाच्या भाग IXB अंतर्गत संविधानिक मान्यता प्राप्त.
- स्वायत्तता सुनिश्चित: निर्णय प्रक्रियेत सदस्यांचा सक्रिय सहभाग.
- लोकशाही तत्त्व (एक सदस्य, एक मत) आधारित व्यवस्थापन.
- पारदर्शकता आणि जबाबदारी: आर्थिक अहवाल, ऑडिट, वार्षिक बैठक अनिवार्य.
- सदस्यांचा हक्क: माहिती मिळवणे, निर्णय प्रक्रियेत सहभागी होणे, लाभात समान अधिकार.
- राज्य आणि केंद्रीय संस्थांच्या देखरेखीखाली पण स्वायत्त व्यवस्थापन.

महत्त्व:

हा कायदा सहकारी संस्थांना संविधानिक सुरक्षा, स्थायित्व आणि सामाजिक व आर्थिक जबाबदारी सुनिश्चित करतो. लोकशाही तत्त्वे संस्थांमध्ये आत्मसात करून, सहकारी संस्थांचा ग्रामीण आणि आर्थिक विकासात प्रभावी सहभाग वाढतो. तसेच संस्थांचे नियमन आधुनिक आर्थिक व सामाजिक गरजांशी सुसंगत होते.

प्रभाव:

- सहकारी संस्थांचा कायदेशीर व सामाजिक दर्जा मजबूत झाला.
- ग्रामीण विकास, उत्पादन, विपणन, बँकिंग व दुग्ध उद्योग क्षेत्रात संस्थांचा प्रभाव वाढला.
- सदस्यांचा सहभाग, विश्वास आणि संस्थांचे पारदर्शक व्यवस्थापन सुनिश्चित झाले.
- या सुधारणा कायद्याने राष्ट्रीय सहकार धोरण आणि इतर पुढील धोरणांसाठी आधारभूत संरचना तयार केली.

मुख्य वैशिष्ट्ये

वैशिष्ट्य	वर्णन
संविधानिक दर्जा	सहकारी संस्था आता संविधानाच्या Part IXB अंतर्गत ओळखल्या जातात.
स्वायत्तता	सहकारी संस्था आपले कार्य निर्णय मंडळ आणि सदस्यांच्या सहभागाद्वारे स्वतंत्रपणे चालवू शकतात.
लोकशाही तत्त्व	प्रत्येक सदस्याला “एक सदस्य, एक मत” हक्क; व्यवस्थापन आणि निर्णय प्रक्रियेत सदस्यांचा सक्रिय सहभाग.
पारदर्शकता आणि जबाबदारी	आर्थिक अहवाल, ऑडिट आणि बैठका अनिवार्य; संस्थांचे व्यवहार सार्वजनिक व स्वच्छ असावे.
सदस्यांचा हक्क	सदस्यांना निर्णय प्रक्रियेत सहभाग, माहिती मिळवण्याचा हक्क आणि संस्थेच्या लाभात समान हक्क.
राज्य आणि केंद्रीय सरकारची भूमिका	राज्य सहकारी विभाग किंवा केंद्रीय संस्था संस्थांची देखरेख करतात, परंतु स्वायत्तता राखली जाते.

संविधानातील समावेश: ९७ व्या सुधारणा कायद्याने भारतीय संविधानाच्या भाग IXB मध्ये सहकारी संस्थांसाठी स्वतंत्र कलम जोडले.

या भाग XB मध्ये सहकारी संस्थांना संविधानिक दर्जा प्रदान केले गेले. सहकारी संस्थांचे स्वायत्त व्यवस्थापन, सदस्यांचा सहभाग आणि पारदर्शकता सुनिश्चित करण्यासाठी कलम रचले गेले.

६. सहकारी संस्थांसाठी मूलभूत हक्क आणि न्यायिक अर्थव्याख्या

६.१ मूलभूत हक्क आणि लोकशाही व्यवस्थापन

भारतीय संविधानात सहकारी संस्थांचा समावेश केवळ आर्थिक किंवा सामाजिक उपक्रम म्हणून नाही तर मूलभूत हक्क म्हणूनही केला आहे. १७व्या संविधान सुधारणा कायदा, २०११ नंतर सहकारी संस्थांना संविधानिक दर्जा प्राप्त झाले. या अंतर्गत नागरिकांना सहकारी संस्था स्थापन करण्याचा हक्क दिला गेला, ज्यामुळे व्यक्ती आणि समुदायांना आर्थिक स्वायत्तता मिळते.

याशिवाय, सहकारी संस्थांमध्ये लोकशाही व्यवस्थापन प्रावधान अनिवार्य करण्यात आले आहे. प्रत्येक

सदस्याला “एक सदस्य, एक मत” हक्क दिला आहे, ज्यामुळे संस्थांचे निर्णय सदस्यकेंद्रित आणि पारदर्शक पद्धतीने घेतले जातात. संस्थांमध्ये स्वायत्तता राखली जाते, परंतु नियम व आचारसंहिता पाळणे अनिवार्य असते.

६.२ न्यायिक अर्थव्याख्या

सहकारी संस्थांवरील मूलभूत हक्क व संविधानिक प्रावधानांविषयी अनेक प्रकरणांमध्ये न्यायालयीन स्पष्टीकरण आले आहे.

उदाहरणार्थ, Union of India v. Rajendra N. Shah (2021) या प्रकरणात उच्च न्यायालयाने सहकारी संस्थांचा संविधानिक दर्जा आणि सदस्यांचा हक्क स्पष्ट केला. या न्यायनिर्णयात सहकारी संस्थांचा स्वायत्तता आणि लोकशाही नियंत्रण हे संविधानाच्या मूळ तत्वांशी सुसंगत असल्याचे मान्य करण्यात आले.

६.३ संघराज्यीयतेवर परिणाम

सहकारी संस्थांचा संविधानिक दर्जा आणि न्यायालयीन अर्थव्याख्या भारतीय संघराज्यीय संरचनेवर महत्त्वपूर्ण परिणाम करतात.

1. राज्य आणि केंद्र सरकार यांच्यातील सहकारी संस्थांवरील अधिकाराचे संतुलन सुनिश्चित होते.
2. केंद्राने राष्ट्रीय धोरणे व मार्गदर्शन दिले तरी, संस्थांचे व्यवस्थापन राज्य आणि स्थानिक स्तरावर स्वायत्त राहते.
3. त्यामुळे केंद्रीयीकृत व स्थानिक स्वायत्ततेमध्ये संतुलन राखले जाते, जे संघराज्यीय तत्वांना बळकटी देते.

७. राष्ट्रीय सहकारी धोरण

भारतात सहकारी चळवळीला आर्थिक व सामाजिक विकास साधण्यासाठी महत्त्वाचे माध्यम मानले जाते. राज्यस्तरीय कायदे, बहुराज्यीय सहकारी संस्था कायदा (१९८४) आणि ९७ वी घटनादुरुस्ती (२०११) नंतर, सहकारी संस्थांचा राष्ट्रीय स्तरावर समन्वय आणि धोरणात्मक विकास आवश्यक ठरला. या गरजेच्या पार्श्वभूमीवर केंद्र सरकारने राष्ट्रीय सहकार धोरण तयार केली. हे धोरण सहकारी संस्थांना स्थायित्व, पारदर्शकता, सदस्यकेंद्रित लोकशाही आणि आर्थिक व सामाजिक जबाबदारी सुनिश्चित करण्यासाठी तयार केले गेले. यामध्ये सहकारी संस्थांना कायदेशीर आधार, आर्थिक सहाय्य, प्रशिक्षण, उत्पादन व विपणन क्षेत्रातील मार्गदर्शन, तसेच राष्ट्रीय स्तरावर समन्वय साधण्याचे उपाय यांचा समावेश आहे.

धोरणाचे प्रमुख उद्दिष्टे ग्रामीण विकास, सामाजिक समावेशन, रोजगार निर्मिती आणि सदस्यांचा सक्रिय सहभाग सुनिश्चित करणे आहेत. “एक सदस्य, एक मत” हे लोकशाही तत्त्व संस्थांमध्ये अवलंबले जाते, ज्यामुळे संस्थांचे निर्णय अधिक पारदर्शक आणि सहभागी बनतात. तसेच धोरणाने सहकारी संस्थांच्या आर्थिक कार्यक्षमता आणि उत्पादनक्षमतेत सुधारणा केली.

राष्ट्रीय सहकारी धोरणामुळे सहकारी संस्थांचा प्रभाव केवळ स्थानिक किंवा राज्यस्तरीय मर्यादापुरता मर्यादित राहिला नाही, तर संपूर्ण भारतभर संस्थांचा समन्वय, स्थायित्व आणि धोरणात्मक दिशा सुनिश्चित झाली. या धोरणामुळे संस्थांच्या कामकाजात पारदर्शकता, जबाबदारी आणि सामाजिक व आर्थिक समावेशन वाढले, तसेच सहकारी चळवळीसाठी मजबूत आणि आधुनिक आधार तयार झाला.

यामुळे सहकारी संस्थांचे कार्य ग्रामीण अर्थव्यवस्था, उत्पादन, विपणन, बँकिंग, दुग्ध उद्योग आणि रोजगार निर्मितीमध्ये अधिक प्रभावी झाले. राष्ट्रीय सहकार धोरण हा एक संपूर्ण भारतभर सहकारी संस्थांचा विकास आणि नियमन सुनिश्चित करणारा धोरणात्मक मार्गदर्शक ठरतो.

८. भारतामधील सहकारी संस्थांचा विकास

क्रमांक	वर्ष / काळ	कायदा / घटना	महत्त्व / वैशिष्ट्ये
१	१९०४	सहकारी कर्ज संस्था कायदा	भारतातील पहिला सहकारी कायदा; ग्रामीण शेतकऱ्यांना कर्ज व बचत सुलभ करण्यासाठी संस्थांची नोंदणी व नियमन सुरू केले.
२	१९१२	सहकारी संस्था कायदा	सहकारी संस्थांच्या कार्यक्षेत्रात विस्तार; संस्थांचा विकास व सदस्यांच्या हक्कांचे संरक्षण.
३	१९१९	सहकारी संस्था कायदा (सुधारणा)	संस्थांच्या कार्यक्षमतेत सुधारणा, नियंत्रण व देखरेखीचे उपाय.

४	१९३२	सहकारी संस्था कायदा (सुधारणा)	ग्रामीण सहकारी संस्थांचे विस्तार व कार्यक्षमता सुनिश्चित करण्यासाठी सुधारणा.
५	१९४२	सहकारी संस्था कायदा (सुधारणा)	सहकारी संस्थांच्या आर्थिक व सामाजिक कार्यक्षमतेला चालना; संस्थांमध्ये पारदर्शकता व नियंत्रण सुधारित.
६	१९४७-१९६०	राज्य सहकारी कायदे	प्रत्येक राज्याने स्वतंत्र सहकारी कायदे लागू केले; स्थानिक नोंदणी, व्यवस्थापन, आर्थिक नियमन सुनिश्चित.
७	१९६०	महाराष्ट्र सहकारी संस्था कायदा	महाराष्ट्र राज्यातील सहकारी संस्थांना कायदेशीर व्यक्तिमत्व; शेतकऱ्यांसाठी उत्पादन, विपणन व आर्थिक सहाय्य सुनिश्चित.
८	१९८४	बहु-राज्य सहकारी संस्था कायदा	बहु-राज्य सहकारी संस्थांसाठी राष्ट्रीय स्तरावर नोंदणी, स्वायत्तता, पारदर्शकता, सदस्यकेंद्रित लोकशाही सुनिश्चित.
९	२०११	९७वा संविधान सुधारणा कायदा	सहकारी संस्थांना संविधानिक दर्जा (Part IXB); स्वायत्तता, पारदर्शकता, सदस्यांचा सहभाग व सामाजिक/आर्थिक जबाबदारी सुनिश्चित.
१०	२००२, २००९, २०१३	राष्ट्रीय सहकारी धोरण	सहकारी संस्थांचा राष्ट्रीय स्तरावर समन्वय, धोरणात्मक दिशा; आर्थिक स्थैर्य, ग्रामीण विकास, रोजगार निर्मिती, पारदर्शकता आणि सदस्यकेंद्रित लोकशाही वाढविणे.

९. सहकारी संस्थांमधील समस्या व आव्हाने

भारतात सहकारी संस्थांचा इतिहास प्रचंड यशस्वी असून ग्रामीण विकास, उत्पादन, विपणन, बँकिंग आणि रोजगार निर्मितीत महत्त्वपूर्ण योगदान राहिले आहे. तरीसुद्धा या संस्थांना अनेक अवरोध आणि आव्हाने भेडसावत आहेत, जे त्यांच्या कार्यक्षमतेवर परिणाम करतात.

९.१. व्यवस्थापकीय आणि प्रशासनिक आव्हाने: सहकारी संस्थांमध्ये प्रभावी व्यवस्थापनाची कमतरता एक मोठे आव्हान आहे. अनेक वेळा संस्थांमध्ये निर्णय प्रक्रियेत राजकीय हस्तक्षेप किंवा व्यक्तीगत हितसंबंध प्रवल होतात, ज्यामुळे संस्थांचा उद्देश पूर्ण होत नाही. योग्य प्रशिक्षित कर्मचाऱ्यांचा अभाव, व्यवस्थापकीय अनुभवाची कमतरता आणि पारदर्शकता न राहणे ही समस्या आहे.

९.२. आर्थिक आव्हाने: सहकारी संस्थांमध्ये आर्थिक स्थैर्य टिकवणे ही एक महत्त्वाची समस्या आहे. कर्ज फेडण्यास अयशस्वी होणे, निधीची गैरवापर, महसूल कमी होणे, आणि सततच्या आर्थिक जोखमीमुळे संस्थांचा विकास मंदावतो. तसेच, संस्थांना बाजारातील स्पर्धा आणि उत्पादन खर्च यासंबंधी योग्य धोरण नसेल, तर त्यांचे आर्थिक स्वास्थ्य धोक्यात येते.

९.३. सदस्यांसंबंधी आव्हाने: सदस्यांचा सक्रिय सहभाग न होणे किंवा सदस्यांमध्ये जागरूकतेचा अभाव ही सहकारी संस्थांची गंभीर समस्या आहे. काही सदस्य फक्त संस्थेच्या लाभासाठी सहभागी होतात आणि निर्णय प्रक्रियेत सहभाग घेत नाहीत. यामुळे संस्थेची लोकशाही प्रक्रिया कमजोर होते.

९.४. कायदेशीर आणि नियामक आव्हाने: सहकारी संस्थांवर अनेक वेळा कायदेशीर अडचणी आणि नियमांचे पालन न होणे ही समस्या निर्माण होते. राज्यस्तरीय व केंद्रस्तरीय नियमांमध्ये समन्वय न राहणे, नोंदणी व अहवाल प्रक्रियेत विलंब, तसेच १७वी घटनादुरुस्ती नंतरही पूर्ण अंमलबजावणी न होणे ही आव्हाने दिसतात.

९.५. सामाजिक व पर्यावरणीय आव्हाने: सहकारी संस्थांमध्ये सामाजिक समावेशन, लिंग समानता, शेतकरी व कामगार कल्याण यासंबंधी आव्हाने कायम आहेत. तसेच, पर्यावरणीय संरक्षण आणि टिकाऊ पद्धतींचा अभाव काही सहकारी उपक्रमांमध्ये दिसतो.

१०. केस स्टडी

कर्ज सहकारी संस्था:

१०.१. प्रस्तावना

कर्ज सहकारी संस्था भारतातील ग्रामीण आणि अर्ध-शहरी आर्थिक व्यवस्थेचा महत्वाचा आधार आहेत. या संस्थांचा उद्देश सदस्यांना सुलभ कर्ज, बचत सुविधा आणि आर्थिक स्थैर्य उपलब्ध करून देणे हा आहे. शेतकरी, लघुउद्योगी आणि कमी उत्पन्न असलेल्या लोकांसाठी या संस्था आर्थिक मदतीचा आधारस्तंभ आहेत. सैद्धांतिक दृष्टिकोनातून, कर्ज सहकारी संस्था सदस्यकेंद्रित प्रशासन, पारस्परिक साहाय्य आणि सामूहिक जबाबदारी या तत्वांचा प्रभावी उपयोग करतात आणि सदस्य हित आणि शासन यामध्ये संतुलन राखतात.

१०.२. स्थापना व इतिहास

भारतातील कर्ज सहकारी संस्थांचा प्रारंभ सहकारी पतसंस्था कायदा, १९०४ पासून झाला.

- स्वातंत्र्यपूर्व काळात, ग्रामीण भागातील शेतकऱ्यांना बँकांपर्यंत पोहोच नसल्यामुळे, स्थानिक निधी वापरून कर्ज वितरणाची पद्धत तयार करण्यात आली.
- स्वतंत्र भारतात, प्राथमिक कृषी पतसंस्था (PACS) आणि जिल्हा मध्यवर्ती सहकारी बँका DCCBs) च्या माध्यमातून ग्रामीण कर्ज व्यवस्थापनाचे औपचारिककरण झाले.
- नंतर बहुराज्यीय सहकारी संस्था कायदा, १९८४ आणि ९७व्या संवैधानिक सुधारणा, २०११ यांनी संस्थांना कायदेशीर संरक्षण, स्वायत्तता आणि सदस्यकेंद्रित लोकशाही प्रदान केली.

१०.३ उद्दिष्टे

सदस्यांना कर्ज उपलब्ध करणे, शेती, व्यवसाय, शिक्षण किंवा वैयक्तिक गरजांसाठी.

- ग्रामीण समुदायात बचत संस्कृती आणि आर्थिक समावेशन वाढवणे.
- सदस्यकेंद्रित लोकशाही व सामूहिक जबाबदारी टिकवणे.
- ग्रामीण अर्थव्यवस्थेत स्थिर उत्पन्न आणि रोजगार निर्माण सुनिश्चित करणे.

१०.४ कार्यपद्धती

- सदस्यांकडून जमा निधीचा उपयोग कर्ज देण्यासाठी केला जातो.
- कर्ज परतफेडीसाठी नियमित देखरेख व आर्थिक तपासणी केली जाते.
- सदस्यांच्या गरजेनुसार कर्जाचे प्रकार: शेती, व्यवसाय, शिक्षण किंवा वैयक्तिक.
- आधुनिक पद्धतीत डिजिटलीकरण, पारदर्शकता व प्रशिक्षण वापरून प्रशासन अधिक कार्यक्षम बनवले जाते.

१०.५ फायदे

- ग्रामीण लोकांसाठी सुलभ कर्ज सुविधा, बँकांपर्यंत पोहोच नसलेल्या शेतकऱ्यांसाठी फायदेशीर.
- आर्थिक स्थैर्य, बचत संस्कृती आणि नियमित उत्पन्न सुनिश्चित करणे.
- सदस्यकेंद्रित लोकशाहीमुळे निर्णय प्रक्रियेत पारदर्शकता.
- ग्रामीण अर्थव्यवस्थेत स्थानीय उत्पादन आणि रोजगार निर्माण.
- आर्थिक सहभाग व सामूहिक जबाबदारीची संस्कृती वाढवणे.

१०.६ आव्हाने

- कर्ज परतफेड न होणे → आर्थिक जोखीम.
- प्रशिक्षित व्यवस्थापकीय कर्मचाऱ्यांची कमतरता → कार्यक्षमता कमी.
- सदस्यांचा सक्रिय सहभाग कमी → लोकशाही प्रभावित.
- राज्य व केंद्र सरकारच्या नियामक अडचणी.
- राजकीय हस्तक्षेप → निर्णय प्रक्रियेत विलंब.

१०.७ उदाहरणे

प्राथमिक कृषी पतसंस्था (PACS): शेतकऱ्यांसाठी कर्ज, बचत व मार्गदर्शन.

- जिल्हा मध्यवर्ती सहकारी बँका (DCCBs): PACS कडून जमा निधी नियंत्रित करणे आणि जिल्हास्तरीय कर्ज वितरण.
- Urban Cooperative Banks (UCBs): शहरातील लघुउद्योग व व्यवसायांसाठी आर्थिक सहाय्य.

१०.८ विश्लेषण

कर्ज सहकारी संस्था सदस्यकेंद्रित लोकशाही, आर्थिक पारदर्शकता आणि ग्रामीण विकासासाठी प्रभावी आहेत.

- डिजिटलीकरण, क्षमता प्रशिक्षण व आधुनिक साधने कार्यक्षमता वाढवतात.

- संस्था टिकाव आणि कार्यक्षमतेसाठी सशक्त प्रशासन, धोरणात्मक सुधारणा व सदस्यांचा सक्रिय सहभाग आवश्यक आहे.
- स्वायत्तता आणि राज्य नियंत्रण यामध्ये संतुलन राखल्यास संस्था अधिक टिकाऊ आणि प्रभावी ठरतात.

१०.९. निष्कर्ष:

कर्ज सहकारी संस्था ग्रामीण भारतातील आर्थिक समावेशन, स्थिर उत्पन्न, रोजगार निर्माण आणि सदस्यकेंद्रित लोकशाही यासाठी अत्यंत प्रभावी आहेत.

- योग्य प्रशासन, प्रशिक्षण, डिजिटलीकरण व धोरणात्मक समर्थन असल्यास संस्था टिकाऊ, पारदर्शक आणि आर्थिकदृष्ट्या सक्षम ठरतात.
- कर्ज सहकारी संस्थांनी ग्रामीण अर्थव्यवस्थेत स्थिरता, विकास आणि सामाजिक समावेशन सुनिश्चित करण्यासाठी महत्वाची भूमिका बजावली आहे.

११. संशोधन निष्कर्ष:

भारतातील सहकारी संस्थांचा विकास सहकारी पतसंस्था कायदा, १९०४ पासून सुरू झाला आणि आजच्या काळात ९७वी घटनादुरुस्ती, २०११ आणि राष्ट्रीय सहकार धोरण ने त्याला संवैधानिक सुरक्षा, स्वायत्तता आणि सदस्यकेंद्रित लोकशाही प्रदान केली आहे. केस स्टडीज (AMUL – दुग्ध सहकारी, कर्ज सहकारी संस्था, बहुराज्यीय सहकारी संस्था दर्शवतात की सहकारी संस्था सदस्यकेंद्रित, आर्थिक स्थिर आणि ग्रामीण विकासासाठी प्रभावी आहेत. विशेषतः कर्ज सहकारी संस्था शेतकरी, लघुउद्योगी आणि ग्रामीण लोकांसाठी स्थानीय वित्तीय समावेशन, कर्ज उपलब्धता आणि आर्थिक सुरक्षा सुनिश्चित करतात. डिजिटलायझेशन, आधुनिक तंत्रज्ञान आणि धोरणात्मक सुधारणा संस्थांच्या कार्यक्षमतेत वाढ घडवतात. तरीही, सहकारी संस्थांना राजकीय हस्तक्षेप, आर्थिक अवलंबित्व आणि अंमलबजावणीतील विलंब यासारखी आव्हाने भेडसावत आहेत.

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राष्ट्रीय सहकार धोरण २०२५: गरज आणि भूमिका

मनिषा भूषण साबळे

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स्वतंत्र भारतामध्ये २६ जानेवारी १९५० रोजी राज्यघटनेची अंमलबजावणी सुरु झाली. राज्यघटनेने केंद्र व राज्य सरकार यांच्या अधिकारांची (विषयांची) विभागणी करताना सहकार हा विषय सातव्या अनुसूची अंतर्गत राज्य सूची मध्ये नमूद केला. त्यामुळे राज्य पुरस्कृत (State-driven) असलेली सहकार चळवळ ग्रामीण अर्थव्यवस्थेला चालना देणारी ठरली. शेतकऱ्यांना सावकाराच्या जाचातून पाशातून मुक्त करणारी आणि ग्रामीण अर्थव्यवस्थेला बळकटी देणारी सहकार चळवळ स्वातंत्र्योत्तर भारतात देखील ग्रामीण भागातील विकासासाठी महत्वपूर्ण ठरली. 'खेड्यांचा देश' असणाऱ्या भारतासाठी खेडी स्वयंपूर्ण करण्यासाठी, स्थानिक पातळीपासून विकास साध्य करण्यासाठी सहकार चळवळ महत्वपूर्ण ठरली.

महत्वाच्या संकल्पना: सहकार चळवळ, स्वयंपूर्णता, 'सहकार से समृद्धी', राष्ट्र विकास, जागतिकीकरण.

1. प्रस्तावना:

भारतातील ग्रामीण भागाच्या विकासात सहकारी चळवळ महत्वपूर्ण भूमिका पार पाडते. खेड्यांना आर्थिक दृष्ट्या स्वयंपूर्ण करण्यात सहकारी चळवळीचा मोलाचा वाटा आहे. त्याचबरोबर सहकारी संस्था समाजाच्या सर्वच बाजूंच्या विकासात महत्वाच्या ठरतात. कृषी क्षेत्र, दुग्ध व्यवसाय, बँकिंग, गृह निर्माण अशा विविध क्षेत्रात सहकारी चळवळीमुळे विकासाचा वेग वाढला. सध्या देशात पाच लाखांहून जास्त सहकारी संस्था विविध क्षेत्रात कार्यरत आहेत. तसेच लोकशाही तत्वांवर चालणाऱ्या सहकारी संस्था स्थानिक नागरिकांना लोकशाही व्यवस्थेचा परिपाठ देतात आणि राजकीय सहभाग वृद्धिंगत करतात.

भारतीय राज्यघटने केंद्र आणि राज्य यांच्या अधिकार कक्षेतील विषयांची विभागणी सातव्या अनुसूची मध्ये केंद्र सूची, राज्य सूची, समवर्ती सूची आणि शेषाधिकार अशी सविस्तर दिलेली आहे. राज्य सूचीतील विषयांवर कायदे करण्याचा अधिकार मुख्यतः राज्य सरकारला आहे. मात्र राष्ट्रीय हित, आणीबाणी किंवा संबंधित राज्यांच्या विनंतीवरून संसद विशिष्ट परिस्थितीमध्ये राज्य सूचीतील विषयांवर कायदा करू शकते (अनुच्छेद २४९ - २५३).

सहकार हा राज्य सूचीतील विषय आहे. मात्र देशातील सहकार क्षेत्राला बळकटी देण्यासाठी, ग्रामीण आणि शहरी भागातील सहकारी संस्थांना स्वतंत्र धोरणात्मक व कायदेशीर चौकट देण्यासाठी आणि त्या माध्यमातून स्थानिक विकासाबरोबर राष्ट्र हित साध्या करण्यासाठी केंद्र सरकारने महत्वाची भूमिका घेतली.

२०२१ चा केंद्रीय अर्थ संकल्प सादर करताना अर्थमंत्री निर्मला सीतारामन यांनी सहकार मंत्रालय संदर्भातील घोषणा केली. जुलै २०२१ मध्ये सहकार मंत्रालयाची स्थापना करण्यात आली. सहकार क्षेत्राच्या विकासासाठी उचललेले पुढील पाऊल म्हणजे जुलै २०२५ मध्ये केंद्रीय सहकार मंत्री अमित शहा यांनी 'राष्ट्रीय विकास धोरण २०२५' जाहीर केले. स्थानिक विकासात मोलाची भूमिका बजावणाऱ्या सहकार क्षेत्राला बळकट करणे किंबहुना पुननरुज्जीवन देण्यासंदर्भात या धोरणाचा अभ्यास महत्वपूर्ण ठरतो.

2. संशोधनाची उद्दिष्टे:

१. राष्ट्रीय सहकार धोरण २०२५ याच्या उद्दिष्टांचा अभ्यास करणे.
२. सद्य स्थितीत देशातील सहकार क्षेत्रा समोरील समस्या समजून घेणे .
३. राष्ट्रीय सहकार धोरण २०२५ मागील सरकारची भूमिका अभ्यासणे.
४. सद्य स्थितीत सहकार क्षेत्राला राष्ट्रीय सहकार धोरण २०२५ ची गरज अभ्यासणे.

3. संशोधन पद्धती:

या संशोधनासाठी द्वितीय माहिती साधनांचा वापर केला आहे. विषयाशी संबंधित प्रकाशित पुस्तके, त्रैमासिके आणि संकेतस्थळांचा उपयोग केला आहे.

4. भारतातील सहकार क्षेत्र

सहकार हे सुसंस्कृत आणि सामाजिक दृष्ट्या विकसित समाजाचे लक्षण आहे. एकमेकांच्या सहकार्याने प्रत्येक व्यक्तीचा पर्यायाने संपूर्ण समाजाचा विकास सहकाराद्वारे अपेक्षित आहे.

डार्विनच्या मते, 'आक्रमक स्पर्धेतून मानव समाजाची उत्क्रांती झाली नसून सहकारात्मक स्पर्धेतून मानव समाजाची उत्क्रांती झाली आहे.'

थोडक्यात सामान आर्थिक ध्येयांच्या पूर्ततेसाठी ऐच्छिक संघटन म्हणजे सहकार. भारतासारखा विकसनशील देश जो खऱ्या अर्थाने खेड्यांचा देश आहे, त्याच्या विकासासाठी सहकार क्षेत्र अत्याधिक उपयुक्त ठरले. मिश्र अर्थव्यवस्था, पंचवार्षिक योजना आणि सहकार क्षेत्र यामाध्यमातून देशातील स्थानिक विकासाला चालना मिळाली. कृषी कर्ज पुरवठा दुग्ध व्यवस्थापन संदर्भातील धवल क्रांती, गृह निर्माण संस्था, सहकारी बँक अशा विविध माध्यमातून विकासाला वेग प्राप्त झाला. सहकारी तत्वावर उभारलेल्या उद्योगांद्वारे रोजगार निर्मिती आणि आर्थिक व औद्योगिक विकासाला गती मिळाली.

जागतिकीकरण आणि सहकार

जागतिकीकरण ही बहुआयामी संकल्पना आहे आणि २१ व्या शतकात ती उच्चतम बिंदूपर्यंत पोहचली आहे. आर्थिक बाबीं पर्यंतच मर्यादित न राहता सेवा, ज्ञान, शिक्षण, विचार, व्यापार, कला, मनोरंजन अशा सर्व क्षेत्रात जागतिकीकरण वेगाने वाढले.

आंतरराष्ट्रीय नाणे निधीने केलेल्या व्याख्येनुसार,

'जागतिकीकरण म्हणजे वस्तू, सेवा आणि आंतरराष्ट्रीय भांडवल प्रवाह, अतिजलद व प्रसरण पावणारे तंत्रज्ञान यांचे वाढते प्रमाण तसेच विविधता यांच्या साहाय्याने जगातील देशांचे सतत वाढत जाणारे परस्परावलंबित्व होय.'

भारतात १९९१ च्या आर्थिक धोरणामुळे मोठे बदल घडून आले. मिश्र अर्थव्यवस्थेचा अंगीकार करून विकास करू पाहणाऱ्या भारतीय अर्थव्यवस्थेसमोर जेव्हा कठीण परिस्थिती निर्माण झाली तेव्हा १९९१ साली तत्कालीन सरकारने महत्वपूर्ण आर्थिक परिवर्तन घडवून आणले. तत्कालीन पंतप्रधान पी. व्ही. नरसिंहराव आणि वित्तमंत्री डॉ. मनमोहन सिंग यांनी देशाच्या अर्थव्यवस्थेला नवी दिशा दिली. २४ जुलै १९९१ रोजी मनमोहन सिंग यांनी संसदेत जो अर्थसंकल्प सादर केला त्याद्वारे आर्थिक संकट दूर करण्यासाठी जागतिकीकरण, उदारीकरण आणि खाजगीकरण या त्रिसूत्रीचा स्वीकार करण्यात आला. सरकारच्या या आर्थिक निर्णयामागील उद्देशांपैकी एक म्हणजे वित्तीय तूट

कमी करून आर्थिक स्थिरता निर्माण करणे. नव्या आर्थिक धोरणाचा स्वीकार करून भारत 'ग्लोबल विलेज'चा एक भाग बनले. उदारीकरण, खाजगीकरण, जागतिकीकरण (LPG) याचा देशाच्या आर्थिक विकासावर मोठा परिणाम दिसून येतो. जागतिकीकरणामुळे भारतीय बाजारपेठेत थेट परदेशी गुंतवणूक शक्य झाली, बहुराष्ट्रीय कंपन्यांचे आगमन झाले. माहिती तंत्रज्ञान आणि दूरसंचार क्षेत्रमध्ये विशेष प्रगती घडून आली. रोजगाराच्या नवीन संधी उपलब्ध झाल्या. जागतिकीकरणाच्या काळात भारतीय व्यवस्थेवर संधी आणि आव्हाने असा संमिश्र परिणाम दिसून येतो. जागतिकीकरणाची प्रक्रिया आवश्यक व अनिवार्य अशीच आहे. मात्र बहुराष्ट्रीय कंपन्यांना सरळ प्रवेश मिळाल्यामुळे स्थानिक उद्योगांना मोठी स्पर्धा निर्माण झाली. किंबहुना सर्वच क्षेत्रांमध्ये स्पर्धा निर्माण झाली.

सद्यस्थिती मध्ये सहकारक्षेत्रापुढील आव्हाने

सद्यस्थिती मध्ये सहकार क्षेत्राला विविध समस्यांना सामोरे जावे लागत आहे जसे की,

- भांडवल उभारणीतील समस्या,
- व्यावसायिक मूल्यांची घसरण,
- अकार्यक्षम प्रशासन,
- अपारदर्शकता,
- सदस्यांमधील उदासीनता,
- अति राजकीय हस्तक्षेप,
- आणि तीव्र स्पर्धा.

नव्या आर्थिक सुधारणांच्या काळात (LPG) अनेक संदर्भात विकासाच्या संधी निर्माण झाली तशी काही आव्हाने सुद्धा निर्माण झाली. बहुराष्ट्रीय कंपन्या, खाजगी उद्योग समूह यामुळे सहकारी उद्योगांना आव्हान उभे राहिले. राजकारणाचे अहितकारक परिणाम देखील सहकारवर दिसून आले. त्यामुळे राजकारणापासून अलिप्तता राखणे आणि कामकाजात पारदर्शकता आणणे आवश्यक ठरते. थकबाकीच्या समस्या, गैर व्यवहार, राजकीय प्रभाव, सांघिक कृती बाबत उदासीनता अशा अनेक अडचणींना सामोरे जावे लागत आहे. सहकाराच्या संवर्धनासाठी अनुकूल शासकीय धोरणाची नितांत गरज निर्माण झाली.

सहकार मंत्रालयाची स्थापना

देशाच्या ग्रामीण अर्थव्यवस्थेचा विकास करण्यासाठी, सहकारी चळवळ मजबूत करण्यासाठी पंतप्रधान श्री नरेंद्र मोदी यांनी २०२१ मध्ये स्वतंत्र सहकार मंत्रालय स्थापन केले. जुलै २०२१ मध्ये केंद्रीय सहकार मंत्रालयाची स्थापना करण्यात आली. २०२१ चा केंद्रीय अर्थसंकल्प सादर करताना अर्थ मंत्री निर्मला सीतारामन यांनी या बाबत घोषणा केली होती. 'सहकार से समृद्धी' ही सहकार मंत्रालय स्थापने मागील केंद्रीय संकल्पना आहे. सहकार क्षेत्राला कायदेशीर अधिष्ठान देणे आणि व्यवसाय सुलभता वाढविणे यासाठी नरेंद्र मोदी सरकारने घेतलेला हा महत्वपूर्ण निर्णय आहे. या मंत्रालयाच्या स्थापनेपूर्वी या संदर्भातील कामकाज कृषी मंत्रालय पाहत होते. स्वतंत्र मंत्रालयाच्या स्थापनेमुळे कामकाज प्रभावी व गतिमान होईल. स्थानिक पातळी वरील सहकारी संस्थांना बळकट करणे, सहकारी संस्थांसाठी व्यवसाय सुलभता वाढविणे, ती प्रक्रिया सुव्यवस्थित करणे आणि बहुराष्ट्रीय सहकारी संस्थांच्या (MSCS) विकासाचा चालना देणे, अशा विकास कार्यासाठी या मंत्रालयाची स्थापना आवश्यक होती.

केंद्रीय सहकार मंत्रालयासमोरील उद्दिष्ट्ये:

- सहकारातून समृद्धी (सहकार से समृद्धी) ही संकल्पना साकार करणे.
- सहकारी संस्थांसाठी 'व्यवसाय करण्यास सुलभता' प्रक्रिया सुव्यवस्थित करणे आणि बहुराष्ट्रीय सहकारी संस्थांचा विकास सक्षम करणे.
- देशातील सहकारी चळवळीला बळकटी देण्यासाठी स्वतंत्र प्रशासकीय, कायदेशीर आणि धोरणात्मक चौकट प्रदान करणे.
- तळागाळापर्यंत पोहोचणारी खरी लोकाधारित चळवळ म्हणून सहकाराला अधिक सखोल करणे.

सहकार मंत्रालयाने संकल्पना पूर्तीसाठी हाती घेतलेले उपक्रम :

१) सहकारी संस्थांचे बळकटीकरण:

प्राथमिक कृषी पतसंस्था उद्देशीय बनविण्यासाठी नवीन मॉडेल उपविधी
अप्राप्त पंचायतींमध्ये नवीन PACS/ दुग्धव्यवसाय / मतस्यव्यवसाय प्राथमिक सहकारी संस्था स्थापन करण्यासाठी
SOP (मानक कार्यप्रणाली) सुरू केली,
सहकारी-नेतृत्वाखालील "श्वेतक्रांती २. ०" साठी SOP सुरू केली
गैर-पत क्षेत्रांमध्ये व्यवसाय विविधता आणण्यासाठी बहुउद्देशीय PACS
PACS स्तरावर जगातील सर्वात मोठी विकेंद्रीकृत धान्य साठवण योजना,
GeM पोर्टलवर (शासकीय ई -मार्केटप्लेस) खरेदीदार म्हणून सहकारी संस्थांचा समावेश इत्यादी.

२) सहकारी संस्थांमध्ये सहकार्य:

निर्यात सेंद्रिय उत्पादने आणि बियाणे या क्षेत्रात राष्ट्रीय स्तरावर तीन नवीन बहू-राज्य सहकारी संस्था
प्राथमिक सहकारी संस्थांसाठी "सहकारी बँकांचे बँक मित्र ", प्राथमिक सहकारी संस्थांच्या सदस्यांना RuPay
KCC (किसान क्रेडिट कार्ड) चे वितरण

३) आयकर अधिनियम, १९६१ मध्ये सहकारी संस्थांसाठी बदल:

₹ १ कोटी ते ₹१० कोटी दरम्यान उत्पन्न असलेल्या संस्थांसाठी अधिभार १२% वरून ७% पर्यंत करण्यात आला
MAT (किमान पर्यायी कर) दर १८.५ % वरून १५% पर्यंत कमी करण्यात आला.
सहकारी संस्थांसाठी कर कपात न करता रोख रक्कम काढण्याची मर्यादा १ कोटीवरून ₹ ३
कोटीपर्यंत वाढविण्यात आली

४) सहकारी बँकांना भेडसावणाऱ्या अडचणींवर मात करण्यासाठी महत्वाचे निर्णय:

UCBs (शहरी सहकारी बँका) साठी अंब्रेला संस्था (Umbrella Organization) ची स्थापना करणे,
UCBs ने अपला व्यवसाय विस्तारण्यासाठी नवीन शाखा सुरू करणे
व्यावसायिक बँकांप्रमाणे सहकारी बँकांना थकबाकी कर्जाची एकवेळची परतफेड करण्याची परवानगी देणे.

५) सहकारी साखर कारखान्यांचे बळकटीकरण:

शेतकऱ्यांना योग्य आणि लाभदायक किमतीपर्यंत ऊसाचे जास्त भाव देण्यासाठी अतिरिक्त अयकर सवलत,
२०१६-१७ पूर्वीच्या कालावधीसाठी ऊस उत्पादक शेतकऱ्यांना केलेल्या देयकांचा खर्च म्हणून दावा करण्याची
परवानगी,
मोर्लेसिसवरील GST २८% वरून ५% पर्यंत कमी

६) केंद्रीय निबंधक कार्यालय आणि NCDC द्वारे (राष्ट्रीय सहकारी विकास निगम) हाती घेतलेले उपक्रम

बहु-राज्य सहकारी संस्था (सुधारणा) अधिनियम, २०२३,
सहारा समूहाच्या सहकारी संस्थांच्या गुंतवणूकदारांना परतावा,
NCDC द्वारे PACS स्तरावर नवीन FPO (शेतकरी उत्पादक संघटना) ची स्थापना करण्यात आली
NCDC द्वारे FFPO ची (मत्स्य शेतकरी उत्पादक संघटना) स्थापना करण्यात आली.

राष्ट्रीय सहकार धोरण २०२५

ग्रामीण अर्थव्यवस्थेला अधिक बळकट आणि संघटित करून बाजाराशी जोडण्याची गरज आहे. त्यासाठी सहकार
क्षेत्र व त्यावर आधारित विकासाचे मॉडेल उपयुक्त ठरेल. या दृष्टिकोनातून २०४७ पर्यंत विकसित भारत हे ध्येय
सध्या करण्यासाठी सरकारने काही महत्वाची पाऊले उचलली.
पंतप्रधान श्री नरेंद्र मोदी यांच्या 'सहकार-से-समृद्धी' (सहकायातून समृद्धी) या दृष्टिकोनाची पूतर्तात करणारे राष्ट्रीय
सहकार धोरण २०२५ जाहीर करण्यात आले.

गृह आणि सहकार मंत्री अमित शाह यांच्या मार्गदर्शनाखाली, सप्टेंबर २०२२ मध्ये सहकार मंत्रालयाने नवीन सहकार धोरणाचा मसुदा तयार करण्यासाठी ४८ सदस्यांची राष्ट्रीय -स्तरीय समिती स्थापन केली. माजी केंद्रीय मंत्री श्री सुरेश प्रभू यांच्याकडे या समितीचे अध्यक्ष पद सोपविण्यात आले होते.

समितीमध्ये राष्ट्रीय/ राज्य सहकारी महासंघ आणि सर्व स्तरांवरील, क्षेत्रांमधील संस्थांचे सदस्य, संबंधित केंद्र आणि राज्य सरकारच्या मंत्रालये / विभागांचे प्रतिनिधी आणि शिक्षणतज्ञ यांचा समावेश होता. हे धोरण सहकारी क्षेत्रातील भागधारक आणि राज्य / केंद्र शासित प्रदेश सरकारांशी अनेक स्तरांवरील सल्लामसलत आणि प्रादेशिक कार्यशाळांनंतर तयार करण्यात आले. समितीने १७ बैठका आणि ४ प्रादेशिक कार्यशाळा घेतल्या, सल्लामसलत प्रक्रियेतून एकूण ६४८ सूचना प्राप्त झाल्या. या सूचनांचा सखोल अभ्यास करण्यात आला. विस्तृत चर्चेनंतर त्यांचा धोरणात समावेश करण्यात आला. २४ जुलै २०२५ रोजी नवीन सहकारी धोरण (NCP) लागू झाले आणि सहकार क्षेत्र पुनरुज्जीवनासाठी सज्ज झाले.

राष्ट्रीय सहकार धोरणाची भूमिका

राष्ट्रीय सहकार धोरण म्हणजेच NCP 2025 ही एक व्यापक आणि दूरदर्शी चौकट आहे, जी भारतातील सहकारी संस्थांचे आधुनिकीकरण, लोकशाहीकरण आणि त्यांना चालना देण्यासाठी तयार करण्यात आली आहे. यामध्ये ८.५ लाखांहून अधिक सहकारी संस्था आणि ३० कोटींहून अधिक सदस्य आहेत.

राष्ट्रीय सहकार धोरण २०२५ चे ध्येय:

तळागाळातील सहकारी चळवळ मजबूत आणि सखोल करण्यासाठी कायदेशीर, आर्थिक आणि संस्थात्मक सक्षम आराखडा तयार करणे. ज्यायोगे सहकारी उद्योगांचे व्यावसायिक व्यवस्थापन, पारदर्शक, तंत्रज्ञान -सक्षम, आणि प्रतिसादात्मक आर्थिक संस्थांमध्ये रूपांतर करणे सुलभ होईल, ज्यामुळे मोठ्या प्रमाणावर उत्पादन करण्यास मदत होईल.

हे धोरण सहा धोरणात्मक स्तंभांवर आधारित आहे:

- १) स्पर्धात्मकता आणि ब्रँडिंग वाढवणे;
- २) कायदेशीर सुधारणा आणि डिजिटायझेशनद्वारे सहकारी संस्थांचा पाया मजबूत करणे;
- ३) एआय, आयओटी आणि ब्लॉकचेन यांसारख्या उदयोन्मुख तंत्रज्ञानाचा अवलंब करून सहकारी संस्थांना भविष्यासाठी सज्ज करणे;
- ४) महिला, युवक आणि उपेक्षित समुदायांवर लक्ष केंद्रित करून सर्वसमावेशकता अधिक दृढ करणे;
- ५) हरित ऊर्जा, सेंद्रिय शेती, आरोग्य आणि पर्यटन यांसारख्या नवीन आणि उदयोन्मुख क्षेत्रांमध्ये विस्तार करणे;
- ६) आणि सहकारी शिक्षण व युवकांच्या सहभागाद्वारे पुढील पिढीला घडवणे.

या धोरणाच्या सर्वात महत्वाकांक्षी उद्दिष्टांपैकी एक म्हणजे ६३,००० हून अधिक प्राथमिक कृषी पतसंस्थांचे (PACS) डिजिटायझेशन करणे, ज्यामुळे १.५ लाख कोटी रुपयांच्या ग्रामीण पतपुरवठ्यात पारदर्शकता आणि कार्यक्षमता येईल. राष्ट्रीय सहकारी डेटाबेसच्या निर्मितीमुळे डेटा-आधारित निर्णय घेणे आणि धोरण निर्मिती करणे शक्य होईल. या धोरणाच्या साहाय्याने ओएनडीसी (ONDC) सारख्या प्लॅटफॉर्मसोबतच्या एकीकरणामुळे सहकारी उत्पादने राष्ट्रीय आणि जागतिक बाजारपेठांपर्यंत पोहोचू शकतील, ज्यामुळे ग्रामीण उद्योजकता आणि निर्यातीला चालना मिळेल. जेणेकरून २०३० पर्यंत सहकारी निर्यात दुप्पट करण्याचे सरकारचे उद्दिष्ट आहे, ज्यामुळे भारताच्या सहकारी क्षेत्राला राष्ट्रीय अर्थव्यवस्थेत एक प्रमुख योगदानकर्ता म्हणून स्थान मिळेल.

राष्ट्रीय सहकार धोरणाची गरज

राष्ट्रीय सहकार धोरणाच्या प्रभावी अंमलबजावणीमुळे सहकार क्षेत्रात पारदर्शकता आणि सुशासन वाढेल. सार्वत्रिक व्याप्ती सुनिश्चित करण्यासाठी, सरकार पुढील पाच वर्षांत प्रत्येक पंचायतीमध्ये नवीन बहुउद्देशीय PACS,

दुग्धव्यवसाय आणि मत्स्यव्यवसाय सहकारी संस्था स्थापन करण्याची योजना आखत आहे, ज्याला नाबार्ड, एनडीडीबी आणि एनएफडीबी यांचे सहकार्य लाभेल.

पायाभूत सुविधांच्या विकासासाठी मोठी चालना देण्यासाठी, एआयएफ (AIF), एएमआय (AMI), एसएमएम (SMAM) आणि पीएमएमएमई (PMFME) यांसारख्या योजनांच्या एकीकरणातून पीएसीएस (PACS) संस्थांना गोदामे, कस्टम हायरिंग सेंटर्स आणि प्राथमिक प्रक्रिया युनिट्सने सुसज्ज केले जाईल. या सुविधांमुळे अन्नधान्याची नासाडी कमी होईल, वाहतूक खर्चात बचत होईल आणि शेतकऱ्यांचे उत्पन्न सुधारेल. या धोरणांतर्गत सहकारी संस्थांसाठी आयकर कायद्यांतर्गत सवलत देखील देण्यात आली आहे, ज्यामुळे त्यांची आर्थिक व्यवहार्यता सुधारेल आणि पुनर्गुंतवणुकीला प्रोत्साहन मिळेल.

या क्षेत्राला अधिक बळकट करण्यासाठी, तीन नवीन राष्ट्रीय स्तरावरील बहु-राज्यीय सहकारी संस्था स्थापन करण्यात आल्या आहेत:

- नॅशनल कोऑपरेटिव्ह ऑर्गेनिक्स लिमिटेड (NCOL),
- नॅशनल कोऑपरेटिव्ह एक्सपोर्ट्स लिमिटेड (NCEL),
- भारतीय बीज सहकारी समिती लिमिटेड (BBSSL).

या संस्था अनुक्रमे सेंद्रिय शेती, निर्यात आणि बियाणे वितरणाला प्रोत्साहन देतील. सुधारित भांडवल, सुशासन आणि विशेषतः ग्रामीण भागातील पोहोच यांद्वारे सहकारी बँकांनाही बळकट केले जाईल.

5. निष्कर्ष :

२०४७ म्हणजेच देशाच्या १०० व्या स्वतंत्रदिनापर्यंत भारत विकसित राष्ट्र बनेल अशी महत्वाकांक्षा मोदी सरकारने व्यक्त केली आहे. त्या अनुषंगाने योजनाबद्ध कार्य सुरु केले. विकसित भारत संकल्पने नुसार, युवा शक्ती, स्त्री शक्ती, गरीब आणि अन्नदाता समाजाचे हे चार स्तंभ बळकट करण्याकडे लक्ष देणे आवश्यक आहे. त्या अनुषंगाने ठोस कार्यक्रम राबविणे आवश्यक ठरते. विकसित भारत संकल्पना यशस्वी करण्याच्या दृष्टीने राष्ट्रीय सहकार धोरण पूरक ठरते. विकसित भारताच्या उद्दिष्टांशी सहकारी विकासासाठी संरक्षित करून, नवीन सहकारी धोरण २०२५ सहकारी संस्थांना आर्थिक गतीशीलता, सामाजिक समानता आणि तांत्रिक प्रगतीचे इंजिन म्हणून पुनर्कल्पित करते. हे धोरण ग्रामीण भारत, समाजाच्या तळागाळातील सामान्य, महिला आणि युवकांना सक्षम करणे तसेच सर्वच क्षेत्रांमध्ये शाश्वत विकासाचे आश्वासन देते. भारत २०४७ च्या दिशेने वाटचाल करत असताना, सहकारी संस्था या विकासाच्या केंद्रस्थानी असतील, ज्या परंपरा आणि नावीन्य, तसेच समुदाय आणि संधी यांना जोडतील. हे धोरण एक चळवळ आहे, जे प्रत्येक भारतीयाला एक समृद्ध, सर्वसमावेशक राष्ट्र घडवण्यासाठी सहभागी होण्याचे आवाहन करते. जागतिकीकरणाच्या काळात स्थानिक पातळीवर सहकारी तत्वावर उभारलेले उद्योग समूह मजबूत करण्यासाठी आणि युवा पिढीला विकास प्रवाहात सामावून घेण्यासाठी हे धोरण महत्वपूर्ण उपयुक्त आहे. सहकार क्षेत्राच्या पुनरुज्जीवनासाठी राष्ट्रीय सहकार धोरण २०२५ महत्वपूर्ण ठरते.

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“शाश्वत भविष्यासाठी हरित सहकारी संस्थांची भूमिका: संधी आणि आव्हाने”

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गोष्टवारा: वर्तमान काळात हवामान बदल, पर्यावरणीय असंतुलन आणि नैसर्गिक संसाधनांच्या अतिवापरामुळे शाश्वत विकास ही एक अपरिहार्य गरज बनली आहे. याच पाश्चिमात्य हरित सहकारी संस्था या शाश्वत भविष्यासाठी एक प्रभावी आणि समावेशक पद्धती म्हणून उदयास येत आहेत. हरित सहकारी संस्था पर्यावरणीय सुरक्षा, नवीकरणीय ऊर्जेचा उपयोग, सेंद्रिय शेतीचा प्रसार आणि ग्रामीण रोजगार निर्मितीमध्ये महत्त्वपूर्ण योगदान देतात. तसेच आर्थिक संसाधनांचा अभाव, तांत्रिक ज्ञानाची कमतरता, व्यवस्थापनातील अकार्यक्षमता आणि धोरणात्मक अडचणी ही त्यांच्यासमोरील प्रमुख आव्हाने आहेत. प्रस्तुत अध्ययनाचा उद्देश हरित सहकारी संस्थांची भूमिका, त्यांच्या माध्यमातून उपलब्ध होणाऱ्या संधी आणि त्यांच्यासमोरील आव्हानांचे विश्लेषण करणे हा आहे.

प्रस्तुत अभ्यासाच्या निष्कर्षानुसार, सरकारद्वारे योग्य धोरणात्मक समर्थन, आर्थिक सहाय्य आणि तांत्रिक प्रशिक्षणाच्या माध्यमातून हरित सहकारी संस्था शाश्वत विकासाच्या उद्दिष्टांची पूर्तता करण्यात प्रभावी ठरू शकतात. त्यामुळे हरित सहकार हा पर्यावरणीय, सामाजिक आणि आर्थिक संतुलन साधण्यासाठी एक महत्त्वपूर्ण मार्ग ठरतो. करीता सदर लेखामध्ये “शाश्वत भविष्यासाठी हरित सहकारी संस्थांची भूमिका: संधी आणि आव्हाने” याचे विश्लेषण केलेले आहे.

बीज शब्द: हरित सहकारी संस्था, पारंपारिक सहकारी संस्था, शाश्वत भविष्य, हरित अर्थव्यवस्था, नवीकरणीय ऊर्जा, अवसायनाधीन सहकारी संस्था.

1. प्रस्तावना:

आधुनिक काळात औद्योगिकीकरण, शहरीकरणाच्या विस्तारामुळे आणि नैसर्गिक संसाधनांचा वाढता वापर यामुळे पर्यावरणीय समस्या निर्माण झाल्या आहेत. परिणामी जैवविविधतेचा न्हास, वातावरणातील हवामान बदल आणि प्रदूषण ही जागतिक आव्हाने बनली आहेत. या परिस्थितीत शाश्वत विकास ही संकल्पना महत्त्वपूर्ण ठरते. याच अनुषंगाने हरित सहकारी संस्था ही संकल्पना पर्यावरण अनुकूल आणि समावेशक विकासासाठी महत्त्वपूर्ण दुवा म्हणून उदयास येत आहेत. हरित सहकारी संस्था नवीकरणीय ऊर्जा, सेंद्रिय शेती आणि संसाधनांचा कार्यक्षम उपयोग यांना प्रोत्साहन देतात. त्यामुळे शाश्वत भविष्यासाठी हरित सहकारी संस्थांची भूमिका, संधी आणि आव्हाने यांचा अभ्यास करणे आवश्यक ठरते. अशा परिस्थितीत, पर्यावरणीय समस्यांचे निराकरण करण्यासाठी शाश्वत आणि पर्यावरणपूरक धोरणे व उपाययोजना राबविणे अपरिहार्य ठरते.

हरित अर्थव्यवस्था आणि शाश्वत विकासाची संकल्पना:

हरित अर्थव्यवस्था आणि शाश्वत विकास ही पर्यावरणाचे संरक्षण आणि आर्थिक वृद्धी यांचे संतुलन साध्य करणारी परस्परपूरक संकल्पना आहे. कमीतकमी कार्बन उत्सर्जन, संसाधनांचा योग्य व कार्यक्षम वापर आणि सामाजिक समावेशकता याद्वारे पर्यावरणाला हानी न पोहोचवता मानवी कल्याण व भविष्यातील पिढ्यांसाठी नैसर्गिक संसाधने टिकवून ठेवणे हे या संकल्पनेचे मुख्य उद्दिष्ट आहे.

हरित अर्थव्यवस्थेची संकल्पना ही अशी आर्थिक व्यवस्था आहे जी कमी कार्बन, संसाधनांचा कार्यक्षम वापर आणि सामाजिकदृष्ट्या सर्वसमावेशक आहे, जी पर्यावरणाचे जोखीम कमी करते. तर शाश्वत विकास म्हणजे असा विकास जो वर्तमान पिढीच्या गरजा पूर्ण करताना भविष्यातील पिढ्यांच्या गरजांशी तडजोड न करता सामाजिक आणि आर्थिक समता जोपासणे हे आहे. केवळ पर्यावरण नव्हे, तर रोजगार निर्मिती, गरिबी निर्मूलन आणि समाजातील सर्व घटकांना समान संधी देणे हे देखील या संकल्पनेचे महत्त्वाचे ध्येय आहे. नैसर्गिक साधनसंपत्तीचे संरक्षण, हवामान बदलाचा सामना करणे, प्रदूषण कमी करणे आणि जैवविविधतेचे रक्षण करणे ही हरित अर्थव्यवस्थेचे उद्दिष्टे आहेत. यामध्ये नूतनीकरणयोग्य ऊर्जा, हरित तंत्रज्ञान, कार्यक्षम संसाधन व्यवस्थापन आणि चक्रीय अर्थव्यवस्था या घटकांचा समावेश होतो.

हरित सहकारी संस्थांची गरज आणि महत्त्व:

वर्तमान काळात पर्यावरणीय असंतुलन, हवामान बदल, प्रदूषण आणि नैसर्गिक संसाधनांचा न्हास या गंभीर समस्या निर्माण होत आहेत. या पार्श्वभूमीवर शाश्वत विकास साध्य करण्यासाठी हरित सहकारी संस्थांची गरज अपरिहार्य ठरते. या संस्था पर्यावरणपूरक तत्वांवर आधारित कार्य करत असल्यामुळे आर्थिक विकास आणि पर्यावरण संरक्षण यामध्ये समतोल राखण्यास मदत होते. हरित सहकारी संस्था नवीकरणीय ऊर्जा, सेंद्रिय शेती, जलसंवर्धन आणि कचरा व्यवस्थापन यांसारख्या उपक्रमांना प्रोत्साहन देतात. त्यामुळे नैसर्गिक संसाधनांचा कार्यक्षम आणि शाश्वत वापर सुनिश्चित होतो. याशिवाय, या संस्था ग्रामीण भागात रोजगारनिर्मिती करून स्थानिक अर्थव्यवस्थेला चालना देतात व सामाजिक समावेशन वाढवतात. तसेच, हरित सहकाराच्या माध्यमातून पर्यावरणाबाबत जनजागृती वाढते आणि लोकांमध्ये जबाबदारीची भावना निर्माण होते. लघु व सीमांत उत्पादकांना बाजारपेठेशी जोडून त्यांचे उत्पन्न वाढविण्यासही मदत होते.

अशाप्रकारे, हरित सहकारी संस्था या शाश्वत, समावेशक आणि पर्यावरणपूरक विकासासाठी एक प्रभावी व दीर्घकालीन उपाय म्हणून अत्यंत महत्त्वपूर्ण ठरतात.

2. विषय निवड:

जागतिक स्तरावर हवामान बदल, प्रदूषण आणि संसाधनांचा न्हास या समस्यांमुळे शाश्वत विकासाची गरज अधिक अधोरेखित झाली आहे. सहकारी संस्था या ग्रामीण व आर्थिक विकासासाठी प्रभावी साधन मानल्या जातात, त्याचबरोबर हरित सहकारी संस्था पर्यावरण संरक्षण आणि शाश्वततेला चालना देतात. या अनुषंगाने "शाश्वत भविष्यासाठी हरित सहकारी संस्थांची भूमिका: संधी व आव्हानांचे विश्लेषण" हा विषय निवडण्यात आला आहे. हरित सहकारी संस्थांची भूमिका समजून घेणे, त्यांच्या माध्यमातून उपलब्ध होणाऱ्या संधींचा अभ्यास करणे आणि त्यांच्या समोरील आव्हानांचे विश्लेषण करणे हे या विषय निवडण्यामागील मुख्य हेतू आहे.

3. संशोधनपूर्व आढावा:

हरित सहकारी संस्था या सहकारी संस्था असून त्या पारंपरिक सहकारी तत्वांना पर्यावरणपूरक दृष्टिकोनाशी जोडून आर्थिक, सामाजिक आणि पर्यावरणीय उद्दिष्टे साध्य करण्याचा प्रयत्न करतात. त्यामुळे हरित सहकारी संस्था शाश्वत विकासाच्या दृष्टीने महत्त्वपूर्ण घटक म्हणून उदयास येत आहेत.

1) International Cooperative Alliance (ICA)

या अहवालानुसार, सहकारी संस्था या लोकशाही तत्वांवर आधारित असून त्या शाश्वत विकास उद्दिष्टांशी सुसंगत आहेत असे स्पष्ट करण्यात आले आहे. हरित सहकारी संस्था नैसर्गिक संसाधनांचे संवर्धन, नवीकरणीय ऊर्जा वापर आणि पर्यावरणपूरक उत्पादन पद्धती यावर भर देतात असे यात नमूद केले आहे.

2) अन्न आणि कृषी संघटना (FAO)

कृषी आणि ग्रामीण भागात सहकारी संस्थांद्वारे सेंद्रिय शेती, जलसंवर्धन आणि हरित तंत्रज्ञानाचा वापर वाढवता येतो आणि त्यामुळे शाश्वत कृषी विकासाला चालना मिळते, असे या अभ्यासानुसार स्पष्ट होते.

3) भारतीय राष्ट्रीय सहकारी संघ(NCUI):

सदर अहवालांनुसार, सहकारी संस्था ग्रामीण अर्थव्यवस्थेचा कणा आहेत असे भारतीय संदर्भात स्पष्ट होते. हरित सहकारी संस्थांमुळे पर्यावरण संरक्षण, कचरा व्यवस्थापन आणि ऊर्जा बचत यांसारख्या क्षेत्रांमध्ये सकारात्मक परिणाम दिसून येतो.

4) राष्ट्रीय दुग्ध विकास मंडळ (NDDB):

राष्ट्रीय दुग्ध विकास मंडळ च्या दुग्ध सहकारी पद्धतीमध्ये शाश्वत उत्पादन पद्धतीचा वापर केल्यामुळे ग्रामीण विकास आणि पर्यावरण संरक्षण दोन्ही साध्य झाले आहे. "श्वेत क्रांती" हा त्याचा उत्तम नमुना आहे.

तसेच अनेक अभ्यासामधून हरित सहकारी संस्था लघु व सीमांत शेतकऱ्यांना सशक्त करतात, त्यांना बाजारपेठ उपलब्ध करून देतात आणि पर्यावरणीय जोखीम कमी करतात असे दिसून आले आहे. त्याचबरोबर तांत्रिक ज्ञानाचा अभाव, वित्तीय मर्यादा आणि धोरणात्मक अडचणी ही त्यांच्या विकासातील प्रमुख अडथळे आहेत.

अशा प्रकारे हरित सहकारी संस्था या शाश्वत विकासासाठी प्रभावी माध्यम असून त्या आर्थिक विकासाबरोबरच पर्यावरणीय संतुलन राखण्यास मदत करतात.

4.उद्दिष्टे:

- 1) हरित सहकारी संस्था संकल्पनेचा अभ्यास करणे.
- 2) शाश्वत विकासामध्ये हरित सहकारी संस्थांच्या भूमिकेचा अभ्यास करणे.
- 3) हरित सहकार क्षेत्रातील संधीचा अभ्यास करणे.
- 4) हरित सहकारी संस्थांसमोरील आव्हानांचे विश्लेषण करणे.

5.गृहितके :

- 1) हरित सहकारी संस्था शाश्वत विकासाला सकारात्मक योगदान देतात.
- 2) हरित सहकारी संस्थांना आर्थिक आणि तांत्रिक अडचणींचा सामना करावा लागतो.

6.संशोधन पद्धती:

प्रस्तुत अध्ययनासाठी वर्णनात्मक आणि विश्लेषणात्मक संशोधन पद्धतीचा वापर करण्यात आला आहे. हा शोध निबंध पूर्णपणे द्वितीय स्त्रोतांवर आधारित असून, यामध्ये विविध तज्ञ लेखकांचे पूर्व प्रकाशित संशोधन, सरकारी धोरणे, सरकारी योजना, सरकारी अहवाल, विशेषांक, दैनिके, वृत्तपत्रे यामध्ये प्रकाशित लेख याचा आधार घेण्यात आला आहे.

सहकारी चळवळीचा परिचय:

भारतातील सहकारी संस्था ग्रामीण आणि शहरी क्षेत्राच्या सामाजिक-आर्थिक विकासाचा कणा आहेत. ह्या संस्था 'वसुधैव कुटुंबकम्' तत्वावर काम करतात. भारतातील सहकारी चळवळ ही लोकांच्या आर्थिक आणि सामाजिक प्रगतीसाठी विकसित झालेली एक महत्वाची लोकशाही पद्धती आहे. या चळवळीची सुरुवात सहकारी पतसंस्था अधिनियम, १९०४ नुसार झाली. त्याचा उद्देश शेतकरी व गरिबांना कर्जसुविधा उपलब्ध करून देणे हा होता. आंतरराष्ट्रीय सहकारी आघाडी नुसार "सहकार म्हणजे समान आर्थिक, सामाजिक किंवा सांस्कृतिक हित साध्य करण्यासाठी स्वेच्छेने एकत्र आलेल्या व्यक्तींनी स्थापन केलेली एक स्वायत्त व लोकशाहीवादी संस्था होय." आजच्या युगात ही चळवळ कृषी, दुग्ध, उद्योग, बँकिंग आणि सेवा क्षेत्रात विस्तारली आहे. देशात १४ ते २० नोव्हेंबर २०२४ दरम्यान साजरा झालेल्या ७१ व्या अखिल भारतीय सहकारी सप्ताह साजरा करण्यात आला त्यात. त्यात "विकासित भारतामध्ये सहकारी संस्थांची भूमिका" या संकल्पनेवर भर देण्यात आला. या सप्ताहात सहकार मंत्रालयाच्या नवीन उपक्रमांना संबोधित करण्यासाठी प्रत्येक दिवसासाठी एक संकल्पना निश्चित करण्यात आली होती. सहकारी संस्थांची सर्वोत्तम पद्धती, पुढील वाटचाल, उपक्रम आणि चर्चा शोधण्यासाठी, नवोन्मेष, तंत्रज्ञान, उद्योजकता, रोजगार, सहकारी संस्थांचे परिवर्तन, सहकारी संस्थांमधील सहकार्य, शाश्वत विकास उद्दिष्टे साध्य करण्यात सहकारी संस्थांची भूमिका, तसेच सहकारी संस्थांमधील महिला, युवक आणि दुर्बल घटक इत्यादी विषयांचा यात समावेश होता. राष्ट्रीय गोलमेज परिषदेमध्ये आर्थिक आव्हानांना तोंड देणे, लवचिकता वाढवणे, शाश्वत पद्धती, हरित वित्तपुरवठा आणि असमानता कमी करणे यामधील सहकारी संस्थांच्या अद्वितीय सामर्थ्यावर भर दिला. गोलमेज परिषदेतील पॅनेल सदस्यांनी सर्वसमावेशकता आणि संसाधनांच्या उपलब्धतेतील

अडथळे दूर करून सहकारी संस्था आपला प्रभाव कसा वाढवू शकतात यावर शोध आणि चर्चा केली. सहकारी सप्ताहात या क्षेत्राला बळकट करण्यासाठी वित्तीय रणनीतीमधील नवकल्पनांच्या गरजेवरही भर देण्यात आला.

हरित सहकारी संस्था व्याख्या:

सामान्यपणे, 'हरित सहकारी संस्था' म्हणजे अशा सहकारी संस्था ज्या सदस्यांच्या आर्थिक विकासासोबत पर्यावरण संरक्षण आणि संसाधनांचा शाश्वत वापर यावर भर देतात. हरित सहकारी संस्था या शाश्वत विकासाच्या संकल्पनेशी थेट जोडलेल्या आहेत. त्या आर्थिक विकास, सामाजिक समता आणि पर्यावरण संरक्षण या तिन्ही घटकांमध्ये संतुलन राखतात. उदाहरणार्थ, सेंद्रिय शेतीमुळे मातीची सुपीकता टिकते, जल व्यवस्थापनामुळे पाण्याची बचत होते आणि अक्षय ऊर्जेमुळे प्रदूषण कमी होते. International Cooperative Alliance च्या अहवालानुसार, या संस्था शाश्वत विकास उद्दिष्टे साध्य करण्यात महत्त्वपूर्ण भूमिका बजावतात. त्यामुळे हरित सहकारी संस्था या भविष्यातील पर्यावरणपूरक आणि समावेशक अर्थव्यवस्थेचा पाया मानल्या जातात.

हरित सहकारी संस्थांची भूमिका:

सहकारी संस्था या "सहकार्याच्या तत्वावर आधारित" सामाजिक-आर्थिक संस्था असून त्यांचा मुख्य उद्देश सदस्यांच्या सामूहिक हिताची पूर्तता करणे हा आहे. हरित सहकारी संस्थांची भूमिका पुढीलप्रमाणे अभ्यासता येईल:

1) पर्यावरण संरक्षण (नवीकरणीय ऊर्जा, सेंद्रिय शेती):

हरित सहकारी संस्था सौर ऊर्जा, पवन ऊर्जा यांसारख्या नवीकरणीय ऊर्जेचा वापर प्रोत्साहित करतात. तसेच सेंद्रिय शेतीच्या माध्यमातून रासायनिक खतांचा वापर कमी करून मृदा आणि पर्यावरणाचे संरक्षण करतात. कचरा व्यवस्थापन आणि पुनर्वापर यांसारख्या उपक्रमांमुळे प्रदूषणातही घट होते.

2) ग्रामीण विकास आणि रोजगार निर्मिती:

या संस्था ग्रामीण भागात स्थानिक संसाधनांवर आधारित उद्योगांना चालना देतात, ज्यामुळे रोजगारनिर्मिती वाढते. शेतकरी, महिला आणि युवकांना आर्थिक संधी उपलब्ध करून देऊन त्यांचा जीवनमान सुधारण्यात मदत होते.

3) संसाधनांचा कार्यक्षम वापर:

हरित सहकारी संस्था पाणी, जमीन आणि ऊर्जा यांचा योग्य आणि नियोजित वापर करतात. यामुळे संसाधनांचा अपव्यय टाळला जातो आणि दीर्घकालीन शाश्वतता साध्य होते.

भारतातील बिगर-पत सहकारी संस्था:

बिगर-पत सहकारी संस्था ह्या आपल्या सदस्यांना कर्ज देण्याऐवजी इतर आर्थिक व सामाजिक सेवा पुरवतात. भारतातील बिगर-पत सहकारी संस्थांच्या प्रमुख प्रकारांमध्ये दुग्धव्यवसाय, कृषी विपणन, ग्राहक, गृहनिर्माण, औद्योगिक आणि मत्स्यव्यवसाय सहकारी संस्थांचा समावेश होतो. या संस्थांचा मुख्य हेतू सदस्यांच्या उत्पादन, विपणन, खरेदी, प्रक्रिया, ग्राहक सेवा, हस्तकला, दुग्ध, गृहनिर्माण, मत्स्य इत्यादी क्षेत्रांमध्ये सहकार्य करणे हा असतो. या संस्था संसाधनांचा योग्य वापर करतात आणि सदस्यांना बाजारपेठ, तंत्रज्ञान व व्यवस्थापन सहाय्य उपलब्ध करून देतात. त्यामुळे त्यांच्या सामूहिक प्रयत्नांद्वारे सदस्यांचे उत्पन्न वाढ, रोजगारनिर्मिती आणि ग्रामीण तसेच शहरी भागातील सामाजिक-आर्थिक विकासाला चालना मिळते.

तक्ता क्र.१

भारतातील बिगर-पत सहकारी संस्थांची संख्या

क्षेत्र	कार्यरत सहकारी संस्था	अकार्यरत सहकारी संस्था	अवसायनाधीन सहकारी संस्था	एकूण सहकारी संस्था
दुग्धव्यवसाय	१००८४४	३०१६६	१०२११	१४१२२१
मत्स्यव्यवसाय	२०९३९	३६५८	९३८	२५५३५
कृषी व संलग्न व्यवसाय	१६८५७	७४९८	२०२०	२६३७५
कामगार	२८०९६	११५४४	४७२२	४४३६२

साखर कारखाने	२०७	५०	२४	२८१
गृहनिर्माण	१६८४४५	१५२२८	७९८४	१९१६५७
ग्राहक	१३४१७	६५८३	१००८	२१००८
पणन	७०२३	१७९५	२८६	९१०४
हातमाग वस्त्रोद्योग आणि विणकर	९२०९	५४५१	१४२९	१६०८९
कृषी प्रक्रिया उद्योग	९०७१	९२३९	४०३१	२२३४१
पशुधन आणि कुक्कुटपालन	१२६८८	२७८०	५६५	१६०३३
महिला कल्याण	१०८०६	११८६९	१५८९	२४२६४

(स्रोत: National Cooperative Database 2023 : A Report)

वरील तक्त्यामध्ये भारतातील बिगर-पत सहकारी संस्था यांची कार्यरत संख्या, अकार्यरत (निष्क्रिय) संख्या आणि अवसायनाधीन (कायदेशीररित्या बंद) सहकारी संस्था यामध्ये वर्गीकरण दिले आहे. दुग्ध सहकारी संस्था लघु शेतकऱ्यांद्वारे चालवला जातात. वरील आकडेवारीनुसार, भारतात एकूण १४१२२१ दुग्ध सहकारी संस्था असून १००८४४ एवढ्या संस्था कार्यरत तर ३०१६६ निष्क्रिय आहेत. भारतातील दुग्ध सहकारी संस्थांनी लक्षणीय प्रगती साधली असून, देशाला जागतिक स्तरावर दुग्ध उत्पादनात अग्रस्थानी नेले आहे. मुख्यतः दुग्ध सहकारी मॉडेल हे देशाच्या अर्थव्यवस्थेला चालना देणारे एक महत्त्वपूर्ण साधन ठरले आहे. श्वेत क्रांती उपक्रमांमुळे दुग्ध सहकारी संस्था बळकट झाल्या, दूध उत्पादन वाढले आणि सहकारी मॉडेलद्वारे शेतकऱ्यांचे सशक्तीकरण झाले आहे. तसेच मत्स्यव्यवसाय क्षेत्र भारतीय अर्थव्यवस्थेत महत्त्वाची भूमिका बजावते. मत्स्य सहकारी क्षेत्र हे दुर्बल घटकांच्या उपजीविकेत, पोषण स्थितीत आणि सामाजिक सुरक्षेत महत्त्वपूर्ण योगदान देते. या क्षेत्राच्या विकासासाठी भारत सरकार धोरणात्मक उपाययोजना, आर्थिक मदत आणि शाश्वत मूल्य साखळी विकसित करण्यासाठी कटिबद्ध आहे. अभ्यासानुसार या क्षेत्रात एकूण २५५३५ प्राथमिक सहकारी संस्था आहेत, त्यापैकी २०९३९ कार्यरत आहेत, ३६५८ निष्क्रिय असून ९३८ परिसमापन प्रक्रियेत आहेत.

भारतामध्ये कृषी व संबंधित क्षेत्रात २६३७५ प्राथमिक सहकारी संस्था आहेत. कृषी आणि संबंधित क्षेत्र केवळ राष्ट्रीय उत्पन्नामध्ये योगदान देत नाहीत, तर औद्योगिक क्षेत्राला कच्चा माल पुरवतात आणि औद्योगिक उत्पादनांसाठी बाजारपेठ देखील उपलब्ध करून देतात. कामगार सहकारी संस्था या कामगारांच्या गटाला रोजगार उपलब्ध करून देण्यासाठी कार्य करतात. इमारती, रस्ते, कारखाने आणि धरणे यांसारख्या बांधकामांसाठी मोठ्या प्रमाणावर कामगारांची गरज असते. अशा वेळी कामगार सहकारी संस्था मध्यस्थ दूर करून कामगारांचे शोषण टाळतात. वरील आकडेवारीनुसार, भारतात ४४३६२ नोंदणीकृत कामगार सहकारी संस्था असून यापैकी २८०९६ संस्था कार्यरत तर ११५४४ संस्था निष्क्रिय आहेत, तर ४७२२ संस्था परिसमापन प्रक्रियेत आहेत.

भारत जगातील सर्वात मोठा साखर उत्पादक आणि ग्राहक देश म्हणून उदयास आला आहे. या क्षेत्रात देशातील एकूण २८१ प्राथमिक सहकारी संस्था नोंदणीकृत असून २०७ कार्यरत तर ५० निष्क्रिय आहेत. देशाच्या एकूण साखर उत्पादनामध्ये सहकारी साखर कारखान्यांचे योगदान अत्यंत महत्त्वपूर्ण आहे. साखर कारखान्यामुळे ऊस उत्पादक शेतकऱ्यांना मोठा दिलासा मिळाला आहे. तसेच, देशाच्या एकूण साखर निर्यातीमध्ये सहकारी साखर क्षेत्राचा ५०% पेक्षा जास्त वाटा आहे, त्यामुळे परकीय चलनात वाढ होते.

गृहनिर्माण सहकारी संस्था लोकांना कमी खर्चात आणि परवडणारी घरे बांधून देतात. तसेच, या संस्थांद्वारे बांधण्यात आलेली घरे स्थानिक बांधकाम नियमांचे पालन करतात. आकडेवारीनुसार, १९१६५७ एवढ्या प्राथमिक सहकारी नोंदणीकृत आहेत. ग्राहक सहकारी संस्थांची राष्ट्रीय अर्थव्यवस्थेमध्ये अत्यंत महत्त्वपूर्ण भूमिका आहे. या संस्था ग्राहकांच्या दारातच आवश्यक वस्तू वाजवी दरात उपलब्ध करून देतात तसेच अत्यावश्यक वस्तूंच्या बाजारभावावर सकारात्मक आणि संतुलित प्रभाव टाकतात. आकडेवारी नुसार, देशभरात ग्राहक क्षेत्रात २१००८ नोंदणीकृत सहकारी संस्था आहेत. विपणन सहकारी संस्था विशेषतः लघु शेतकऱ्यांसाठी महत्त्वाच्या आहेत. कारण त्यांच्याकडे स्वतःच्या उत्पादनाचे विपणन आणि वितरण करण्यासाठी आवश्यक संसाधने नसतात. ह्या संस्था शेतकऱ्यांना अशा बाजारपेठांपर्यंत पोहोचण्यास मदत करतात जिथे वैयक्तिकरित्या पोहोचणे कठीण असते. त्यांच्या एकत्रित कार्यामुळे खर्च कमी होतो आणि नफा वाढतो. आकडेवारीनुसार, देशात सध्या ९१०४ विपणन

सहकारी संस्था नोंदणीकृत आहेत त्यापैकी ७०२३ संस्था कार्यरत आहेत, १७९५ संस्था निष्क्रिय आहेत, तर २८६ संस्था अवसायनाधीन प्रक्रियेत आहेत.

भारतीय हातमाग क्षेत्र अत्यंत प्राचीन असून रोजगारनिर्मितीच्या दृष्टीने अर्थव्यवस्थेला मोठे योगदान देत आले आहे. कृषी अर्थव्यवस्थेमध्ये या क्षेत्राचे महत्त्व खूप मोठे आहे, कारण त्याचे कृषी क्षेत्राशी घनिष्ठ संबंध आहेत. हातमाग उद्योग कच्च्या मालासाठी कृषी उत्पादनांचा वापर करतो आणि त्यामुळे कृषी उत्पादनांसाठी कायमस्वरूपी बाजारपेठ उपलब्ध करून देतो. या क्षेत्रात एकूण १६०८९ प्राथमिक सहकारी संस्था नोंदणीकृत आहेत. हातमाग, वस्त्रोद्योग आणि विणकर क्षेत्र हे महिलांच्या संक्षमीकरणासाठी अत्यंत महत्त्वाचे आहे.

कृषी प्रक्रिया उद्योग म्हणजे कृषी उत्पादनांचे संवर्धन, साठवण आणि हाताळणी करण्यासाठी करण्यात येणाऱ्या तांत्रिक व आर्थिक क्रियाकलापांचा समूह आहे. त्यामुळे कृषी प्रक्रिया उद्योगाची व्याप्ती कापणीपासून ते अंतिम ग्राहकांपर्यंत उत्पादन पोहोचवण्याच्या सर्व प्रक्रियांना व्यापते. भारतामध्ये कृषी प्रक्रिया औद्योगिक क्षेत्रात एकूण २२३४१ प्राथमिक सहकारी संस्था आहेत. त्यापैकी ९०७१ संस्था कार्यरत आहेत, ९२३९ संस्था अकार्यक्षम आहेत, तर ४०३१ संस्था परिसमापन प्रक्रियेत आहेत.

भारतात १६०३३ प्राथमिक स्तरावरील पशुधन सहकारी संस्था असून ह्या संस्था आर्थिक विकासात आणि ग्रामीण लोकसंख्येच्या कल्याणात महत्त्वपूर्ण योगदान देत आहेत. ह्या संस्था देशाच्या पशुधन उद्योगाचा एक मजबूत आधारस्तंभ आणि शाश्वत कृषी विकासाचे आदर्श मॉडेल म्हणून उभ्या आहेत.

भारतामधील महिला सहकारी संस्था या केवळ व्यवसाय नसून त्या जिद्द, सामूहिक शक्ती आणि आर्थिक परिवर्तनाचे प्रतीक आहेत. महिला सहकारी संस्थांचा वाढता विस्तार हा केवळ महिलांसाठीच नव्हे तर त्यांच्या समुदायासाठी आणि देशासाठीही आशेचा किरण आहे. या संस्था विविध क्षेत्रांमध्ये कार्यरत असून त्या क्षेत्रांची विविधता महिलांच्या क्षमतांप्रमाणेच व्यापक आहे. देशात प्राथमिक स्तरावर एकूण २४२६४ महिला सहकारी संस्था कार्यरत आहेत यापैकी १०८०६ संस्था कार्यरत आहेत, ११८६९ संस्था निष्क्रिय आहेत, तर १५८९ संस्था परिसमापन प्रक्रियेत आहेत. महिला सहकारी संस्था शेती, दुग्ध व्यवसाय, हस्तकला, दागिन्यांची निर्मिती तसेच आयटी सेवा यांसारख्या विविध क्षेत्रांमध्ये कार्यरत आहेत. सरकार आणि स्वयंसेवी संस्था या संस्थांना प्रशिक्षण, संसाधने आणि बाजारपेठ उपलब्ध करून देण्यात महत्त्वाची भूमिका बजावतात.

तक्ता क्र.२
भारतातील शहरी व ग्रामीण बिगर-पत सहकारी संस्थांची संख्या

क्षेत्र	शहरी सहकारी संस्था	ग्रामीण सहकारी संस्था	एकूण सहकारी संस्था
दुग्धव्यवसाय	३७१४	१३७५०७	१४१२२१
मत्स्यव्यवसाय	३३५६	२२१७९	२५५३५
कृषी व संलग्न व्यवसाय	२९९७	२३३७८	२६३७५
कामगार	१५६६८	२८६९४	४४३६२
साखर कारखाने	६५	२१६	२८१
गृहनिर्माण	१७६२२४	१५४३३	१९१६५७
ग्राहक	१४६८०	६३२८	२१००८
पणन	२९४२	६१६२	९१०४
हातमाग वस्त्रोद्योग आणि विणकर	७१०१	८९८८	१६०८९
कृषी प्रक्रिया उद्योग	११५६१	१०७८०	२२३४१
पशुधन आणि कुक्कुटपालन	१५७१	१४४६२	१६०३३
महिला कल्याण	३७७३	२०४९१	२४२६४

(स्त्रोत: National Cooperative Database 2023 : A Report)

वरील तक्त्यामध्ये भारतातील बिगर-पत सहकारी संस्था यांची संख्या दिली असून त्यांचे ग्रामीण-शहरी वर्चस्व यांचा अभ्यास करण्यात आला आहे. दुग्धव्यवसाय क्षेत्रात १४१२२१ एकूण सहकारी संस्था असून त्यापैकी ३७१४ सहकारी संस्था शहरी भागात तर १३७५०७ ग्रामीण भागात कार्यरत आहेत. मत्स्यव्यवसाय क्षेत्रात एकूण

२५५३५ सहकारी संस्था असून ३३५६ शहरी भागात तर २२१७९ ग्रामीण भागात कार्यरत आहेत. कृषी व संबंधित क्षेत्रातील एकूण सहकारी संस्थांपैकी २९९७ शहरी भागात तर २३३७८ ग्रामीण भागात आहेत. कामगार सहकारी संस्थांपैकी शहरी भागात १५६६८ आणि ग्रामीण भागात २८६९४ संस्था आहेत. साखर कारखाने एकूणपैकी २१६ संस्था ग्रामीण भागात कार्यरत आहेत, तर उर्वरित ६५ संस्था शहरी भागात आहेत. गृहनिर्माण सहकारी संस्थां १७६२२४(९१%) शहरी भागात असून उर्वरित १५४३३ ग्रामीण भागात आहेत. एकूण प्राथमिक ग्राहक सहकारी संस्थांपैकी १४६८०(६९%) शहरी भागात तर उर्वरित ६३२८ ग्रामीण भागात आहेत. एकूण प्राथमिक पणन सहकारी संस्थांपैकी ६१६२ ग्रामीण तर २९४२ शहरी भागात आहेत. हातमाग वस्तोद्योग आणि विणकर क्षेत्रात ५०% पेक्षा जास्त (८९८८) संस्था ग्रामीण भागात कार्यरत आहेत. कृषी प्रक्रिया उद्योग एकूण संस्थांपैकी ११५६१ संस्था शहरी भागात आणि १०७८० संस्था ग्रामीण भागात नोंदणीकृत आहेत. पशुधन आणि कुक्कुटपालन क्षेत्रात ९०% (१४४६२) संस्था ग्रामीण भागात कार्यरत आहेत, तर उर्वरित १५७१ संस्था शहरी भागात आहेत. महिला कल्याण या एकूण संस्थांपैकी २०४९१ संस्था (सुमारे ८४%) ग्रामीण भागात कार्यरत आहेत, तर उर्वरित ३७७३ संस्था शहरी भागात आहेत.

अशाप्रकारे वरील विश्लेषणावरून आढळून येते कि बहुतांश सहकारी संस्थांची संख्या ग्रामीण भागात जास्त आहे, त्यामुळे ग्रामीण क्षेत्राचा समावेशक विकास होतो आणि हरित अर्थव्यवस्थेचे सरकारचे ध्येय साध्य होण्यास मदत होते.

हरित सहकारी संस्थां संधी:

1) हरित तंत्रज्ञानाचा वाढता वापर:

आजच्या काळात सेंद्रिय शेती, पावसाचे पाणी साठवण, सौर ऊर्जा, बायोगॅस, कचरा व्यवस्थापन यांसारख्या हरित तंत्रज्ञानाचा वापर मोठ्या प्रमाणावर वाढत आहे. सहकारी संस्था एकत्रितपणे सौर ऊर्जा प्रकल्प, बायोगॅस युनिट्स उभारू शकतात. यामुळे उत्पादन खर्च कमी होतो आणि पर्यावरणाचे संरक्षण होते. आधुनिक तंत्रज्ञानामुळे कार्यक्षमता वाढते आणि दीर्घकालीन टिकाव साधता येतो.

2) सरकारी योजना व अनुदाने:

केंद्र व राज्य सरकारांकडून हरित प्रकल्पांसाठी विविध योजना व आर्थिक सहाय्य दिले जाते. त्याचबरोबर सेंद्रिय शेती, सौर ऊर्जा, जलसंवर्धन यांसाठी अनुदान उपलब्ध आहे. सहकारी संस्थांना कमी व्याजदरात कर्ज आणि तांत्रिक मार्गदर्शन दिले जाते, त्यामुळे हरित सहकारी संस्था सुरू करणे आणि चालवणे अधिक सोपे होते.

3) वाढती पर्यावरणीय जागरूकता:

लोकांमध्ये पर्यावरण संरक्षणाबद्दल जागरूकता वाढत आहे. लोक सेंद्रिय उत्पादने, पर्यावरणपूरक वस्तू आणि स्वच्छ ऊर्जा यांना प्राधान्य देत आहेत. त्यामुळे हरित सहकारी संस्थांना सामाजिक स्वीकार आणि समर्थन वाढत आहे.

4) बाजारपेठेतील वाढती मागणी:

देशांतर्गत आणि आंतरराष्ट्रीय बाजारात हरित आणि सेंद्रिय उत्पादनांची मागणी वाढत आहे. सेंद्रिय अन्नपदार्थ, नैसर्गिक उत्पादने, पर्यावरणपूरक वस्तूंना जास्त किंमत मिळते. त्यामुळे निर्यात संधी देखील वाढत आहेत. ई-कॉमर्स आणि डिजिटल मार्केटिंगमुळे सहकारी संस्था थेट ग्राहकांपर्यंत पोहोचू शकतात.

अशाप्रकारे वरील सर्व घटकांचा विचार करता, हरित सहकारी संस्था या शाश्वत विकासासाठी एक मोठी संधी आहेत. त्या आर्थिक विकास, पर्यावरण संरक्षण आणि सामाजिक कल्याण यांचा समतोल साधून 'शाश्वत अर्थव्यवस्था' निर्माण करण्यात महत्त्वाची भूमिका बजावू शकतात.

आव्हाने :

1) आर्थिक संसाधनांची कमतरता:

सौर प्रकल्प, प्रक्रिया यंत्रे सहकारी संस्थांकडे सुरुवातीस प्रकल्प उभारण्यासाठी मोठ्या गुंतवणुकीची गरज असते परंतु त्यांच्याकडे पुरेशा भांडवलाचा अभाव असतो. तसेच बँक कर्ज मिळवताना हमी नसल्यामुळे अडचणी येतात. त्यामुळे निधीअभावी तंत्रज्ञान, विस्तार आणि नवकल्पना मर्यादित राहतात.

2) तांत्रिक ज्ञानाचा अभाव:

हरित तंत्रज्ञान वापरण्यासाठी विशेष तांत्रिक ज्ञान आवश्यक असते. परंतु अनेक सदस्यांना आधुनिक तंत्रज्ञान म्हणजेच सौर ऊर्जा, सेंद्रिय शेती, जल संवर्धन इ. याबाबत माहिती नसते. तसेच प्रशिक्षित मनुष्यबळाची

कमतरता असल्यामुळे प्रकल्पांची कार्यक्षमता कमी होते आणि योग्य प्रशिक्षण व मार्गदर्शन न मिळाल्यास प्रकल्प अयशस्वी होण्याची शक्यता वाढते.

3) व्यवस्थापनातील अकार्यक्षमता:

सहकारी संस्थांचे यश हे प्रभावी व्यवस्थापनावर अवलंबून असते. तांत्रिक ज्ञानाअभावी पारदर्शकतेचा अभाव, नियोजनातील त्रुटी आणि नेतृत्वाची कमतरता दिसून येते. आर्थिक व प्रशासकीय व्यवस्थापन योग्य पद्धतीने न झाल्यास संस्थेचे नुकसान होते.

4) धोरणात्मक अडथळे:

सरकारी नियम व धोरणे कधी गुंतागुंतीची असतात. परवाने, मंजूरी मिळवण्यासाठी वेळ आणि खर्च वाढतो. त्यामुळे विविध विभागांमधील समन्वयाचा अभाव प्रकल्प उशिरा सुरू होण्यास कारणीभूत ठरतो. धोरणांमध्ये सातत्य नसल्यास गुंतवणूकदारांचा विश्वास कमी होतो.

5) बाजारपेठेतील स्पर्धा:

हरित उत्पादने बाजारात स्पर्धात्मक वातावरणात विकावी लागतात. मोठ्या कंपन्यांशी स्पर्धा करणे लहान सहकारी संस्थांसाठी कठीण जाते. तसेच त्यांना किमती, गुणवत्ता आणि ब्रँडिंगमध्ये टिकून राहणे आव्हानात्मक असते. त्यांना विपणन कौशल्यांचा अभाव असल्यामुळे उत्पादनांना योग्य बाजारपेठ मिळत नाही.

7. निष्कर्ष:

या अभ्यासातून असे स्पष्ट होते की हरित सहकारी संस्था या केवळ आर्थिक संस्था नसून त्या शाश्वत आणि सर्वसमावेशक विकासाचा एक प्रभावी मार्ग आहेत. सहकारी क्षेत्र हे भारताच्या सामाजिक-आर्थिक विकासात अत्यंत महत्त्वाची भूमिका बजावत आहे. कृषी, दुग्ध, मत्स्य, कामगार, गृहनिर्माण, विपणन, ग्राहक, हातमाग, कृषी-प्रक्रिया उद्योग, पशुधन आणि महिला सहकारी संस्था या सर्व क्षेत्रांमध्ये सहकारी संस्था प्रभावीपणे कार्यरत आहे. हरित सहकारी संस्था या पारंपरिक सहकारी तत्वांना पर्यावरणपूरक दृष्टिकोनाशी जोडतात. शाश्वत विकास, संसाधनांचा कार्यक्षम वापर आणि पर्यावरण संरक्षण या बाबींवर त्यांचा विशेष भर असतो. तसेच तांत्रिक ज्ञानाचा अभाव, आर्थिक मर्यादा, व्यवस्थापनातील अडचणी आणि धोरणात्मक अडथळे ही प्रमुख आव्हाने देखील दिसून येतात. योग्य धोरणात्मक समर्थन, तांत्रिक प्रगती आणि लोकसहभाग यांच्या मदतीने या संस्था भारताच्या हरित आणि शाश्वत अर्थव्यवस्थेच्या निर्मितीत महत्त्वपूर्ण भूमिका बजावू शकतात.

8. सूचना व शिफारसी:

- 1) **सरकारी धोरणांमध्ये सुधारणा:** हरित सहकारी संस्थांसाठी सुलभ नियम, जलद मंजूरी प्रक्रिया आणि स्थिर धोरणे तयार करणे आवश्यक आहे.
- 2) **प्रशिक्षण व तांत्रिक मदत:** सदस्यांना आधुनिक हरित तंत्रज्ञानाबाबत नियमित प्रशिक्षण व तांत्रिक मार्गदर्शन उपलब्ध करून द्यावे.
- 3) **वित्तीय सहाय्य:** कमी व्याजदरात कर्ज, अनुदान आणि आर्थिक प्रोत्साहन देऊन संस्थांची आर्थिक क्षमता वाढवावी.
- 4) **जनजागृती कार्यक्रम:** पर्यावरणपूरक उत्पादने व हरित सहकाराची महत्त्व जनतेमध्ये प्रसारित करण्यासाठी जागरूकता मोहिमा राबवाव्यात.

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वैचारिक संघर्ष: 'महाराष्ट्र प्रारूप' विरुद्ध 'आनंद प्रारूप' - भारतीय दुग्ध संस्थात्मक उत्क्रांतीचे एक सामाजिक- ऐतिहासिक विश्लेषण

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गोष्टवारा: प्रस्तुत संशोधन पेपर उत्तर-वसाहतकालीन भारताच्या दुग्धव्यवसाय विकासातील दोन परस्परविरोधी विचारधारांचा सखोल ऐतिहासिक मागोवा घेतो: शहरी-केंद्रित "महाराष्ट्र प्रारूप" (आरे मॉडेल) आणि ग्रामीण-केंद्रित "आनंद प्रारूप" (अमूल मॉडेल). १९४० च्या दशकापासून १९९० पर्यंतच्या कालखंडावर लक्ष केंद्रित करून, हा अभ्यास दारा नुसेरवानजी खुरोडी आणि डॉ. वर्गीज कुरियन यांच्यातील वैचारिक द्वंद्याचे विश्लेषण करतो. संशोधनात प्राथमिक ऐतिहासिक दस्तावेज, मंत्रालयातील जुन्या फायली आणि नॅशनल डेअरी डेव्हलपमेंट बोर्ड (NDDB) च्या अहवालांचा आधार घेण्यात आला आहे. 'टोन्ड मिल्क' तंत्रज्ञानाचा उदय, म्हशीच्या दुधाची पावडर बनवण्यावरून झालेली तांत्रिक क्रांती आणि मुंबई दुग्ध योजनेचा अमूलच्या सहकार चळवळीशी असलेला तणावपूर्ण संबंध यावर हा पेपर प्रकाश टाकतो. याव्यतिरिक्त, महाराष्ट्रातील १९६० चा सहकार कायदा आणि त्यातून निर्माण झालेले 'सत्ता आणि आश्रय' (Power and Patronage) राजकारण, तसेच ऑपरेशन फ्लडच्या अंमलबजावणीतील नोकरशाहीचा अडथळा या पैलूंचेही विवेचन केले आहे. हा पेपर असा निष्कर्ष काढतो की, जरी आनंद प्रारूपाने राष्ट्रीय स्तरावर वर्चस्व मिळवले असले, तरी महाराष्ट्राच्या प्रादेशिक ओळखीमध्ये महाराष्ट्र प्रारूपाचे अस्तित्व आजही कायम आहे.

महत्वाचे शब्द: महाराष्ट्र प्रारूप, आनंद प्रारूप, ऑपरेशन फ्लड, दारा खुरोडी, वर्गीज कुरियन, आरे दुग्ध वसाहत, सहकार चळवळ, मुंबईचा इतिहास, ग्रामीण सक्षमीकरण, महानंद डेअरी.

उद्दिष्टे (Objectives):

१. मुंबई दुग्ध योजना (Bombay Milk Scheme) आणि खैरा जिल्हा सहकारी (अमूल) यांच्यातील ऐतिहासिक उगम आणि वैचारिक भिन्नता शोधणे.
२. भारतीय दुग्ध धोरणांना आकार देण्यात दारा खुरोडी आणि डॉ. वर्गीज कुरियन यांच्या भूमिकेचे विश्लेषण करणे.
३. महाराष्ट्र सहकारी संस्था कायदा १९६० चा राज्यातील दुग्ध चळवळीवर झालेला ऐतिहासिक परिणाम अभ्यासणे.
४. ऑपरेशन फ्लडच्या अंमलबजावणीदरम्यान महाराष्ट्रातील नोकरशाहीने दिलेल्या प्रतिरोधाचे दस्तावेज गोळा करणे.
५. दुध संकलन केंद्रांवर 'एकत्र दूध ओतणे' (Pouring together) या कृतीतून जातीपातीच्या भिंती कशा कोसळल्या, याचे सामाजिक-इतिहास विश्लेषण करणे.

संशोधन पद्धती (Research Methodology):

या अभ्यासात 'दीर्घकालीन ऐतिहासिक विश्लेषण' (Longitudinal Historical Analysis) पद्धतीचा वापर करण्यात आला आहे, ज्यामध्ये संस्थात्मक धोरणांना एक "सतत बदलणारी प्रक्रिया" मानले गेले आहे. प्राथमिक माहितीसाठी महाराष्ट्र राज्य दप्तरखाना (Archives) आणि NDDB च्या अंमलबजावणी नोंदींचा वापर केला आहे. डॉ. कुरियन यांचे आत्मचरित्र "I Too Had a Dream" आणि डी.व्ही. घणेकर यांच्या आठवणींमधील 'क्लांडेस्टाईन' (गुप्त) वाटाघाटींचा आधार घेतला आहे. तसेच 'स्ट्रक्चरेशन आणि पॅनार्की' (Structuration and Panarchy) आराखड्याद्वारे ग्रामीण उत्पादकांनी प्रस्थापित मक्तेदारीविरुद्ध कसे संघटन केले, याचे विश्लेषण केले आहे.

शोषणाचा उगम: पोल्सन लिमिटेड आणि मुंबईची दूध व्यवस्था

भारतीय दुग्धव्यवसायाचा आधुनिक इतिहास हा वसाहतकालीन मक्तेदारीविरुद्धच्या विद्रोहातून सुरू होतो. १९४० च्या दशकाच्या सुरुवातीला, ब्रिटिश सरकारने मुंबईतील शहरी ग्राहकांसाठी दुधाची गुणवत्ता सुधारण्याचे ठरवले. यातून १९४५ मध्ये 'बॉम्बे म्युनिसिपल कॉर्पोरेशन मिल्क सप्लाय स्कीम' जन्माला आली. या योजनेअंतर्गत खेडा जिल्ह्यातून (गुजरात) मुंबईला नियमित दूध पुरवठा करण्यासाठी 'पोल्सन लिमिटेड' या खाजगी कंपनीला मक्तेदारी देण्यात आली.

पोल्सनच्या व्यवसायाचे गणित शेतकऱ्यांच्या शोषणावर आधारित होते. गावांमधील उत्पादकांकडून अत्यंत कमी दरात दूध खरेदी करून मुंबईत मोठ्या नफ्यात विकले जात असे. दूध हा नाशवंत पदार्थ असल्याने शेतकऱ्यांकडे कोणताही पर्याय नव्हता. एकतर त्यांना मध्यस्थानी ठरवलेल्या किमतीत दूध विकावे लागे किंवा त्याचे तूप बनवावे लागे, ज्यातून परतावा कमी मिळे. या अन्यायाविरुद्ध सरदार वल्लभभाई पटेल यांच्या मार्गदर्शनाखाली १९४६ मध्ये १५ दिवसांचा ऐतिहासिक दूध संप पुकारला गेला. या संपाच्या यशामुळे ब्रिटिश सरकारला पोल्सनची मक्तेदारी संपवावी लागली आणि १४ डिसेंबर १९४६ रोजी 'खैरा जिल्हा सहकारी दूध उत्पादक संघ' (अमूल) ची नोंदणी झाली.

दारा खुरोडी आणि महाराष्ट्र प्रारूप (The Aarey Vision)

ज्या वेळी आनंदमध्ये सहकारी मॉडेल उभे राहत होते, त्याच वेळी मुंबईत दारा नुसेरवानजी खुरोडी यांच्या नेतृत्वाखाली एक वेगळा संस्थात्मक प्रयोग आकारास येत होता. खुरोडी हे मुंबईचे 'मिल्क कमिशनर' होते आणि त्यांचे लक्ष शहरी स्वच्छता, वैज्ञानिक व्यवस्थापन आणि सरकारी नियंत्रणावर केंद्रित होते.

आरे दुग्ध वसाहत (१९४९): शहरी कल्याणाचे स्वप्न

खुरोडींची सर्वात मोठी उपलब्धी म्हणजे १९४९ मध्ये स्थापन झालेली 'आरे दुग्ध वसाहत' (Aarey Milk Colony). त्या काळी मुंबईतील दूध पुरवठा शहराच्या मध्यभागी असलेल्या अस्वच्छ आणि दाटीवाटीच्या तबेल्यांमधून होत असे. खुरोडी यांनी या सर्व म्हशींना शहराबाहेर उत्तरेकडील उपनगरात एका भव्य वसाहतीत हलवण्याची योजना आखली. या योजनेचे तीन मुख्य उद्देश होते:

- **नागरी स्वच्छता:** शहरातील निवासी भागातून पशू आणि तबेले हटवणे.
- **वैज्ञानिक संगोपन:** आधुनिक पशुवैद्यकीय सेवा आणि वैयक्तिक देखरेखीखाली पशुधन राखणे.
- **स्वस्त दूध पुरवठा:** शहरी ग्राहक आणि रुग्णालयांना पाश्चराइज्ड आणि स्वच्छ दूध उपलब्ध करून देणे.

१९५१ मध्ये पंतप्रधान पंडित नेहरूंनी आरे येथे रोपटे लावून या प्रकल्पाचे उद्घाटन केले आणि ते भारतीय 'कल्याणकारी राज्याचे' प्रतीक बनले.

'टोन्ड मिल्क'ची क्रांती

महाराष्ट्र प्रारूपाचा एक महत्वाचा तांत्रिक खांब म्हणजे "टोन्ड मिल्क" (Toned Milk). खुरोडी यांनी १९४१ च्या आपल्या अहवालात प्रथम ही संकल्पना मांडली होती. म्हशीच्या उच्च फॅट असलेल्या दुधात पाणी आणि आयात केलेली दुधाची भुकटी (Skim milk powder) मिसळून एक पौष्टिक आणि स्वस्त उत्पादन तयार केले गेले. यामुळे

मुंबईतील गरीब मुलांसाठी दूध अर्ध्या किमतीत उपलब्ध झाले. यातून मिळालेल्या नफ्यातूनच पुढे १९६३ मध्ये युनिसेफच्या साहाय्याने वरळी डेअरीची स्थापना झाली, जी त्या वेळी जगातील सर्वात मोठी दुग्ध प्रक्रिया संस्था होती.

वैचारिक युद्ध: खुरोडी विरुद्ध कुरियन

महाराष्ट्र प्रारूप आणि आनंद प्रारूप यांच्यातील संघर्ष केवळ दोन व्यक्तींमधील नसून तो दोन भिन्न अर्थशास्त्रीय दर्शनांमधील होता.

निकष	महाराष्ट्र प्रारूप (आरे/मुंबई)	आनंद प्रारूप (अमूल/गुजरात)
मुख्य लक्ष	शहरी ग्राहक आणि नागरी स्वच्छता	ग्रामीण उत्पादकांचे सक्षमीकरण
उत्पादन मॉडेल	एका जागी केंद्रीभूत 'कॅटल कॉलनी'	विकेंद्रित उत्पादन (Mass Production by Masses)
पुरवठा साखळी	आयात आधारित टोन्ड मिल्क धोरण	स्थानिक संकलनावर आधारित स्वावलंबन
प्रशासन	नोकरशाही नियंत्रण (मिल्क कमिशनर)	लोकशाही सहकारी संघ

'फ्लश सीझन' आणि दुधाच्या भुकटीचे राजकारण

या संघर्षाचा कळस म्हशीच्या दुधाच्या नैसर्गिक चढ-उतारावरून झाला. म्हशी हिवाळ्यात (Flush Season) उन्हाळ्याच्या तुलनेत दुप्पट दूध देतात. कुरियन यांना हे जास्तीचे दूध मुंबईला विकायचे होते, परंतु खुरोडी यांनी ते घेण्यास नकार दिला. खुरोडीचे म्हणणे होते की, "मुंबईचे लोक हिवाळ्यात दुप्पट दूध पीत नाहीत".

खुरोडी हे भारतीय शेतकऱ्यांच्या अतिरिक्त दुधाऐवजी न्यूझीलंडहून येणाऱ्या स्वस्त दूध पावडरला प्राधान्य देत होते. यावर संतापलेल्या डॉ. कुरियन यांनी विचारले होते, "खुरोडी, तुम्ही मुंबईचे मिल्क कमिशनर आहात की न्यूझीलंडचे?". या वादातूनच कुरियन यांनी हारिचंद दलया यांच्या मदतीने जगात पहिल्यांदा म्हशीच्या दुधापासून पावडर बनवण्याचे तंत्रज्ञान विकसित केले आणि पाश्चात्य जगाची तांत्रिक मक्तेदारी मोडीत काढली.

महाराष्ट्राची प्रादेशिक अस्मिता आणि १९६० चा कायदा

१९६० मध्ये भाषिक राज्यांच्या पुनर्रचनेनंतर, अमूल आणि मुंबई दुग्ध योजनेचा राजकीय दुवा तुटला. महाराष्ट्राने आपली स्वतंत्र ओळख निर्माण करण्यासाठी महाराष्ट्र सहकारी संस्था कायदा १९६० लागू केला.

सत्ता आणि आश्रय (Power and Patronage)

महाराष्ट्रातील सहकार चळवळ अमूलप्रमाणे केवळ व्यावसायिक न राहता ती राजकारणाशी खोलवर जोडली गेली. दुग्ध संस्था आणि साखर कारखाने हे "सत्ता आणि आश्रयाचे" (Sites of Power and Patronage) केंद्र बनले. राजकीय नेत्यांनी या संस्थांचा वापर आपल्या समर्थकांना नोकऱ्या आणि कर्ज देण्यासाठी केला, ज्यामुळे एक निष्ठावान 'व्होट बँक' तयार झाली. यामुळे व्यावसायिक कार्यक्षमता कमी झाली आणि राजकीय हितसंबंधांना प्राधान्य मिळाले.

महानंद डेअरीचा उदय (१९६७)

९ जून १९६७ रोजी 'महाराष्ट्र राज्य सहकारी दूध महासंघ' (MRSDMM) ची स्थापना झाली. त्याची फ्लॅगशिप युनिट 'महानंद' डेअरी ही महाराष्ट्र प्रारूपाची नवीन ओळख बनली. एकेकाळी मुंबईत ११ लाख लिटर दूध संकलन करणारी ही संस्था महाराष्ट्राच्या सहकारी गौरवाचे प्रतीक होती.

ऑपरेशन फ्लड आणि नोकरशाहीचा प्रतिकार

१९७० मध्ये जेव्हा डॉ. कुरियन यांनी ऑपरेशन फ्लड सुरू केले, तेव्हा महाराष्ट्रातील नोकरशाहीने त्याला प्रचंड विरोध केला.

'आयएस' आणि डेअरी विभागाचा विरोध

मंत्रालयातील सनदी अधिकारी आणि दुग्ध विभागाचे कर्मचारी यांना भीती होती की, आनंद प्रारूपाच्या अंमलबजावणीमुळे महाराष्ट्राची स्वायत्तता धोक्यात येईल आणि गुजरातच्या मॉडेलचे वर्चस्व निर्माण होईल. त्यांनी अनेक स्तरावर 'लाल फितीचा' कारभार करून प्रकल्प अडवून धरले.

१९८५ चा ऐतिहासिक करार

हा गतिरोध अखेर १९८५ मध्ये तत्कालीन मुख्यमंत्री सुधाकरराव नाईक यांच्या काळात सुटला. सुधाकरराव नाईक हे डॉ. कुरियन यांचे खंदे समर्थक होते. मंत्रालयातील एका बैठकीत कुरियन यांनी धुळीने माखलेल्या फायली पाहून उपरोधिकपणे म्हटले होते, "घणेकर, या सर्व फायलींना आग लावून द्या". अखेर १ एप्रिल १९८५ रोजी ऑपरेशन फ्लड फेज ३ महाराष्ट्रात लागू करण्यासाठी 'वर्षा' बंगल्यावर ऐतिहासिक करार झाला. या करारावर स्वाक्षरी केल्यावर दुसऱ्या दिवशी तो करार सिद्धिविनायक चरणी अर्पण करण्यात आला होता.

सामाजिक आणि पर्यावरणीय परिणाम: उपेक्षित घटकांचा आवाज

या ऐतिहासिक बदलांमुळे ग्रामीण महाराष्ट्राच्या सामाजिक संरचनेत मोठे परिवर्तन घडले.

जातीपातीच्या भिंतींचे निर्मूलन

ग्रामीण भागात पारंपरिकपणे उपेक्षित समाजाचे दूध 'अपवित्र' मानले जाई. सहकार चळवळीने "Pouring together" (एकत्र दूध ओतणे) हे बंधनकारक केले. जेव्हा सर्व जातींचे शेतकरी एकाच रांगेत उभे राहून आपले दूध एकाच संकलन टाकीत ओतू लागले, तेव्हा शेकडो वर्षांची अस्पृश्यतेची प्रथा आर्थिक गरजेपोटी मोडली गेली.

महिला सक्षमीकरण

दुग्ध व्यवसायात महिलांचा वाटा ७०% असला तरी आर्थिक अधिकार मात्र पुरुषांकडेच होते. ऑपरेशन फ्लडच्या तिसऱ्या टप्प्यात 'महिला सहकारी दूध सोसायट्या' (WDCS) स्थापन करण्यावर भर दिला गेला. ग्रामीण महिला आता केवळ मजूर न राहता व्यवस्थापक आणि निर्णय घेणाऱ्या बनल्या.

निष्कर्ष: वसाहतीचा अस्त आणि ग्रीडचा विजय

'महाराष्ट्र प्रारूप' आणि 'आनंद प्रारूप' यांच्यातील वैचारिक युद्धात अखेर ग्रामीण उत्पादकांच्या सक्षमीकरणाचा म्हणजे 'ग्रीड' चा विजय झाला. ऑपरेशन फ्लडने भारताला दुध टंचाईतून बाहेर काढून जगातील सर्वात मोठा उत्पादक देश बनवले.

मात्र, महाराष्ट्रातील राजकारणामुळे 'महानंद' सारख्या संस्थांचे नुकसान झाले. २०२४ मधील महानंद डेअरीचे व्यवस्थापन NDDB कडे सोपवण्याचा निर्णय हा या ऐतिहासिक संघर्षाचाच एक शेवटचा अध्याय आहे. वसाहतीतील म्हशींचे पालन करण्याच्या खुरोडींच्या धोरणापेक्षा शेतकऱ्यांच्या घराघरातील दुधाला बाजारपेठ देणारे कुरियन यांचे धोरण अधिक यशस्वी ठरले. तरीही, या प्रवासात महाराष्ट्रातील 'खिल्लार' आणि 'डांगी' सारख्या देशी पशुधनाच्या जैवविविधतेचा झालेला न्हास हा एक काळा डाग ठरला आहे.

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महिला अध्यापकांच्या संशोधनातील अडचणी आणि ग्रंथालयाची भूमिका

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सारांश : आजच्या ज्ञानाधिष्ठित युगात संशोधन कार्याला अत्यंत महत्त्व प्राप्त झाले आहे. महाविद्यालयीन स्तरावर महिला अध्यापक संशोधन क्षेत्रात सक्रिय सहभाग घेत असल्या तरी त्यांना अनेक अडचणींचा सामना करावा लागतो. प्रस्तुत संशोधन पेपरमध्ये महिला अध्यापकांच्या संशोधनातील अडचणींचा अभ्यास करून त्या अडचणी कमी करण्यात ग्रंथालयाची भूमिका स्पष्ट करण्यात आली आहे. वेळेची मर्यादा, कौटुंबिक जबाबदाऱ्या, माहिती व तांत्रिक साधनांची मर्यादा या प्रमुख अडचणी असून आधुनिक ग्रंथालय सेवा या अडचणी दूर करण्यासाठी उपयुक्त ठरतात.

1. प्रस्तावना (Introduction):

उच्च शिक्षण क्षेत्रात संशोधन ही गुणवत्ता वाढविणारी प्रमुख प्रक्रिया आहे. महिला अध्यापक संशोधन क्षेत्रात योगदान देत असल्या तरी त्यांच्यावर असलेले विविध सामाजिक व वैयक्तिक बंधनांमुळे त्यांच्या संशोधन कार्यात अडथळे निर्माण होतात. या पार्श्वभूमीवर ग्रंथालय हे केवळ माहिती साठवणूक केंद्र नसून संशोधनासाठी सहाय्य करणारी एक महत्त्वपूर्ण संस्था म्हणून उदयास आले आहे.

आजच्या ज्ञानाधिष्ठित (Knowledge-based) समाजात उच्च शिक्षण आणि संशोधन यांना अत्यंत महत्त्व प्राप्त झाले आहे. जागतिकीकरण, तंत्रज्ञानाचा झपाट्याने होणारा विकास आणि माहितीचा वाढता साठा यामुळे शिक्षण क्षेत्रात संशोधनाची गरज अधिक अधोरेखित झाली आहे. महाविद्यालयीन आणि विद्यापीठीय स्तरावर अध्यापकांनी केवळ अध्यापनापुरते मर्यादित न राहता संशोधन कार्यात सक्रिय सहभाग घेणे अपेक्षित आहे. संशोधनामुळे ज्ञाननिर्मिती, नवकल्पना आणि शैक्षणिक गुणवत्ता वृद्धिंगत होते.

महिला अध्यापक आज विविध क्षेत्रांमध्ये उल्लेखनीय कार्य करत असून संशोधन क्षेत्रातही त्यांचे योगदान वाढत आहे. तथापि, त्यांच्या संशोधन प्रवासात अनेक सामाजिक, वैयक्तिक आणि व्यावसायिक अडथळे आढळून येतात. विशेषतः वेळेची मर्यादा आणि कौटुंबिक जबाबदाऱ्या या दोन घटकांचा त्यांच्या संशोधन कार्यावर मोठा परिणाम होतो. महिला अध्यापकांना अध्यापन, प्रशासकीय कामे आणि संशोधन यांचा समतोल राखताना घरगुती जबाबदाऱ्यांचाही तितकाच विचार करावा लागतो. यामुळे संशोधनासाठी आवश्यक असलेला सातत्यपूर्ण वेळ, एकाग्रता आणि ऊर्जा यांची कमतरता भासते.

याशिवाय, अद्ययावत माहिती संसाधनांची उपलब्धता, डिजिटल साधनांचे ज्ञान, आणि संशोधनासाठी आवश्यक असलेली माहिती शोधण्याची कौशल्ये या बाबतीतही काही मर्यादा दिसून येतात. अनेक वेळा योग्य संदर्भ साहित्य मिळण्यात होणारा विलंब किंवा अडचणी यामुळे संशोधनाची गती मंदावते. अशा परिस्थितीत, संशोधन प्रक्रियेला गती देण्यासाठी आणि अडचणी कमी करण्यासाठी सक्षम सहाय्यक प्रणालीची आवश्यकता भासते. या पार्श्वभूमीवर ग्रंथालयाची भूमिका अत्यंत महत्त्वाची ठरते. आधुनिक काळात ग्रंथालये ही केवळ पुस्तकांचे संग्रहालय नसून ती

माहिती व ज्ञान व्यवस्थापनाची केंद्रे (Information and Knowledge Resource Centers) बनली आहेत. डिजिटल ग्रंथालय सेवा, ई-जर्नल्स, ई-बुक्स, ऑनलाइन डेटाबेस, तसेच माहिती साक्षरता (Information Literacy) प्रशिक्षण यांसारख्या सुविधांमुळे संशोधन कार्य अधिक सुलभ झाले आहे. विशेषतः महिला अध्यापकांसाठी, ज्यांना वेळेची मर्यादा आणि कौटुंबिक जबाबदाऱ्यांमुळे प्रत्यक्ष ग्रंथालयात जाणे नेहमी शक्य नसते, त्यांच्यासाठी डिजिटल आणि दूरस्थ (remote) प्रवेश सुविधा अत्यंत उपयुक्त ठरतात.

ग्रंथपाल (Librarian) यांची मार्गदर्शक म्हणून असलेली भूमिका देखील संशोधन प्रक्रियेत महत्त्वपूर्ण आहे. योग्य माहिती स्रोतांची निवड, संदर्भ सेवा, तसेच अद्ययावत संशोधनाची माहिती पुरविणे यामुळे संशोधन कार्य अधिक परिणामकारक होते. तसेच, ग्रंथालयांमार्फत आयोजित करण्यात येणारे प्रशिक्षण कार्यक्रम आणि कार्यशाळा महिला अध्यापकांच्या संशोधन कौशल्यांमध्ये वृद्धी घडवून आणतात. म्हणूनच, महिला अध्यापकांच्या संशोधनातील अडचणींचा सखोल अभ्यास करून त्या अडचणी दूर करण्यासाठी ग्रंथालयाची भूमिका समजून घेणे आवश्यक आहे. प्रस्तुत संशोधन पेपरमध्ये या संदर्भातील विविध अडचणींचे विश्लेषण करून ग्रंथालय सेवा या अडचणी कमी करण्यात कशा प्रकारे सहाय्यभूत ठरतात याचा अभ्यास करण्यात आला आहे.

2. उद्दिष्टे (Objectives):

1. महिला अध्यापकांच्या संशोधनातील प्रमुख अडचणींचा अभ्यास करणे
2. वेळेची मर्यादा व कौटुंबिक जबाबदाऱ्यांचा प्रभाव समजून घेणे
3. ग्रंथालय सेवांची भूमिका विश्लेषित करणे
4. संशोधन कार्य सुलभ करण्यासाठी उपाय सुचवणे

3. संशोधन पद्धती (Research Methodology):

या संशोधनासाठी वर्णनात्मक संशोधन पद्धती (Descriptive Method) वापरण्यात आली आहे. संबंधित साहित्याचा अभ्यास, निरीक्षण आणि अनुभवाधारित विश्लेषण यांचा आधार घेतला आहे.

महिला अध्यापकांच्या संशोधनातील अडचणी

वेळेची मर्यादा

महिला अध्यापकांना अध्यापन, प्रशासकीय कामे आणि इतर शैक्षणिक जबाबदाऱ्या पार पाडाव्या लागतात. त्यामुळे संशोधनासाठी आवश्यक असलेला अखंड वेळ मिळत नाही.

महिला अध्यापकांच्या संशोधन कार्यातील एक महत्वाची अडचण म्हणजे वेळेची मर्यादा होय. अध्यापन, प्रशासकीय कामे आणि विविध शैक्षणिक जबाबदाऱ्या यामुळे त्यांचा मोठा वेळ खर्च होतो. त्याचबरोबर, संशोधनासाठी आवश्यक असलेला अखंड आणि एकाग्र वेळ मिळणे कठीण होते. अनेक वेळा परीक्षा, पेपर तपासणी आणि बैठका यामुळे संशोधन कार्य पुढे ढकलले जाते. वेळेच्या अभावामुळे दीर्घकालीन संशोधन प्रकल्प पूर्ण करण्यात अडचणी निर्माण होतात. याशिवाय, संशोधनासाठी आवश्यक असलेले वाचन, माहिती संकलन आणि लेखन यासाठी पुरेसा वेळ मिळत नाही. त्यामुळे संशोधनाची गुणवत्ता आणि गती दोन्ही प्रभावित होतात. अशा परिस्थितीत वेळेचे योग्य नियोजन करणे अत्यंत आवश्यक ठरते.

कौटुंबिक जबाबदाऱ्या (Family Responsibilities)

महिला अध्यापकांच्या संशोधन कार्यात कौटुंबिक जबाबदाऱ्या हा अत्यंत महत्वाचा आणि प्रभावी घटक आहे. भारतीय सामाजिक संरचनेत महिलांवर घरगुती जबाबदाऱ्यांचे अधिक ओझे असते, ज्यामध्ये स्वयंपाक, घर व्यवस्थापन, बालसंगोपन आणि कुटुंबातील वयोवृद्धांची काळजी घेणे यांचा समावेश होतो. या सर्व जबाबदाऱ्यांमुळे महिला अध्यापकांना त्यांच्या व्यावसायिक कार्यासोबतच घरगुती जीवनातही सक्रिय भूमिका पार पाडावी लागते. यामुळे मानसिक ताण वाढतो आणि संशोधनासाठी वेळ व उर्जा कमी पडते.

अध्यापन आणि संशोधन या दोन्ही जबाबदाऱ्यांमध्ये संतुलन राखताना त्यांना घरगुती कर्तव्यांकडेही तितक्याच जबाबदारीने लक्ष द्यावे लागते. विशेषतः लहान मुलांचे संगोपन किंवा कुटुंबातील सदस्यांची काळजी घेणे यासाठी वेळ आणि मानसिक ऊर्जा मोठ्या प्रमाणात खर्च होते. यामुळे संशोधनासाठी आवश्यक असलेली सातत्यपूर्ण एकाग्रता आणि वेळ मिळणे कठीण होते. अनेक वेळा संशोधन कार्य घरगुती कामांनंतर उरलेल्या मर्यादित वेळेतच करावे लागते, ज्यामुळे त्याची गुणवत्ता आणि गती प्रभावित होते.

याशिवाय, कौटुंबिक जबाबदाऱ्यांमुळे महिला अध्यापकांना परिषद, कार्यशाळा किंवा संशोधनाशी संबंधित इतर शैक्षणिक उपक्रमांमध्ये नियमितपणे सहभागी होता येत नाही. त्यामुळे त्यांच्या ज्ञानवृद्धीच्या संधी कमी होतात. काही वेळा कुटुंबातील सदस्यांकडून अपेक्षित सहकार्य न मिळाल्यास मानसिक ताण वाढतो, ज्याचा परिणाम संशोधन कार्यावर होतो.

तसेच, "Dual Role" म्हणजेच घर आणि करिअर या दोन्ही क्षेत्रांमध्ये जबाबदाऱ्या पार पाडताना महिला अध्यापकांना शारीरिक व मानसिक थकवा जाणवतो. या थकव्यामुळे संशोधनासाठी लागणारी सर्जनशीलता आणि उत्साह कमी होतो. परिणामी, संशोधन कार्यात सातत्य राखणे कठीण होते.

म्हणूनच, महिला अध्यापकांच्या संशोधन कार्याचा विचार करताना कौटुंबिक जबाबदाऱ्यांचा सखोल अभ्यास करणे आवश्यक आहे. या जबाबदाऱ्यांमुळे निर्माण होणाऱ्या अडचणी लक्षात घेऊन त्यावर योग्य उपाययोजना केल्यास महिला अध्यापकांच्या संशोधन कार्यात निश्चितच सकारात्मक बदल घडू शकतो.

माहिती व साधनांची मर्यादा (Lack of Information and Resources)

अद्ययावत संशोधन साहित्य, ई-जर्नल्स आणि डेटाबेस यांची अपुरी उपलब्धता ही एक मोठी अडचण आहे. महिला अध्यापकांच्या संशोधन कार्यात माहिती व साधनांची मर्यादा ही एक गंभीर अडचण मानली जाते. संशोधनासाठी अद्ययावत, विश्वासार्ह आणि गुणवत्तापूर्ण माहितीची आवश्यकता असते; परंतु सर्व महाविद्यालयीन स्तरावर अशी संसाधने सहज उपलब्ध असतातच असे नाही. अनेक वेळा ग्रंथालयांमध्ये आवश्यक त्या प्रमाणात नवीन पुस्तके, संशोधन जर्नल्स आणि संदर्भ साहित्य उपलब्ध नसते, ज्यामुळे संशोधन कार्याची गती मंदावते. डिजिटल युगात ई-जर्नल्स, ई-बुक्स आणि ऑनलाइन डेटाबेस यांचे महत्त्व मोठ्या प्रमाणात वाढले आहे. तथापि, काही महाविद्यालयांमध्ये या डिजिटल साधनांची सदस्यता (subscription) मर्यादित असते किंवा अद्ययावत डेटाबेस उपलब्ध नसतात. परिणामी, महिला अध्यापकांना आवश्यक माहिती मिळवण्यासाठी अधिक वेळ आणि प्रयत्न करावे लागतात. काही वेळा महागड्या डेटाबेसचा अभाव असल्यामुळे संशोधनासाठी आवश्यक असलेले उच्च दर्जाचे साहित्य मिळण्यात अडथळे येतात. याशिवाय, माहिती शोधण्याच्या (Information Retrieval) कौशल्यांचा अभाव ही देखील एक महत्त्वाची समस्या आहे. अनेक महिला अध्यापकांना योग्य कीवर्ड्स वापरणे, डेटाबेसमध्ये शोध घेणे किंवा संदर्भ व्यवस्थापन साधने (reference management tools) वापरणे याबाबत पुरेसे प्रशिक्षण मिळालेले नसते. त्यामुळे उपलब्ध संसाधनांचा पूर्ण क्षमतेने उपयोग होत नाही.

तांत्रिक साधनांच्या मर्यादाही संशोधन कार्यावर परिणाम करतात. संगणकांची कमतरता, मंद इंटरनेट गती, तसेच आवश्यक सॉफ्टवेअरचा अभाव यामुळे संशोधन प्रक्रियेत अडथळे निर्माण होतात. विशेषतः ग्रामीण किंवा अर्ध-शहरी भागातील महाविद्यालयांमध्ये ही समस्या अधिक तीव्रतेने जाणवते. तसेच, दूरस्थ प्रवेश (Remote Access) सुविधेचा अभाव असल्यास संशोधकांना प्रत्यक्ष ग्रंथालयात जावे लागते, जे वेळेच्या मर्यादेमुळे नेहमी शक्य होत नाही. यामुळे माहिती मिळवण्याची प्रक्रिया अधिक वेळखाऊ ठरते. या सर्व मर्यादांमुळे महिला अध्यापकांच्या संशोधन कार्याची गुणवत्ता, गती आणि परिणामकारकता यावर नकारात्मक परिणाम होतो. म्हणूनच, ग्रंथालयांनी अद्ययावत माहिती संसाधने उपलब्ध करून देणे, डिजिटल सुविधा वाढवणे आणि माहिती साक्षरतेचे प्रशिक्षण देणे अत्यंत आवश्यक आहे.

तांत्रिक अडचणी (Technical Difficulties)

डिजिटल साधनांचा मर्यादित वापर, इंटरनेट सुविधा आणि माहिती शोधण्याच्या कौशल्यांचा अभाव ही देखील समस्या आहे. महिला अध्यापकांच्या संशोधन कार्यात तांत्रिक अडचणी हा एक महत्त्वपूर्ण अडथळा आहे. आधुनिक संशोधन प्रक्रिया मोठ्या प्रमाणावर डिजिटल साधनांवर आणि तंत्रज्ञानावर अवलंबून असल्यामुळे संगणक, इंटरनेट

आणि विविध सॉफ्टवेअरचे ज्ञान अत्यावश्यक ठरते. तथापि, सर्वच महिला अध्यापकांना या तांत्रिक साधनांचा पुरेसा अनुभव किंवा प्रशिक्षण मिळालेले असते असे नाही, ज्यामुळे संशोधन प्रक्रियेत अडथळे निर्माण होतात.

डिजिटल साधनांचा मर्यादित वापर ही प्रमुख समस्या आहे. ई-जर्नल्स, ऑनलाइन डेटाबेस, आणि डिजिटल ग्रंथालयांचा प्रभावी वापर करण्यासाठी आवश्यक असलेली कौशल्ये अनेकदा अपुरी असतात. योग्य कीवर्ड्स वापरणे, प्रगत शोध (advanced search) तंत्रांचा उपयोग करणे किंवा विविध डेटाबेसमधून माहिती संकलित करणे या गोष्टींमध्ये अडचणी येतात. परिणामी, आवश्यक माहिती मिळवण्यासाठी अधिक वेळ खर्च होतो.

इंटरनेट सुविधेच्या संदर्भातही काही मर्यादा दिसून येतात. मंद इंटरनेट गती, वारंवार खंडित होणारी कनेक्टिव्हिटी, तसेच Wi-Fi सुविधेचा अभाव यामुळे ऑनलाइन संशोधन कार्यात अडथळे येतात. विशेषतः ग्रामीण आणि अर्ध-शहरी भागातील महाविद्यालयांमध्ये ही समस्या अधिक प्रकर्षाने जाणवते. तसेच, संशोधनासाठी आवश्यक असलेल्या सॉफ्टवेअरचा अभाव किंवा त्यांचा योग्य वापर न येणे ही देखील एक महत्वाची अडचण आहे. डेटा विश्लेषणासाठी SPSS, Excel, किंवा इतर सांख्यिकीय साधनांचा वापर, तसेच संदर्भ व्यवस्थापनासाठी Zotero, Mendeley यांसारख्या साधनांची माहिती नसल्यामुळे संशोधन कार्य अधिक क्लिष्ट आणि वेळखाऊ बनते.

याशिवाय, डिजिटल सुरक्षा (cyber security), डेटा साठवणूक (data storage) आणि फाइल व्यवस्थापन याबाबत जागरूकतेचा अभाव असल्यास संशोधन डेटा हरवण्याचा धोका असतो. तांत्रिक समस्यांमुळे संशोधनातील सातत्य खंडित होऊ शकते आणि संशोधकांचा आत्मविश्वासही कमी होतो. म्हणूनच, महिला अध्यापकांच्या संशोधन कार्यातील तांत्रिक अडचणी दूर करण्यासाठी नियमित प्रशिक्षण, कार्यशाळा आणि तांत्रिक सहाय्य उपलब्ध करून देणे अत्यंत आवश्यक आहे. ग्रंथालये या संदर्भात महत्वाची भूमिका बजावू शकतात, कारण ती केवळ माहितीपुरवठा केंद्र नसून तांत्रिक मार्गदर्शन देणारी संस्था म्हणूनही कार्य करू शकतात.

4. ग्रंथालयाची भूमिका (Role of Library)

महिला अध्यापकांच्या संशोधनातील विविध अडचणी लक्षात घेतल्यास ग्रंथालय हे केवळ माहिती साठवणूक केंद्र नसून एक प्रभावी Research Support System म्हणून कार्य करते. आधुनिक ग्रंथालय सेवा संशोधन कार्य अधिक सुलभ, जलद आणि परिणामकारक बनवतात. खालीलप्रमाणे ग्रंथालयाच्या विविध सेवांची सविस्तर भूमिका स्पष्ट करता येते:

डिजिटल ग्रंथालय सेवा (Digital Library Services)

डिजिटल युगात ग्रंथालयांनी पारंपरिक सेवांबरोबरच ई-रिसोर्सची मोठ्या प्रमाणावर उपलब्धता करून दिली आहे. ई-जर्नल्स, ई-बुक्स, ऑनलाइन डेटाबेस आणि संस्थात्मक रिपॉझिटरीज (Institutional Repositories) यांमुळे संशोधकांना आवश्यक माहिती सहजपणे मिळते. महिला अध्यापकांसाठी ही सेवा विशेषतः उपयुक्त ठरते, कारण त्यांना घरबसल्या (remote access) संशोधन करता येते.

डिजिटल ग्रंथालय सेवा वेळेची बचत करतात आणि माहिती मिळवण्याची प्रक्रिया जलद करतात. 24x7 उपलब्धतेमुळे महिला अध्यापक त्यांच्या सोयीप्रमाणे संशोधन कार्य करू शकतात, ज्यामुळे वेळेच्या मर्यादेची अडचण कमी होते.

माहिती साक्षरता प्रशिक्षण (Information Literacy Training)

संशोधनासाठी माहिती शोधणे, तिचे मूल्यमापन करणे आणि योग्य पद्धतीने वापरणे ही कौशल्ये अत्यंत आवश्यक असतात. ग्रंथालयांमार्फत आयोजित करण्यात येणाऱ्या माहिती साक्षरता प्रशिक्षण कार्यक्रमांमुळे महिला अध्यापकांना विविध डेटाबेसचा वापर, प्रगत शोध तंत्र (advanced search techniques), तसेच संदर्भ देण्याची पद्धत शिकता येते.

याशिवाय, Zotero, Mendeley यांसारख्या संदर्भ व्यवस्थापन साधनांचा वापर करण्याचे प्रशिक्षण दिले जाते. या प्रशिक्षणामुळे संशोधन अधिक संगठित, अचूक आणि वेळ वाचवणारे बनते. परिणामी, संशोधनाची गुणवत्ता सुधारते आणि आत्मविश्वास वाढतो.

संदर्भ सेवा (Reference Services)

संदर्भ सेवा ही ग्रंथालयाची एक अत्यंत महत्वाची सेवा आहे. या सेवेमार्फत ग्रंथपाल संशोधकांना आवश्यक माहिती शोधण्यात मदत करतात. योग्य पुस्तके, जर्नल्स, संशोधन लेख आणि डेटाबेस यांची निवड करण्यासाठी मार्गदर्शन केले जाते. महिला अध्यापकांना अनेकदा माहिती शोधण्यासाठी वेळ मिळत नाही; अशा वेळी ग्रंथपालांची मदत अत्यंत उपयुक्त ठरते. Literature search, bibliography तयार करणे, तसेच योग्य संदर्भ शैली (APA, MLA इ.) वापरण्यासाठी सहाय्य मिळते. यामुळे संशोधन अधिक प्रभावी आणि वेळेची बचत करणारे बनते.

प्रचलित जागरूकता सेवा (Current Awareness Services)

Current Awareness Services (CAS) म्हणजे संशोधकांना त्यांच्या विषयाशी संबंधित नवीन माहिती, संशोधन लेख, जर्नल्स आणि प्रकाशनांबद्दल नियमित माहिती पुरविणे होय. ई-मेल अलर्ट्स, न्यूजलेटर्स, आणि सूचना सेवा यांद्वारे ही माहिती दिली जाते.

महिला अध्यापकांना सतत नवीन माहिती शोधण्यासाठी वेळ मिळत नाही; अशा परिस्थितीत CAS सेवा त्यांना अद्ययावत ठेवते. त्यामुळे त्यांना संशोधनातील नवीन प्रवाह (recent trends) समजतात आणि त्यांच्या संशोधनाची दिशा अधिक योग्य प्रकारे ठरवता येते.

संशोधनपूरक वातावरण (Research-friendly Environment)

ग्रंथालये शांत, अभ्यासासाठी अनुकूल आणि एकाग्रतेस पूरक असे वातावरण उपलब्ध करून देतात. वाचन कक्ष, स्वतंत्र अभ्यास जागा, Wi-Fi सुविधा आणि आवश्यक तांत्रिक साधने यामुळे संशोधकांना एकाग्रतेने काम करता येते.

महिला अध्यापकांना घरगुती वातावरणात अनेक वेळा व्यत्यय येत असल्यामुळे ग्रंथालयातील शांत वातावरण त्यांच्यासाठी विशेष महत्वाचे ठरते. अशा वातावरणात त्यांना संशोधनासाठी आवश्यक असलेली एकाग्रता आणि सातत्य राखता येते, ज्यामुळे त्यांच्या कार्याची गुणवत्ता आणि उत्पादकता वाढते.

5.सूचना (Suggestions)

- ग्रंथालयांनी अधिक डिजिटल सुविधा उपलब्ध करून द्याव्यात
- नियमित प्रशिक्षण कार्यक्रम आयोजित करावेत
- Remote access सुविधा वाढवावी
- महिला अध्यापकांसाठी विशेष संशोधन सहाय्य सेवा उपलब्ध कराव्यात

6.निष्कर्ष:

महिला अध्यापकांच्या संशोधनातील अडचणी मुख्यतः वेळ व्यवस्थापन आणि कौटुंबिक जबाबदाऱ्यांशी संबंधित आहेत. ग्रंथालयाच्या आधुनिक सेवांमुळे या अडचणी मोठ्या प्रमाणात कमी होऊ शकतात. महिला अध्यापक संशोधन क्षेत्रात महत्त्वपूर्ण भूमिका बजावत असल्या तरी त्यांना विविध अडचणींचा सामना करावा लागतो. या अडचणी दूर करण्यासाठी ग्रंथालयाची भूमिका अत्यंत महत्वाची आहे. आधुनिक ग्रंथालय सेवा महिला अध्यापकांच्या संशोधन कार्याला गती देतात आणि त्यांची उत्पादकता वाढवतात.

वरील सर्व सेवांमधून स्पष्ट होते की ग्रंथालय हे महिला अध्यापकांच्या संशोधनातील अडचणी कमी करण्यासाठी एक प्रभावी साधन आहे. डिजिटल सुविधा, प्रशिक्षण, मार्गदर्शन आणि अनुकूल वातावरण यांच्या माध्यमातून ग्रंथालय संशोधन कार्य अधिक सुलभ, गतिमान आणि गुणवत्तापूर्ण बनवते. त्यामुळे आधुनिक शिक्षण व्यवस्थेत ग्रंथालयाची भूमिका अत्यंत महत्त्वपूर्ण ठरते

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साहित्य : सामाजिक परिवर्तन और जागरूकता का सशक्त माध्यम

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सारांश: साहित्यकार समाज का एक सजग प्रहरी और युगदृष्टा होता है। वह समाज में व्याप्त कुरीतियों, अभावों और असमानताओं को चित्रित कर जनमानस में सकारात्मक सोच पैदा करता है। मैथिलीशरण गुप्त के शब्दों में, कवि का कर्म केवल मनोरंजन नहीं, बल्कि उचित उपदेश देना भी है। अतः साहित्य सत्य, शिव और सुंदर की साधना करते हुए एक समतामूलक समाज के निर्माण का मार्ग प्रशस्त करता है। साहित्य की शक्ति असीम है। साहित्य में वह क्षमता है, जो सोए हुए जनमानस को जागृत कर क्रांति का सूत्रपात कर सके। साहित्य और समाज का संबंध अटूट है। साहित्य समाज का दर्पण और मार्गदर्शक भी है। साहित्यकारों ने हर युग में अपनी लेखनी के माध्यम से सामाजिक विषमताओं और शोषण के विरुद्ध आवाज उठाई है। साहित्य नारी, दलित, आदिवासी, और किन्नर विमर्श जैसे माध्यमों से हाशिए के समाज को मुख्यधारा में लाने का प्रयास भी करता है। अंततः हम कह सकते हैं कि लोक-कल्याण की भावना से ओत-प्रोत साहित्य ही सामाजिक परिवर्तन और जागरूकता का सबसे सशक्त और स्थायी माध्यम है।

बीज शब्द : साहित्य और समाज, दर्पण, भावनात्मक उपज, संवेदना, सामाजिक परिवर्तन, लोक-कल्याण, युगदृष्टा, दलित-नारी-आदिवासी-किन्नर-वृद्ध – विमर्श।

1. प्रस्तावना:

साहित्य समाज का दर्पण है, समाज का प्रतिबिंब है, समाज का मार्गदर्शक है। साहित्य समाज को दिशा देने वाला 'दीपक' भी है। साहित्य में मनुष्य और उसके समाज का प्रमुखता से चित्रण होता है। साहित्य एक गुरु के समान मार्गदर्शन करने वाला, मित्र के समान उपदेश देने वाला, तथा कांता के समान मनोमुग्धकारी है। किसी भी राष्ट्र या सभ्यता की जानकारी उसके साहित्य से ही प्राप्त होती है। साहित्य और समाज एक सिक्के के दो पहलू हैं। साहित्य का उद्देश्य मनोरंजन करना मात्र नहीं है, अपितु इसका उद्देश्य समाज का मार्गदर्शन करना भी है। साहित्य मनुष्य की भावनात्मक उपज है। वह समाज में जो भी अच्छा-बुरा, पाप-पुण्य देखता है, महसूस करता है साहित्य उन्हीं मानसिक संवेदनाओं का लिखित रूप है। राष्ट्रकवि मैथिलीशरण गुप्त के शब्दों में -

“केवल मनोरंजन न कवि का कर्म होना चाहिए,
उसमें उचित उपदेश का भी मर्म होना चाहिए।”^१

साहित्य जनमानस को सकारात्मक सोच तथा लोककल्याण के कार्यों के लिए प्रेरणा देने का कार्य करता है। साहित्य के विकास की कहानी मानव सभ्यता के विकास की गाथा है। मानव सभ्यता के विकास में

साहित्य का महत्वपूर्ण योगदान रहा है। मानव की विचारधारा में परिवर्तन लाने का कार्य साहित्य द्वारा ही किया जाता है। समाज या राष्ट्र में जितने भी परिवर्तन आए हैं, वे सब साहित्य के द्वारा ही आए हैं। "साहित्य का अर्थ हितेन सह सहित लगाते हुए हम कहेंगे कि साहित्य वही है, जिससे मानव-हित का संपादन हो।" साहित्यकार समाज में फैली कुरितियों, विसंगतियों, विकृतियों, अभावों, विषमताओं, असमानताओं आदि को अपने साहित्य में चित्रित करता है। साहित्यकार समाज का प्रतिनिधि होने के साथ-साथ युग का दृष्टा भी होता है। राष्ट्रप्रेम की भावना जागृत करता है और 'वसुधैव कुटुम्बकम्' की भावना विकसित करता है। किसी भी समाज को निकट से पहचानने के लिए उसके साहित्य का अध्ययन करना भी आवश्यक है।

साहित्य अपने समय के सत्य को उजागर करने के साथ ही गुणात्मक साहित्य सदैव ही प्रासंगिक बना रहता है, तथा जनमानस को दीपस्तंभ के समान दिशा और प्रकाश देता है। श्रेष्ठ साहित्य वही होता है, जो अपने भीतर भाव सार्वभौमिक मूल्यों, संदेशों एवं उद्देश्यों को समाए रहता है। उदाहरणस्वरूप संत कबीरदास, तुलसीदास, सूरदास, जयशंकर प्रसाद, निराला, प्रेमचंद, टैगोर, होमर, मिल्टन, शेक्सपियर आदि नाम साहित्य में अजरामर हो चुके हैं। समाज में हो रही विसंगति-विकृति, प्रगति, उपलब्धि, अभाव, विषमता, समानता, सौंदर्य, प्रेम, स्नेह, मातृत्व, देश प्रेम, विश्वबंधुत्व जैसे विविध पक्षों को साहित्यकार अपने साहित्य में सूचित करते हैं।

साहित्य की शक्ति असीमित है। साहित्य में वह शक्ति है, जो इसमें निहित विचारधारा के माध्यम से क्रांति उत्पन्न कर सकती है, सोए हुए जनमानस को जागृत करती है। साहित्य नैराश्य के भँवर में डूबे व्यक्ति को उबारकर उसमें अदम्य साहस बनाया जोश भर सकता है। साहित्य में युग परिवर्तन की क्षमता निहित है। हिंदी साहित्य के इतिहास पर दृष्टिपात करने से साहित्य और समाज के संबंधों का प्रत्यक्ष प्रमाण मिलता है। वीरगाथा कालीन समाज का प्रतिबिंब तत्कालीन साहित्य पर स्पष्ट रूप से पड़ा है। आदिकाल में शौर्य और बलिदान की भावना थी। वीरयोद्धा प्राणोत्सर्ग करना सामान्य बात समझते थे। फलस्वरूप वीरगाथा काव्यों की रचना हुई। रासो ग्रंथ की पंक्ति-पंक्ति में तलवारों की झंकार और वीरों की हुँकार भरी है। साहित्यकारों ने अपनी लेखनी को हमेशा समाज सुधार का अस्त्र बनाया है। मध्यकाल में कबीरदास ने अपनी दोहों के माध्यम से धार्मिक पाखंड और जातिवाद पर कड़ा प्रहार किया। उनका प्रयास जातिभेद रहित समाज की स्थापना करना था। इसी कारण कबीर कहते हैं-

"जाति-पाति पुछे नहीं कोई।

हरि को भजै सो हरि का होई।" ३

परवर्ती काल में मुगलों के आक्रमण से भारतीय जनता पीड़ित हो गयी थी। इस कारण सूर और तुलसी आदि भक्त कवियों ने भक्ति का मार्ग प्रशस्त किया तथा सामाजिक समन्वय की भरपूर चेष्टा की। महात्मा तुलसीदास द्वारा रचित 'रामचरितमानस' ने भारतीयों को 'रामराज्य' का सपना दिखाकर समाज के सम्मुख एक आदर्श प्रस्तुत किया। साहित्य संकट के समय राष्ट्रभक्ति और सामूहिक चेतना का संचार कराकर पूरे राष्ट्र को एक सूत्र में बाँधने का काम करता है। साहित्य व्यक्तिगत स्वार्थ से ऊपर उठकर 'समाज' के बारे में सोचने की प्रेरणा देता है। स्वतंत्रता संग्राम और राष्ट्रीय चेतना के कालखंड में भारतेंदु हरिश्चंद्र, माखनलाल चतुर्वेदी, मैथिलीशरण गुप्त, दिनकर जैसे कवियों ने अपनी कविताओं से भारतीयों में देशभक्ति का संचार कराया। भारतेंदु युग को तो हिन्दी साहित्य के इतिहास में नवजागरण काल के नाम से जाना जाता है। माखनलाल चतुर्वेदी की कविता 'पुष्प की अभिलाषा' राष्ट्र प्रेम, त्याग, बलिदान की भावना को अभिव्यक्त करती है।

"मुझे तोड लेना वनमाली, उस पथ पर देना तुम फेंक
मातृभूमि पर शीश चढ़ाने, जिस पथ जावे वीर अनेक।" ४

इसी प्रकार सुभद्रा कुमारी चौहान की 'झाँसी की रानी' जैसी कविताओं ने सोए हुए राष्ट्र को जगाया और राष्ट्र के लिए बलिदान होने का जज्बा पैदा किया। वीर रस की यह कविता स्वतंत्रता आंदोलन में प्रेरणास्रोत बनी थी। भारत का स्वतंत्रता संग्राम देशभक्ति का ज्वार, स्वतंत्रता की प्राप्ति और स्वातंत्र्योत्तर भारतीय समाज की दशा-दिशा आदि आधुनिक और समसामयिक हिंदी साहित्य में पूर्णतया प्रतिबिंबित होता आ रहा है।

"चमक उठी सन सत्तावन में, वह तलवार पुरानी थी,
बुंदेले हरबोलों के मुँह हमने सुनी कहानी थी,

खूब लड़ी मर्दानी वह तो झाँसी वाली रानी थी ॥”५

साहित्य एक प्रकार से ज्ञान का दीपक है जो समाज को अज्ञानता के अंधकार से निकालकर ज्ञान रूपी प्रकाश की ओर ले जाता है। साहित्य मनुष्य की संवेदनाओं को जागृत करता है। साहित्यकार अपनी लेखनी से सोए हुए समाज को जगाने और उसे प्रगतिशील पथ पर ले जाने का कार्य करता है। हिन्दी के प्रगतिशील विचारों के महाकवि सूर्यकांत त्रिपाठी 'निराला' की कविता 'वह तोड़ती पथर' जब हम पढ़ते हैं तो एक मजदूरनी के प्रति पाठक के मन में करुणा, दया का भाव निर्माण करता है। यही भाव आगे चलकर सामाजिक समानता की वैचारिक नींव रखता है। तकरीबन सौ साल पहले महाकवि निराला जी ने अपनी कविता 'बादल राग' में किसान जीवन के संघर्ष को उजागर किया था। किसान जीवन भर कड़ी मेहनत करता है, फिर भी वह अभाव का जीवन जीने को मजबूर है। आजादी के पहले तथा बाद में भी किसान से जुड़े सवाल अनुत्तरीत रहे हैं। जैसे-

“ जीर्ण बाहू, है शीर्ष शरीर,
तुझे बुलाता कृषक अधीर,
ए विप्लव के वीर !
चूस लिया है उसका सार
हाड मात्र ही है आधार
ए जीवन के पारावार !”६

साहित्य ने हमेशा ही सामाजिक विसंगतियों के खिलाफ आवाज बुलंद करने का कार्य किया है। आधुनिक काल में मुंशी प्रेमचंद ने 'गोदान', 'गबन' और 'निर्मला' के माध्यम से अनमेल विवाह, दहेज प्रथा और किसानों के शोषण को उजागर किया। 'उपन्यास सम्राट' प्रेमचंद जी ने पहली बार जनसामान्य की पीड़ा को साहित्य में वाणी देने का कार्य किया। आज तक समाज ने 'नारी' को केवल एक उपभोग की वस्तु माना था। परंतु साहित्य ने नारी को एक सन्मान का स्थान देने का प्रयास किया है। साहित्य नारी समानता, नारी अस्मिता की सीख हमें देता है। महादेवी वर्मा, मन्नू भंडारी, उषा प्रियंवदा, निर्मला पुतुल, प्रभा खेतान जैसी महिला लेखिकाओं अपने साहित्य में पितृसत्तात्मक समाज को चुनौती देकर 'नारी विमर्श' की वकालत की है तथा नारी के प्रति समाज के दृष्टिकोण को बदलने में महत्वपूर्ण भूमिका निभायी है। जैसे - महादेवी वर्मा जी ने अपनी कविता 'मैं नीर भरी दुख की बदली' में नारी मन की वेदना को वाणी दी है। इस कविता में केवल कवियत्रि की निजी वेदना न होकर समस्त नारी वर्ग की वेदना-पीड़ा अभिव्यक्त हुई है।

“ विस्तृत नभ का कोई न कोना,
मेरा न कभी अपना होना,
परिचय इतना इतिहास यही,
उमड़ी कल थी मिट आज चली !
मैं नीर भरी दुख की बदली ! ”७

आधुनिक हिन्दी साहित्य ने 'हाशिए' के समाज को मुख्यधारा में लाने की कोशिश की है। 'दलित विमर्श' ने भारतीय समाज में सदियों से शोषित, वंचित समुदायों के अनुभवों, संघर्षों और अस्मिता तथा दलित समाज की पीड़ा को वैश्विक धरातल पर रखा, जिससे दलित समाज में जागरूकता निर्माण हुई। दलित साहित्य ने सामाजिक असमानता का विरोध कर दलित समाज को समानता, न्याय, स्वतंत्रता और अपने मानवीय अधिकारों के प्रति सजग किया। ओमप्रकाश वाल्मीकि, मोहनदास नैमिशराय, रूपनारायण सोनकर, तुलसीराम, जयप्रकाश कर्दम आदि दलित रचनाकारों ने अपने साहित्य के माध्यम से भोगे हुए यथार्थ को वाणी देकर दलित जीवन के यथार्थ, सामाजिक भेदभाव, और संघर्ष को उजागर किया है। दलित साहित्य का उद्देश्य समतामूलक समाज का निर्माण करना है। 'आदिवासी विमर्श' ने भी आदिवासी समुदाय की अस्मिता, जल-जंगल-ज़मीन के अधिकारों, और शोषण के खिलाफ संघर्ष को इस साहित्य के माध्यम से प्रकट किया है। आदिवासी साहित्य ने आदिवासी समाज की संस्कृति, सभ्यता, लोककला, लोकगीत, प्रकृति-प्रेम, विस्थापन की पीड़ा को समाज के सम्मुख लाया है

| किन्नर विमर्श, वृद्ध विमर्श ने भी उपेक्षित समुदाय को सम्मान जनक पहचान दिलाने में महत्वपूर्ण भूमिका अदा की है |

उपर्युक्त विवेचन से स्पष्ट होता है कि साहित्य और मानव जीवन का घनिष्ठ संबंध है। सामाजिक, आर्थिक, राजनीतिक तथा धार्मिक एवं सांस्कृतिक व्यवस्था में भी साहित्य अपना पूर्ण सहयोग देता है। वह हमारे संपूर्ण आचार, विचार, व्यवहार और भावनाओं का प्रेरक और साथ ही नियामक ही होता है। साहित्य में जीवन एवं जगत का कल्याण होना अनिवार्य है। साहित्य वैचारिक क्रांति का सशक्त आधार है। साहित्यकार अपने साहित्य के माध्यम से समाज में क्रांति लहर निर्माण कर सकता है। हिन्दी साहित्य के इतिहास पर दृष्टिपात करने पर पता चलता है कि आदिकाल से लेकर आधुनिक काल के हिन्दी साहित्य के अनेक रचनाकारों ने अपने-अपने युग के आडंबर, धार्मिक पाखंड, असमानता, जातिभेद, शोषण के विरुद्ध साहित्य के माध्यम से प्रखर विरोध किया है। आधुनिक हिन्दी साहित्य ने दलित, आदिवासी और नारी, किन्नर विमर्श के माध्यम सदियों से उपेक्षित, वंचित वर्गों की पीड़ा को मुखरित किया। साहित्य हमेशा से ही व्यक्तिगत स्वार्थ से ऊपर उठकर 'वसुधैव कुटुम्बकम्' की भावना को विकसित करता रहा है। इसी कारण 'साहित्य' सामाजिक परिवर्तन और जागरूकता का सशक्त माध्यम है और हमेशा ही रहेगा।

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- ५) मुकुल, सुभद्रा कुमारी चौहान, राजकमल प्रकाशन, दिल्ली, पृ. सं. ४६
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- ७) संधिनी, महादेवी वर्मा, लोकभारती प्रकाशन, इलाहाबाद, संस्करण - २०१२, पृ. सं. ९३

महाराष्ट्रातील सहकार चळवळ : एक दृष्टीक्षेप

प्रा. अनंत तुकाराम घरत

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सहकार ही एक जीवनपद्धती आहे. ती केवळ संघटित कृती नसून मानवी व्यवहार करण्याचा मार्ग आहे. एकमेकांना मदत करून सर्वांनी मिळून प्रगती करणे हा सहकारचा मुख्य उद्देश आहे. सहकार ही व्यक्तींची संघटना असून त्यामध्ये पैशापेक्षा माणसाला अधिक महत्त्व दिले जाते. सहकारी संस्था लोकशाही तत्वावर आधारित असतात. सर्व सदस्य समान असतात. त्यामुळे समाजात लोकशाहीची भावना वाढीस लागते. सहकार हा गरीब आणि दुर्बल घटकांच्या प्रगतीसाठी महत्त्वाचा आधार आहे. शेती आणि उद्योगाच्या विकासात सहकारी संस्थांनी महत्त्वाची भूमिका बजावली आहे. शेतकऱ्यांच्या आर्थिक परिस्थितीत सुधारणा करण्यासाठी सहकार क्षेत्राचा मोठा वाटा आहे. विविध सहकारी संस्थांमुळे आर्थिक गरजा पूर्ण होतात आणि जीवनमान उंचावते. आपल्या समस्या सोडवण्यासाठी काही लोकांनी एकत्र येऊन संघटितपणे प्रयत्न करणे म्हणजे सहकार होय. भारतीय समाजात प्राचीन काळापासून सहकाराची परंपरा आहे. कुटुंब, ग्राम, श्रेणी आणि जाती या स्वरूपात सहकार अस्तित्वात होता. पूर्वी कुटुंब पातळीवर सहकार दिसून येत होता. त्यानंतर ग्रामसभामार्फत सहकारी संघटना कार्यरत झाल्या. पुढे व्यापारी, कारागीर, शेतकरी आणि इतर व्यवसायिकांनी सहकाराच्या माध्यमातून आर्थिक संघटना निर्माण केल्या. आजच्या काळात सहकार हा आर्थिक विकासाचा महत्त्वाचा आधार बनला आहे. समाजाच्या सर्वांगीण प्रगतीसाठी सहकार अत्यंत आवश्यक आहे.

सहकाराचा उगम

आजचा समाज हा पूर्वीच्या समाजापेक्षा पूर्णपणे वेगळा आहे. समाज हा परिवर्तनशील असतो. प्राचीन काळात एकत्र कुटुंब पद्धती अस्तित्वात होती. त्या काळात स्वावलंबी जीवनपद्धती होती आणि परस्पर सहकार्याची भावना मजबूत होती. मात्र त्या काळात धर्माचे बंधनही होते. मानवाच्या प्रगतीबरोबरच दोन गट निर्माण झाले. एक गट पुढे गेला, तर दुसरा मागे राहिला. यामुळे भांडवलशाही अर्थव्यवस्था निर्माण झाली आणि कामगारांचे शोषण सुरू झाले. इंग्लंडमधील औद्योगिक क्रांतीमुळे कामगारांच्या शोषणाची परिसीमा झाली. 'गरज ही शोधाची जननी आहे' या नियमानुसार सहकाराची निर्मिती झाली. दुर्बल लोकांनी एकत्र येऊन आपल्या विरोधकांना तोंड देण्यासाठी संघटित होण्यास सुरुवात केली. त्यांनी आर्थिक, सामाजिक आणि राजकीय दृष्टिकोनातून परस्पर सहकार्य करायला सुरुवात केली. आणि त्यातूनच सहकाराचा उगम झाला. सहकाराची सुरुवात इंग्लंडमध्ये झाली. १८व्या शतकात इंग्लंडमध्ये मोठी औद्योगिक क्रांती झाली. त्याचा परिणाम म्हणून लघुउद्योग आणि कुटीरउद्योग नष्ट झाले. कामगार वर्ग बेरोजगार झाला आणि समाजात भांडवलदार व कामगार असे दोन वर्ग निर्माण झाले. या कामगारांच्या परिस्थितीकडे सरकारने दुर्लक्ष केले. अशा वेळी रॉबर्ट ओवेन हे सहकार चळवळीचे प्रवर्तक पुढे आले. रॉबर्ट ओवेन यांचा जन्म १७७१ साली झाला. त्यांनी आपल्या कर्तृत्वाने आणि प्रयत्नांनी सहकाराला एक दिशा दिली. सहकाराच्या विकासासाठी त्यांनी केलेल्या कार्यामुळे त्यांना सहकार चळवळीचे जनक म्हटले जाते.

सहकाराचा अर्थ

सहकार म्हणजे एकत्र काम करणे होय. मानवी संघटनेइतकाच सहकाराचा विचार प्राचीन आहे. कौटुंबिक आणि सामाजिक जीवनाचा आधार सहकार आहे. सहकारी प्रयत्न म्हणजे अशी अंतःप्रेरणा होय की, ज्यामुळे अडचणी आणि संकटाच्या वेळी लोक एकत्र येतात, एकत्र काम करतात आणि एकमेकांना मदत करतात. या

तत्त्वामुळे मानवी समाजाचा विकास झाला आहे. आधुनिक सुसंस्कृत समाजाचा इतिहास म्हणजे सहकाराचा इतिहास होय. सहकाराशिवाय राजकीय आणि सामाजिक विकास शक्य झाला नसता. ऋग्वेदात असे सांगितले आहे की, समान उद्दिष्ट, समान विचार आणि एकजूट यांच्या बळावर आपण उत्तम प्रकारे कार्य करू शकतो. तसेच विचारवंतांच्या मते, विज्ञानानेही हे सिद्ध केले आहे की मानवी समाजाचे अस्तित्व आणि यश हे प्रेम व सहकार्यावरच आधारित आहे.

सहकाराच्या व्याख्या

1) प्रा. लॅम्बर्ट पॉल :

सहकारी संस्था म्हणजे व्यक्तींच्या समूहाने स्वतःच्या उपभोगासाठी स्थापन केलेली, लोकशाही नियमांनुसार चालणारी आणि सदस्य व समाजाच्या सेवेसाठी कार्य करणारी एक व्यावसायिक संस्था होय.

2) डब्ल्यू. पी. वॉटकिन्स :

सहकार म्हणजे एकता, लोकशाही, समता आणि स्वातंत्र्य या तत्वांवर आधारित सामाजिक संघटना होय.

3) धनंजय गाडगीळ :

“सहकार ही आर्थिक विकास व सामाजिक कल्याण साध्य करण्याची प्रभावी पद्धत आहे.”

4) मेहता:

“सहकार ही लोकांची, लोकांसाठी आणि लोकांनी चालवलेली संस्था आहे.”

भारत : सहकारी संस्था कायदा

भारतात सहकारी चळवळीची सुरुवात इ.स. १९०४ मध्ये सहकारी संस्था कायदा लागू झाल्यानंतर झाली. या कायद्याचा मुख्य उद्देश ग्रामीण भागातील लोकांना कर्जाची सुविधा उपलब्ध करून देणे हा होता. यानंतर इ.स. १९१२ मध्ये नवीन सहकारी संस्था कायदा लागू करण्यात आला. या कायद्यामुळे सहकारी संस्थांची नोंदणी व त्यांच्या कार्यावर नियंत्रण ठेवण्यासाठी निबंधक (Registrar) या पदाची निर्मिती करण्यात आली आणि सहकार विभागाची स्थापना झाली. सुरुवातीला हा विभाग केंद्र सरकारच्या अखत्यारीत होता. पुढे तो प्रांतिक (राज्य) सरकारांकडे सोपविण्यात आला. त्यामुळे प्रत्येक राज्याने आपल्या गरजेनुसार स्वतंत्र सहकारी कायदे तयार केले. इ.स. १९१४ मध्ये मद्रास येथे पहिल्या सहकारी संघाची स्थापना झाली. इ.स. १९२५ मध्ये मुंबई प्रांतासाठी सहकारी संस्था कायदा संमत करण्यात आला. त्याचबरोबर Bombay Produce Market Regulation Act आणि Bombay Money Lenders Act हे कायदे लागू करण्यात आले. यामुळे सहकारी चळवळीला मजबूत कायदेशीर चौकट मिळाली. इ.स. १९१९ ते १९२९ या कालावधीत सहकारी संस्थांची वाढ प्रामुख्याने संख्येने झाली. परंतु जागतिक मंदीमुळे कर्ज वसूल न झाल्याने अनेक संस्था बंद पडल्या. आज भारतातील सहकारी चळवळीला सुमारे ११८ वर्षांचा इतिहास आहे. तरीही सहकारी क्षेत्राचा अपेक्षित विकास झालेला नाही. विशेषतः पूर्वेकडील काही राज्यांमध्ये सहकारी चळवळ अजूनही प्राथमिक अवस्थेत आहे.

भारतातील स्वातंत्र्यपूर्व व स्वातंत्र्योत्तर काळातील सहकार चळवळ

भारतात शेतकऱ्यांच्या आपत्कालीन परिस्थितीचा अभ्यास करण्यासाठी १९०१ साली दुष्काळ समितीने आपल्या अहवालात असे नमूद केले की, भारतातील सुमारे ८०% शेतकरी कर्जबाजारी होते. १९०४ मध्ये को-ऑपरेटिव्ह क्रेडिट ॲक्ट लागू करण्यात आला आणि भारतात सहकार चळवळीची मुहूर्तमेढ रोवली गेली. त्यानंतर विविध सहकारी संस्थांची स्थापना होऊ लागली. १९०४ ते १९११ या काळात भारत सरकारने पहिला सहकारी कायदा लागू केला. १९१२ ते १९१८ या काळात दुसरा सहकारी कायदा लागू करण्यात आला. हा काळ सहकार चळवळीच्या विस्ताराचा होता. १९१९ ते १९२९ या काळात सहकाराची गती मंदावली. पहिल्या महायुद्धानंतर जीवनावश्यक वस्तूंची टंचाई निर्माण झाली आणि सर्वत्र किमती वाढल्या. त्यामुळे सहकार चळवळीला प्रोत्साहन मिळाले आणि विविध प्रकारच्या सहकारी संस्थांची स्थापना झाली. मुंबई प्रांतात १९२५ मध्ये सहकारी कायदा लागू करण्यात आला आणि शेतीसाठी पतपुरवठा सुरू झाला. त्यानंतर १९३२ मध्ये मद्रास प्रांतात, १९३२ मध्ये बिहार

व ओरिसा येथे आणि १९४६ मध्ये पंजाब-बंगालमध्ये स्वतंत्र सहकारी कायदे तयार करण्यात आले. या काळात सहकारी संस्थांच्या सदस्यसंख्येत मोठी वाढ झाली. मात्र काही सहकारी संस्थांनी सदस्यांना योग्य हमी न घेता कर्ज दिल्यामुळे त्या अडचणीत आल्या. सहकारी संस्थांच्या कामकाजातील दोष दूर करण्यासाठी १९२९ मध्ये रॉयल कमिशनची स्थापना करण्यात आली. या आयोगाने भारतातील सहकार चळवळीचा अभ्यास करून त्यातील उणिवा स्पष्ट केल्या. १९३० ते १९३९ हा काळ एकत्रीकरण व पुनर्रचनेचा होता. १९२९ मध्ये झालेल्या जागतिक महामंदीचा फटका जगातील बहुतेक राष्ट्रांना बसला. या महामंदीमुळे सर्व वस्तूंच्या किमती घसरल्या आणि आर्थिक स्थिती खालावली. शेतकऱ्यांचे कर्ज फेडणे कठीण झाले. १९३९ ते १९४९ हा काळ विस्ताराचा होता. १९३९ मध्ये दुसऱ्या महायुद्धाची सुरुवात झाली. त्यामुळे वस्तूंच्या किमती वेगाने वाढू लागल्या. विविध क्षेत्रांमध्ये संस्थांच्या विकासाची जाणीव निर्माण झाली.

स्वातंत्र्योत्तर जगात सर्वाधिक गरीब देश म्हणून ओळखला जाणारा भारत 21 व्या शतकाच्या उंबरठ्यावर विकसित राष्ट्र म्हणून स्वतःची ओळख प्रस्थापित करण्यासाठी प्रयत्नशील होता. या राष्ट्रांच्या प्रगतीत सहकार चळवळीने महत्वाची कामगिरी बजावली. सहकार चळवळीने जागतिकीकरणाच्या आव्हानालाही समर्थपणे तोंड देत सर्वसामान्यांचे स्वप्न साकार करण्यास मदत केली. वै. कुशाभाऊ मेहता यांनी पंचवार्षिक योजनांचे निश्चित उद्दिष्ट ठरवले. त्यानुसार त्यांनी स्वातंत्र्योत्तर काळात सहकार चळवळीच्या विकासाला मोठ्या प्रमाणात चालना दिली.

महाराष्ट्रातील सहकार चळवळ

भारतात १९०४ मध्ये को-ऑपरेटिव्ह अॅक्ट लागू करण्यात आला. पुढे या कायद्यात सुधारणा करून सहकारी संस्थांचा कायदा अस्तित्वात आला. हा कायदा अपुरा पडल्यामुळे मुंबई प्रांतासाठी १९२५ मध्ये मुंबई सहकारी संस्था कायदा मंजूर करण्यात आला. १९१९ मध्ये सहकार हा विषय राज्य सरकारकडे सोपवण्यात आला. त्यानंतर विविध राज्यांनी आपल्या परिस्थितीनुसार सहकारी कायदे तयार करून सहकार चळवळ विकसित करण्याचा प्रयत्न केला. १९५६ मध्ये भाषावार प्रांत रचना झाली आणि १ मे १९६० रोजी स्वतंत्र महाराष्ट्र राज्याची निर्मिती झाली. त्यावेळी महाराष्ट्रात सहकार चळवळ काही प्रमाणात विकसित झाली होती. या सर्व बाबींचा विचार करून महाराष्ट्र सहकारी संस्था अधिनियम लागू करण्यात आला. १९६० पासून २५ जून १९९९ पर्यंत या कायद्यात अनेक सुधारणा करण्यात आल्या. त्यामुळे महाराष्ट्रातील सहकार चळवळ अधिक लोकाभिमुख आणि प्रभावी झाली. महाराष्ट्रातील सहकार चळवळ देशात अग्रस्थानी आहे. सहकारी कृषी पतसंस्था, दुग्धसंस्था, साखर कारखाने, सूत गिरण्या, उपसा जलसिंचन योजना, गृहनिर्माण संस्था, सहकारी बँका इत्यादी विविध क्षेत्रांत सहकाराचा मोठ्या प्रमाणात विस्तार झाला आहे. महाराष्ट्रात सहकार चळवळीचा प्रसार झाल्यामुळे ग्रामीण जीवनात मोठा बदल घडून आला. सहकारामुळे ग्रामीण आर्थिक स्वावलंबन आणि कृषी विकासाचा चालना मिळाली. या चळवळीच्या विकासात अनेक नेत्यांचे योगदान महत्वाचे आहे. त्यांनी केलेल्या प्रयत्नांमुळे महाराष्ट्रात सहकाराची मुळे मजबूत झाली आणि सहकाराचा विस्तार झाला. १९५०-६० च्या दशकात महाराष्ट्रात अनेक सहकारी संस्था स्थापन झाल्या. १९४९ मध्ये सातारा जिल्हा बँकेची स्थापना करण्यात आली. २६ जानेवारी १९५५ रोजी नाशिक जिल्हा मध्यवर्ती बँक स्थापन झाली. त्यानंतर सर्व जिल्ह्यांत जिल्हा बँका स्थापन करण्यात आल्या. तसेच अहमदनगर जिल्ह्यातील प्रवरानगर येथे भारतातील पहिला सहकारी साखर कारखाना स्थापन करण्यात आला. हा कारखाना ३१ डिसेंबर १९४८ रोजी स्थापन झाला होता. त्याचे उद्घाटन भारताचे पहिले पंतप्रधान पंडित जवाहरलाल नेहरू यांनी केले.

महाराष्ट्रातील सहकार चळवळ : स्वातंत्र्यपूर्व काळ

महाराष्ट्रातील सहकार चळवळीला शंभर वर्षांहून अधिक काळ झाला आहे. सहकार चळवळीच्या माध्यमातून महाराष्ट्र राज्याने ग्रामीण भागाचा विकास साधला आहे. आज महाराष्ट्रात शेती, बँकिंग, गृहनिर्माण, उत्पादन, व्यापार इत्यादी विविध आर्थिक क्षेत्रांत सहकारी संस्थांचा विस्तार झालेला आहे. भारतीय सहकार चळवळीत महाराष्ट्र अग्रणी राज्य म्हणून ओळखले जाते. महाराष्ट्रातील सहकारी संस्थांनी केलेली प्रगती अभिमानास्पद आहे आणि इतर राज्यांसाठी आदर्श ठरते. महाराष्ट्राने समाजवादी रचना आणि आर्थिक समता निर्माण करण्यासाठी सहकाराचा मार्ग स्वीकारला. सुरुवातीला शेतकऱ्यांना कर्जपुरवठा करणे हा सहकार क्षेत्राच्या विकासाचा मुख्य उद्देश होता आणि महाराष्ट्रात यावर विशेष भर देण्यात आला. शेती क्षेत्रातील विविध योजना राबवण्यासाठी सहकार चळवळ एक प्रभावी साधन म्हणून विकसित झाली. अनेक महान व्यक्तींच्या प्रयत्नांतून महाराष्ट्रात सहकार

चळवळीचा उगम झाला. राष्ट्रपिता महात्मा गांधी यांनी १९१७ साली मुंबई येथे झालेल्या प्रांतिक सहकारी परिषदेत सहकाराच्या नैतिक बाजूवर आपले विचार मांडले. त्याच परिषदेत श्री. तळमकी यांनी सहकारी संस्थांच्या सामाजिक व शैक्षणिक कार्यावर प्रबंध सादर केला. या पार्श्वभूमीवर १३ जुलै १९१८ रोजी "प्रांतिक सहकारी संस्था" म्हणजेच "महाराष्ट्र राज्य सहकारी संघ" स्थापन झाला. त्याआधी ११ ऑक्टोबर १९११ रोजी "बॉम्बे सेंट्रल को-ऑपरेटिव्ह बँक" ची स्थापना झाली होती, जी पुढे "महाराष्ट्र राज्य सहकारी बँक" म्हणून ओळखली जाऊ लागली. यापूर्वीही महाराष्ट्रात सहकारी संस्थांच्या स्थापनेचे प्रयत्न झाले होते. ५ फेब्रुवारी १८८९ रोजी विठ्ठल लक्ष्मण कावठेकर आणि त्यांच्या सहकाऱ्यांनी "म्युच्युअल को-ऑपरेटिव्ह बोर्ड" ची स्थापना केली. तसेच गोपाल कृष्ण गोखले आणि महादेव गोविंद रानडे यांनी पुणे जिल्ह्यातील पुरंदर येथे सहकारी संस्था स्थापन करण्याचा प्रयत्न केला. स्वातंत्र्यपूर्व काळात वैकुंठभाई मेहता यांच्या प्रेरणेने शेतमालाला योग्य किंमत मिळावी यासाठी खरेदी-विक्री सहकारी संस्थांची स्थापना करण्यात आली. नीरा कॅनॉल, बारामती; गोदावरी-प्रवरा, कोपरगाव; वारणा, इस्लामपूर येथील खरेदी-विक्री संघांनी सहकार चळवळीत महत्त्वाची भूमिका बजावली. औरंगाबाद जिल्ह्यात १९१७ मध्ये "हैदराबाद को-ऑपरेटिव्ह क्रेडिट युनियन अॅक्ट" लागू करण्यात आला आणि तेथे सहकार चळवळ सुरू झाली. संस्थांच्या कार्यावर नियंत्रण ठेवण्यासाठी आणि विकासासाठी जिल्ह्याचे औरंगाबाद व जालना असे दोन भाग करण्यात आले. या चळवळीचा मुख्य उद्देश शेतकरी वर्गाला मदत करणे हा होता.

कृषी पतसंस्थांबरोबरच बिगर कृषी सहकारी संस्थांनाही चालना देण्यात आली. सुरुवातीला कृषी व बिगर कृषी संस्थांचे प्रमाण १०:१ असे होते. बिगर कृषी संस्थांमध्ये पगारदार कर्मचारी व औद्योगिक सहकारी संस्थांचा समावेश होता. सहकार चळवळीच्या विकासाची जबाबदारी सहकारी संस्थांच्या सहाय्यक निबंधकांकडे देण्यात आली. पुढील काळात कृषी पतसंस्थांची चळवळ वेगाने वाढली आणि ग्रामीण भागात त्यांचे जाळे निर्माण झाले. या संस्थांची नोंदणी अमर्याद जबाबदारीच्या तत्वावर करण्यात आली. सदस्यांना कर्ज घेण्यासाठी प्रोत्साहित करण्यात आले, ज्यामुळे ते सावकारांच्या शोषणापासून दूर राहू शकले. महाराष्ट्र हे भारतीय सहकार चळवळीतील अग्रगण्य राज्य आहे. सहकार चळवळीमुळे देशाच्या आर्थिक विकासात महाराष्ट्राने मोठे योगदान दिले आहे. १९०४ ते १९१२ दरम्यान राष्ट्रीय सहकारी कायदे लागू करण्यात आले. १९१९ मध्ये ब्रिटिश सरकारने सहकार विषय प्रांतिक सरकारकडे सोपवला आणि १९२५ मध्ये मुंबई सरकारने पहिला प्रांतिक सहकारी कायदा लागू केला. १९३७ मध्ये प्रांतिक मंत्रिमंडळ स्थापन झाले. सहकार क्षेत्राच्या विकासासाठी १९४४ मध्ये सरैया समिती, १९४६ मध्ये गाडगीळ समिती आणि १९४८ मध्ये नानावटी समिती नेमण्यात आल्या. या समित्यांच्या शिफारशींमुळे सहकार चळवळीला गती मिळाली. महाराष्ट्रातील सहकार चळवळीत वैकुंठभाई मेहता, धनंजयराव गाडगीळ, विठ्ठलदास ठाकरे, आर. जी. सरैया, विठ्ठलराव विखे पाटील, वसंत दादा पाटील, डी. जी. कर्वे आणि गुलाबराव पाटील यांनी मोलाचे योगदान दिले. त्यांच्या प्रयत्नांमुळे १९४९ मध्ये अहमदनगर जिल्ह्यातील प्रवरणगर (लोणी बुद्रुक) येथे भारतातील पहिला सहकारी साखर कारखाना सुरू झाला. आज महाराष्ट्रातील सहकारी साखर उद्योग देशातच नव्हे तर जगातही प्रसिद्ध आहे.

महाराष्ट्रातील सहकारी चळवळ : स्वातंत्र्योत्तर कालखंड

स्वातंत्र्यानंतरच्या काळात महाराष्ट्राने सहकार क्षेत्रात नेतृत्व मिळवले. श्री. यशवंतराव चव्हाण, श्री. वसंतदादा पाटील, श्री. भाऊसाहेब हिरे, श्री. राजाराम बापू पाटील, श्री. शरद पवार, श्री. रत्नाप्पा कुंभार, श्री. तात्यासाहेब कोरे इत्यादींनी महाराष्ट्रातील सहकारी चळवळीच्या विकासासाठी मोठे प्रयत्न केले. सुरुवातीला महाराष्ट्रातील सहकारी चळवळ प्रामुख्याने पतसंस्थांपुरती मर्यादित होती. नंतर ती साखर उद्योग, विपणन क्षेत्र, ग्राहक क्षेत्र, कृषी-आधारित पूरक उद्योग, कर्मचारी पतसंस्था, प्रक्रिया उद्योग, दुग्धव्यवसाय इत्यादी अनेक क्षेत्रांमध्ये विस्तारली.

महाराष्ट्रात सहकारी चळवळीने आर्थिक तसेच सामाजिक व शैक्षणिक क्षेत्रात लक्षणीय प्रगती साधली आहे. कृषी पतपुरवठ्याच्या बाबतीत महाराष्ट्र राज्य देशात अग्रस्थानी आहे. भारतातील सहकारी क्षेत्रात महाराष्ट्राचा वाटा असा आहे – सहकारी संस्थांची संख्या सुमारे २७.३०%, सभासद संख्या १४.६८%, कार्यकारी भांडवल २६.३%, कर्ज वितरण ४०% आणि एकूण सहकारी व्यवसायातील वाटा ३०% आहे. यावरून महाराष्ट्रातील सहकारी चळवळ वेगाने विकसित होत असल्याचे दिसून येते.

१९९०-९१ मध्ये महाराष्ट्रात सर्व प्रकारच्या सहकारी संस्थांची संख्या १,०४,६२० होती. २०११-१२ मध्ये ती २,२७,९३८ झाली आणि २०१५-१६ मध्ये २,३८,०१० पर्यंत वाढली. २०१६-१७ मध्ये ती १,९५,३१० इतकी घटली, परंतु २०१७-१८ पासून पुन्हा चळवळीने गती घेतली.

१९६० साली महाराष्ट्रात पहिला सहकारी कायदा लागू झाला. या कायद्यामुळे सहकारी चळवळीला मोठी गती मिळाली. आज सहकाराने विविध क्षेत्रांमध्ये महत्त्वाची भूमिका बजावली आहे. या चळवळीमुळे अनेक युवकांना रोजगार उपलब्ध झाला. औद्योगिक विकासातही सहकार क्षेत्राचा मोठा वाटा आहे. ग्रामीण महाराष्ट्राच्या विकासात सहकारी चळवळीचे योगदान अत्यंत मोलाचे आहे. आज ग्रामीण भागातील जवळजवळ प्रत्येक गावात सहकारी संस्था स्थापन झालेल्या आहेत. त्यामुळे महाराष्ट्रातील सहकारी चळवळीचा व्याप दिवसेंदिवस वाढत आहे. २०११-१२ ते २०१६-१७ या काळात काही प्रमाणात घट झाली असली, तरी ग्राहक भांडार, गृहनिर्माण संस्था व इतर सहकारी संस्थांनी ही तूट भरून काढली आहे.

निष्कर्ष:

१९०४ साली कायद्याने सुरू झालेली सहकार चळवळ हळूहळू पुढे विकसित होत गेली. १९१४ ते १९१८ मधील पहिले महायुद्ध, १९२८ ते १९३० मधील जागतिक आर्थिक महामंदी आणि १९३९ ते १९४५ मधील दुसरे महायुद्ध या घटनांचा समाजावर मोठा परिणाम झाला. देशाला स्वातंत्र्य मिळवून देण्यासाठी महात्मा गांधी, सुभाषचंद्र बोस आणि जवाहरलाल नेहरू यांच्यासह समाजवादी विचारवंतांनी मोठे योगदान दिले. स्वराज्य मिळाल्यानंतर सर्वांगीण विकास साधण्याची गरज निर्माण झाली. १९६१ मध्ये महाराष्ट्र हे स्वतंत्र राज्य म्हणून अस्तित्वात आले. राज्याचे पहिले मुख्यमंत्री यशवंतराव चव्हाण यांनी महाराष्ट्रात कृषी-औद्योगिक समाज निर्माण करण्याची घोषणा केली. या काळात सहकार चळवळीला सुवर्णयुग प्राप्त झाले. या कार्यासाठी सहकार चळवळीवर विशेष जबाबदारी सोपवण्यात आली. आज सहकार ही एक प्रकारची लोकशिक्षणाची चळवळ बनली आहे. शासनाच्या धोरणांमुळे आणि आर्थिक सहाय्यामुळे विशेषतः ग्रामीण भागातील कार्यकर्त्यांमध्ये उत्साह निर्माण झाला. जिल्हानिहाय विकासासाठी कार्य करणारे अनेक कार्यकर्ते तयार झाले. विकासाच्या दृष्टीने शासन, पंचायत राज संस्था आणि सहकारी संस्था यांच्या संयुक्त प्रयत्नांमुळे राज्याच्या विकासाला गती मिळाली. सहकारी चळवळीत अनेक नेत्यांनी महत्त्वाचे योगदान दिले. राज्य सहकारी बँका आणि जिल्हा मध्यवर्ती बँकांनी आर्थिक पाठबळ दिल्यामुळे सहकारी संस्थांचा विकास झाला. सहकाराच्या माध्यमातून ग्रामीण भागातील वंचित घटकांच्या विकासाला चालना मिळाली. या चळवळीत अनेक नेते आणि विचारवंतांनी मोलाचे योगदान दिले असून सहकार नेतृत्वाची मजबूत पिढी निर्माण झाली. सर्वसमावेशकता, सर्वोदयी विचार आणि बंधुभाव यांचे पालन केल्यास महाराष्ट्रातील सहकारी चळवळ आणखी प्रगती करेल.

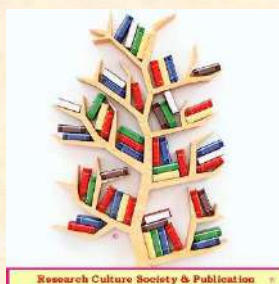
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