

संस्कृतान्तिका

संपादक

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Don't Kill NEET over Paper Leaks

Generally, students aspire to become doctors or engineers after completing their schooling. After higher education, they dream of passing the IAS or other government service exams to advance in their life. While it's true that not everyone can crack these exams, with an honesty system, many capable students can succeed.

Recently, cases of question paper leaks in the National Medical Entrance Examination (NEET) have come to light. In such a situation, some voices have emerged calling for the NEET system to be abandoned. Interestingly, this demand is coming not from the candidates but from certain politicians. This raises the question: if the NEET system is abolished, what will replace it? It's also crucial to consider how medical entrance examinations were conducted before NEET was implemented, along with their merits and demerits. Why was there a need for NEET in the first place? If the old system is reinstated, what impact will that have on candidates seeking admission to medical colleges?

As the admission process based on NEET—both for undergraduate and postgraduate medical programmes—continues smoothly, it's the time to think about the significance of NEET with a cool mind.

Not only medical entrance exams but also national exams like UPSC are facing issues with question paper leaks. Such incidents have been sporadic since the inception of entrance exams. Therefore, it is important to consider how appropriate it is to disrupt the NEET system based on a few incidents of paper leaks.

History of Medical Entrance Exams in India

Before NEET was introduced, the Central Board of Secondary Education (CBSE) conducted entrance exams at the national level, reserving at least 15 percent of seats for students who passed this exam for admission to MBBS and BDS programmes across various medical and dental colleges run by the central and state governments.

It's true that students have been shocked by paper leaks in the NEET and UPSC exams due to dishonest elements. But the government has taken cognisance of this and responded by cancelling the exams and conducting re-examinations at the centres where leaks occurred. It must also be understood that there are two methods—or a combination of both—for selecting the right candidates: entrance exams and interviews. For selecting candidates in educational institutions, written examinations have been the right method, and have been adopted in government institutions, whether for national or provincial exams, for a long time.

But the admission process in private colleges and universities has always been a matter of controversy. It is worth noting that before the NEET system, private medical and dental colleges conducted their own MBBS/BDS and postgraduate entrance exams. Admissions through these exams were often not merit-based but rather influenced by under-the-table payments to the colleges. Many agents were involved in this 'business', which ensured only a wealthy student could secure admission in MBBS/BDS and postgraduate courses, leaving out children of ordinary and middle-class parents.

Although there were some exceptions, such as Karnataka, where medical colleges or their associations conducted entrance exams honestly, the general trend used to be a big reason for inequality in medical admissions. Not only this, candidates seeking admission to medical colleges also had to deposit a huge examination fee to even participate in the examination, mostly marred by corruption, conducted by various colleges or their associations. There was also a lot of malpractice in the regulation of private medical colleges.

In 2012, the central government decided to conduct a common exam to eliminate the various provincial and college-specific exams. The management of private colleges contested this decision in court. Unfortunately, the court ruled in favour of the private college managements and cancelled the common exam, calling it a violation of their rights.

New System

After Narendra Modi assumed power, the Indian Medical Council and the Dental Council of India petitioned the Supreme Court to reconsider its 2013 decision. A five-judge bench subsequently overturned the earlier two-judge bench's 2013 decision, declaring the NEET exam constitutional.

With the implementation of the NEET exam, admission to MBBS programmes are now based on merit, not only in government colleges but also in private institutions. This change allows even students with poor financial backgrounds to gain access to medical and dental education. This democratic process of admission in medical colleges promotes equality. While tuition fees in private medical colleges continue to remain high compared to government colleges, the absence of unfair money exchanging hands at least allows families with fewer resources to secure admissions for their children.

Since the introduction of NEET, the source of corrupt earnings has been plugged. However, following the recent paper leak incident, some political parties have started demanding the abolition of the NEET exam.

It should not be forgotten that a large number of medical and dental colleges across the country are run by politicians. Consequently, the managers of private medical colleges would invariably wish for the NEET exam to be abolished and the return to the same old pattern where they could earn huge amounts of money by conducting entrance exams in an arbitrary manner.

Abolishing the NEET exam due to a few incidents of paper leakage, influenced by vested interests, would push us back into the same dark age where medical admissions were in the clutches of corruption.

– Editor

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The Idea of Democracy and Populism in Contemporary Times

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Abstract

The present scenario focus on the state of the art in the study of political science. Democracy and Populism offer different aspects and goals however they also have different approaches as Populism offers the promise of democratic renewal, bringing new actors and policies into the political system. Democracy enhances the idea of how populist regimes have existed so far and what scope is there for upliftment in the future. Populists in different forms of government can also erode the institutional checks on executive power necessary for durable democracy, even in previously resilient advanced democracies, and populist mobilization has precipitated democratic breakdown in the wealthiest democracies to ever revert to autocracy, so the question posed here is if it is still relevant or not to have modern transitions? If then in what forms of governments. The idea of populism as draws attention for an egalitarian impulse against oligarchic tendencies, centred on anti-elitism and the defense of a democratic common sense. On the other hand it also deals with different groups that all together has different meaning when it comes to the idea if Democracy and Populism.

Key Words : – Defence, resilient Autocracy, Upliftmen, democracy, populism

Objectives

- To assess the evolution of democracy and populism as important topics
- To understand different notions of populism
- To understand how one should deal with such an idea
- To draw conclusions regarding the concept and its usage .

Methodology

This study had a cross –sectional survey to see how people with left and right ideology perceive things. A sample of 20 participants was recruited through an online survey platform. The Questionnaire consisted of 10 items assessing Democracy in India and the rise of elitism. Data was analyzed and to maintain privacy it was stored securely.

Introduction

The interplay between Democracy and Populism.

- Definition of Democracy- rule by people, where the government works with representatives chosen by the people.

- Definition of Populism- political approach that seeks to represent the interests of ordinary people, often contrasting with the elite or establishment

Theoretical Framework

This would deal with all aspects of the rise of populism as a concept all over the world and the idea of transition of various countries around the world for a democratic form of government. Countries like Turkey, Venezuela, and Thailand. Populists are more likely to have future electoral success in the subregions that have weaker connections between voters and parties than other subregions: Central and Eastern Europe, Southeast Asia, the Andes, Central America, and Southern Africa. The weak formal and informal executive constraints in most of these countries would put them at risk of importance of civil liberties and political pluralism, liberal democracy vs participatory democracy.

Historical Context

The resurgence of populism can be traced back to various historical contexts, including economic crises, social upheavals, and political corruption. The late 20th and early 21st centuries witnessed significant populist movements in Latin America, Europe, and the United States, reshaping political landscapes. Over the past decade, people from across the political spectrum have increasingly questioned how in touch elected officials are with the concerns of ordinary people and whether they are influenced more by Wall Street than Main Street interests. Known also as populism, these “us vs. them” sentiments have inspired new political movements in countries across the globe, including the U.S., U.K., Brazil, France and Sweden. The Positive Aspects of Populism. Across the world, populism is driven by a frustration with the mainstream political parties, who are seen as being too close on policy – see, for example, the response to the 2008 economic crisis – on the one hand, and too unresponsive to their electorates on the other. When mainstream parties fail to respond to popular concerns, and to articulate whom they represent and why the policies they advocate would be better for those constituencies, populist politicians and movements offer a powerful and convincing criticism of establishment politics.

Populist movements often mobilize disenchanted voters, fostering greater participation in democratic processes.

- where citizens elect representatives to make decisions on their behalf, common in many modern nations.
- Cultural Democracy: Refers to the idea that all cultures and perspectives have equal rights to be expressed and valued within a democratic society.
- Digital Democracy: Emerges from the influence of technology and the internet, emphasizing the role of digital platforms in enhancing public participation and transparency. India’s approach to the changing idea of democracy and populism reflects its diverse and complex socio-political landscape. As a vibrant democracy, India has witnessed a shift towards more populist politics, where leaders often appeal directly to the masses, addressing their concerns through emotive rhetoric and promises of swift solutions. This has led to a reimagining of democratic engagement, emphasizing grassroots participation while simultaneously challenging established political norms. The rise of populism has also sparked debates about national identity and social cohesion, as various groups seek representation and recognition within the democratic framework. Amidst these changes, India grapples with maintaining its foundational democratic principles, ensuring that the voices of marginalized communities are heard, while

navigating the tensions between populist demands and institutional integrity. This dynamic interplay shapes the ongoing evolution of democracy in India, highlighting the need for a balance between popular will and democratic accountability. Populism and Democratic Resilience Despite its challenges, democracy has shown resilience in the face of populism. Strategies for reinforcing democratic norms include:

- Promoting Civic Education: Enhancing public understanding of democratic principles can mitigate the appeal of simplistic populist narratives.
- Strengthening Institutions: Robust institutions can serve as bulwarks against authoritarian impulses while ensuring accountability.
- Economic Discontent: Widening income inequality and economic instability can fuel discontent with established political parties, driving people toward populist leaders who promise change.

Increased engagement of citizens in political processes, leading to greater representation and accountability.

§ Cultural and Social Issues: Concerns over immigration, national identity, and social values can galvanize populist movements, particularly when people feel their culture is threatened. These become dominant factors that often leads to complex situations & complex results. we draw attention to the diversity of conceptions of democracy within populist thought and practices and show that the types of democratic institutions favoured by populist movements, and their attitudes towards intermediary bodies, are highly contextual. Finally, we argue that populism's inherent ambiguities shed some myths that culminate as theories or ideologies offers the promise of democratic renewal, bringing new actors and policies into the political system. But while populist parties in power can make politics more representative, they can undermine accountability when their lack of ability or interest in legislating shifts policymaking to other actors outside the ruling party. Democracy is everywhere at the core of populism. One way for populist parties to do this is to push for a greater use of referendums. Previous research shows that populist parties mention in general in their communications the referendums as suitable avenues for the direct involvement of the people in the decision-making process.

Changing narratives of democracy reflect the evolving understanding of democratic principles, practices, and the contexts in which they operate. Traditionally, democracy has been seen as a system characterized by free elections, individual rights, and representative government. However, contemporary discussions have expanded this definition to include:

1. Participatory Democracy: Emphasizing active citizen engagement beyond voting, including grassroots movements and direct involvement in decision-making processes.
2. Deliberative Democracy: Focusing on the importance of dialogue and discussion among citizens to reach informed consensus, highlighting the role of public reasoning.
3. Global Perspectives: Recognizing that democracy is not a one-size-fits-all model; it can be adapted to different cultural, social, and political contexts, leading to various forms of governance.
4. Digital Democracy: The impact of technology on democratic participation, where social media and online platforms can facilitate new forms of engagement but also pose challenges like misinformation.
5. Intersectionality: Understanding how issues of race, gender, class, and other identities intersect with democratic participation and representation, pushing for a more inclusive approach.

6. **Erosion and Backsliding:** Addressing the challenges of authoritarianism and the decline of democratic norms in various regions, prompting discussions about resilience and reform.

These changing narratives reflect ongoing debates about what democracy means in a rapidly changing world and the importance of adapting democratic practices to meet contemporary challenges.

Conclusion

Populism and democracy often have a complex relationship. While populism can energize political participation and give voice to marginalized groups, it can also undermine democratic norms by promoting polarization and eroding trust in institutions. Populist leaders may prioritize their agenda over democratic processes, leading to authoritarian tendencies. Ultimately, a healthy democracy requires a balance that allows for populist expressions while safeguarding institutions and pluralism. Engaging citizens in meaningful dialogue and addressing their concerns through democratic means is essential for sustaining both democracy and societal cohesion. Populism has evolved significantly over time, adapting to various political, social, and economic contexts. Encouragement of policies aimed at reducing inequality and protecting marginalized groups. Mechanisms like free press and judicial independence that hold leaders accountable for their actions. Populism connects to the real world through its appeal to ordinary people who feel marginalized or disillusioned with established political systems. Here are some key ways it manifests:

1. **Economic Discontent:** Many populist movements arise during times of economic crisis or inequality, where citizens feel left behind by globalization and elite interests. Leaders promise to address these grievances.
2. **Anti-Establishment Sentiment:** Populism often targets political elites, framing them as out of touch with the needs of the common people. This narrative can galvanize support for candidates who position themselves as outsiders.
3. **Identity Politics:** Populist leaders frequently leverage cultural and national identities, tapping into fears around immigration, globalization, and loss of cultural values. This can create a strong sense of in-group solidarity.
4. **Simplified Solutions:** Populism tends to promote straightforward solutions to complex problems, appealing to emotions and common sense rather than nuanced policy discussions. This can resonate with those feeling overwhelmed by political complexities.
5. **Direct Communication:** Populist leaders often use social media and direct communication to bypass traditional media, fostering a sense of intimacy and immediacy with their supporters.
6. **Polarization:** Populist movements can deepen societal divisions, creating a “us vs. them” mentality that often results in heightened political polarization.

These elements illustrate how populism reflects and influences real-world dynamics, shaping political landscapes and responses to societal challenges. **Policy Responsiveness:** Elected officials are more likely to respond to the needs and preferences of their constituents, leading to more relevant and effective governance.

- Greater emphasis on educating citizens about their rights and responsibilities, fostering a more informed electorate.
- **Conflict Resolution:** Democratic frameworks often provide peaceful means for resolving disputes, reducing the likelihood of violence.

These changes contribute to more stable, inclusive, and resilient societies.

1. **Historical Roots:** Early forms of populism emerged in the late 19th century, notably with the People's Party in the U.S., which focused on agrarian issues and the rights of farmers.
2. **20th Century Developments:** The mid-20th century saw populism characterized by charismatic leaders, like Franklin D. Roosevelt and Juan Perón, who mobilized support through direct appeals to “the people” against elites.
3. **Post-Cold War Era:** In the 1990s and early 2000s, populism diversified, with both left-wing movements (e.g., Hugo Chávez in Venezuela) and right-wing movements (e.g., Jean-Marie Le Pen in France) gaining traction. Economic inequality and globalization fueled this rise.
4. **Contemporary Populism:** In recent years, populism has often been marked by nationalist sentiments, anti-establishment rhetoric, and the use of social media. Leaders like Donald Trump and Jair Bolsonaro have leveraged discontent with traditional political institutions.
5. **Globalization and Crisis:** Economic crises, migration, and cultural shifts have further shaped modern populism, leading to a reaction against perceived elites and globalization, often emphasizing sovereignty and identity.
6. **Digital Age:** The internet and social media have transformed how populist messages are disseminated, enabling rapid mobilization and engagement with followers, while also allowing for the spread of misinformation.

Overall, while the core of populism—advocating for “the common people” against elites—remains constant, its expressions and strategies have evolved dramatically in response to changing global landscapes. The future of populism is likely to be shaped by several key factors:

1. **Economic Inequality:** As disparities grow, populist movements may gain traction by addressing economic grievances, advocating for wealth redistribution and social justice.
2. **Digital Communication:** The rise of social media will continue to influence populist strategies, allowing leaders to bypass traditional media and connect directly with supporters, potentially fostering more extreme rhetoric.
3. **Globalization and Nationalism:** Tensions between globalization and national interests may fuel populism, with leaders emphasizing sovereignty and local identity to rally support against perceived external threats.
4. **Environmental Issues:** Climate change and ecological concerns could lead to new forms of populism, focusing on environmental justice and the rights of future generations.
5. **Youth Engagement:** Younger generations, disillusioned with traditional politics, may drive new populist movements that prioritize inclusivity, diversity, and progressive values.
6. **Polarization:** As political polarization intensifies, populism may become more entrenched, with more radical factions emerging on both the left and right.

Overall, populism will likely remain a significant force in politics, evolving in response to societal changes and global challenges.

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Navigating Child Rights in India: Insights from the Universal Periodic Review (UPR)

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Introduction

The Universal Periodic Review (UPR) is a cyclical review of human rights in all United Nations member countries. The UPR focuses on investigating and preventing human rights violations on one hand, and promoting and protecting human rights on the other. In the contemporary democratic world, sustaining human rights is very important for any country to achieve its goals. India is one of the foremost countries that believes in and follows the principles and norms of human rights. It contributed to the formation of the pathbreaking human rights document, the Universal Declaration of Human Rights (UDHR), enshrined fundamental rights in the Indian Constitution, and has been practicing its constitutional provisions for a long period of time. India provides constitutional guarantees regarding child rights, such as the right to education and the prohibition of child labor, among others (Constitution of India 1950). Despite this, India has ranked low in the field of promoting, protecting, and preventing the violation of child rights (Singh 2020). This article seeks to analyze India's review under the UPR in the context of child rights. It examines the recommendations proposed by member states and the challenges in achieving these targets. It also discusses the debates surrounding the violation of child rights in India.

The article is divided into the following sections. The first section provides an overview of the UPR, along with the historical evolution of the mechanism. The second part of the article discusses child rights in India and the legal framework for their protection. The third section addresses the debates surrounding the scrutiny of child rights in India under the UPR cycles.

What is UPR?

The Universal Periodic Review (UPR) is a peer review mechanism established in 2006 through *General Assembly resolution 60/251* under the Human Rights Council (Office of the United Nations High Commissioner for Human Rights 2022). It serves as a unique process that reviews the human rights records of all United Nations Member States. The UPR is state-driven by its nature and structure, focusing on scrutinizing countries based on their human rights conditions. It also provides an opportunity to each state to prepare a report on the actions and policies they have implemented to enhance human rights in their country and meet their obligations (Bartlett 2021). Governmental stakeholders consistently emphasize openness, tolerance, cooperation, and a consensual approach as key factors in conducting the UPR.

The Universal Periodic Review operates on a four-year cycle that involves three stages. The first stage reviews a country's human rights situation through interactive dialogue with all UN members. The second stage focuses on implementing the recommendations made during the review, while the third stage monitors the progress of these implementations in subsequent UPR cycles (Charlesworth & Larking 2014, Gomez & Ramcharan 2018). Each stage has different levels of preparation. In the first stage, three key documents are essential: the national report prepared by the country under review, a report compiled by the Office of the United Nations High Commissioner for Human Rights (OHCHR) based on treaty bodies and other UN documents, and the stakeholders report compiled from Civil Society Organisations (CSOs) and Non-Governmental Organisations NGOs submissions. After the preparation, the review process begins, involving interactive sessions where the state presents its national report, and UN members ask questions, make comments, and provide recommendations. The review is conducted by the UPR Working Group, consisting of 47 Council members, though any UN Member State can participate in the dialogue. Each state's review is assisted by a group of three states, known as "troikas," which act as rapporteurs. Troikas are selected by drawing lots after the Council membership elections in the General Assembly (Office of the United Nations High Commissioner for Human Rights 2022). In the third stage, the government implements the accepted recommendations, though it is encouraged to also consider rejected ones. National Human Rights Institutions (NHRIs) and CSOs may monitor and advocate for the implementation of these recommendations (Charlesworth & Larking 2014, Gomez & Ramcharan 2018).

Why was such a system needed? Historical developments provide an explanation of the question. The UN Commission on Human Rights, the predecessor of the Human Rights Council, was founded in 1946 by the Economic and Social Council (ECOSOC) to address human rights issues. Until the late 1960s, the commission primarily passed broad resolutions that affirmed or developed international human rights standards but did not address specific violations (Office of the United Nations High Commissioner for Human Rights 2016). Its failure to prevent systematic violation of human rights and the inconsistency in the implementation of international standards across all countries revealed the need for a new system. Third-world countries further highlighted the commission's discriminatory behavior, noting that it failed to address human rights violations in Western countries (Shelton 2014). Instead, the commission disproportionately targeted the Third World, especially Asia, for human rights violations, while rarely addressing systematic abuses.

In response to these issues, the UN Secretary-General Kofi Annan stated in 2005 that, the commission's ability to fulfill its duties had been undermined by its declining credibility and professionalism. He noted that some states joined the commission not to promote human rights but to shield themselves from criticism or to criticise others. This created a credibility deficit that harmed the reputation of the UN as a whole (Charlesworth & Larking 2014). As a result, the Human Rights Council (HRC) was established with stronger, more effective mechanisms. The HRC consists of four bodies: the Advisory Committee (think tank), the Complaint Procedure, the Universal Periodic Review, and Special Procedures such as, special rapporteurs and representatives (Office of the United Nations High Commissioner for Human Rights 2022).

Another concern for the international community was how to encourage adherence to commonly agreed-upon norms. In response, the international community endorsed peer

review initiatives to assess performance and provide recommendations for improving shared standards. Notable examples of this include the Development Assistance Committee peer review process by the Organisation for Economic Co-operation and Development (OECD) and the African Peer Review Mechanism (APR). The Universal Periodic Review (UPR) for human rights is another such example (McMahon & Ascherio 2012).

Child Rights in India

Before examining India's review under the UPR, it is important to understand the country's existing human rights practices and its approach to child rights. Human rights are a major concern for every country today, with the foundational texts being the UN Charter and the 1948 Universal Declaration of Human Rights (UDHR). The UDHR emerged in response to the mass human rights violations and atrocities of the world wars. India played a significant role in the creation of both documents. Drawing from its colonial past, India has long recognised the importance of human rights. After gaining independence, India enshrined fundamental rights for its citizens and the Directive Principles of State Policy into its Constitution, both influenced by the UDHR. The document has provisions related to the child rights particularly article 25 and 26 talks about the social protection of children and right to education respectively (United Nations 1948).

India has consistently upheld children's rights, demonstrating a strong commitment to their protection. Article 24 of the Indian Constitution prohibits child labor and, through the Directive Principles of State Policy (DPSP), empowers the state to create provisions for child welfare. In the education sector, the 86th Amendment of 2002 introduced free and compulsory education for all children aged 6 to 14 (Constitution of India 1950). India signed and ratified the Convention on the Rights of the Child in 1992, along with its optional protocols related to children in armed conflict and the sale of children, child prostitution, and child pornography in 2005 (Office of the United Nations High Commissioner for Human Rights 2024). The country also established the Ministry of Women and Child Development to address children's issues. Additionally, the National Commission for Protection of Child Rights and the National Charter for Children are dedicated to safeguarding children's rights. Numerous laws, including the Prohibition of Child Marriage Act, Juvenile Justice Act, and POCSO Act, further reinforce protections for children (National Report 2008).

India's Review under UPR

India was among the first countries to undergo review in all three cycles of the Universal Periodic Review (UPR) process. Despite having a robust system for child protection in India, it raises a critical question as to why child rights or related issues remain contentious under the UPR. Prior to the 1980s and 1990s, child rights were not a distinct topic of discussion at either the international or domestic level, as the concept of human rights preceded the recognition of child rights. However, with globalization, the international community came to realize that children are a vulnerable group, not merely the property of their parents, but individuals with unique needs, care, and treatment (Chopra 2015). This realisation gave rise to the idea of children's rights. In India, the development of mechanisms for child rights protection also gained momentum in the post-Cold War era, and the neglect of children's special needs became a significant focus under the UPR.

Another issue is the lack of a unified definition of "child." Who is considered a child? Article 1 of the UN Convention on the Rights of the Child defines a child as *'any human*

being under the age of 18, unless the law applicable to the child grants majority status earlier' (United Nations 1989). In India, there is a dual approach to this definition. Some laws classify a child as being below 18 years, while others set the age limit at 14 years (Constitution of India 1950). This lack of clarity has created uncertainty about which laws should apply to children. For instance, should a child above the age of 14 engaged in work be considered a victim of child labor? According to Article 24 of the Indian Constitution, the answer would be “no,” but the Juvenile Justice Act 2000, which considers anyone under 18 as a child, would classify this as a crime and take steps toward the child’s rehabilitation.

India was scrutinized under the UPR from a child rights perspective because, despite having legal mechanisms for child protection, cases of child abuse, violations of child rights, and child marriages persist, particularly in states like Uttar Pradesh (36 million), Bihar (22 million), West Bengal (22 million), Maharashtra (20 million), and Madhya Pradesh (16 million) (UNICEF 2024). According to Census 2011 data reported by UNICEF, India’s child population in the 5-14 age group is 259.6 million, with over 10 million children (4% of the total child population) working as either ‘main workers’ or ‘marginal workers’ (UNICEF India, 2021).

This was the status of child rights in India, which led to the country being closely examined under the Universal Periodic Review (UPR). The UPR made several criticisms and recommendations aimed at improving policy implementation related to children’s rights. The next section will provide a detailed discussion of these criticisms and recommendations.

Criticism and Recommendations by States

Child rights continue to be a central and contested issue during India’s State under Review (SuR) in the UPR process. Despite having domestic laws in place, India faced significant criticism from treaty bodies and stakeholders for its shortcomings in protecting and promoting child rights. This section provides an in-depth analysis of India’s stance during the UPR review and the responses it received. It includes a list of issues, comments, and criticisms raised by stakeholders and treaty bodies, followed by a table outlining key recommendations made by member states.

Table 1: Comments and Criticisms by stakeholders and UN Treaty Bodies on Children Issues in India

<i>Serial</i>	<i>Issues</i>	<i>ReviewCycle Comments/ Criticism</i>
1.	Discrimination against SCs and STs children	1,2 Vulnerable situation, no government data available for discrimination.Discrimination of SC and STs students in education system
2.	Education	1, 2, 3 Girl education, recommend to provide sexual education in schools, Military occupation of schools, no scholarship because of manual scavenging. Level of education in rural areas was very poor, Inadequate funding for implementation of RTE. No space for Human Rights in NEP, disparity in learning from government and private schools, RTE withdrawn without full implementation,
3.	Child labour	1,2,3 Lack of effective programmes, not reviewed Article 32 of CRC. Reconsider Article 32 of CRC. New act on Child labour is problematic.Recommend India to sign ILO Convention 138 and 182.
4.	Sexual Violence	1, 3 Girl tribal child. POCSO enacted butcrime still remain, Child abuse,
5.	Gender discrimination	1, 3 SC, ST and Muslim girls have not equal access to education, difference between girls and boys dropout rates.

6.	Child Marriage	1, 3	Still practice (24%). Child marriage prohibition law ineffective.
7.	Child Mortality	1,2,3	Abortion, Medical Termination, higher in Adivasi children. World's highest child mortality. Sex selection and pregnancy termination
8.	Child Protection	1,2, 3	National and State based commissions would be set up. Protection schemes and laws failed to protect children. Ratification of Hague Convention, JJ Act not applied in the JK,
9.	Corporal punishment or capital punishment	1,3	No national prohibition, prohibit capital punishment and life imprisonment to children in JK,

Source: UPR, INDIA. Office of the High Commissioner of Human Rights. <https://www.ohchr.org/en/hr-bodies/upr/in-index>

Table 2: Recommendations by Member States

<i>Review Cycle</i>	<i>Total Recommendations</i>	<i>Recommendations on Children</i>	<i>Recommending States on Children</i>	<i>India's Response on</i>
1st	01	Consider signature and ratification of ILO Conventions No. 138 and 182	Sweden	Noted
	02	Consider signature and ratification of ILO Conventions No. 138 and 182	Netherlands	Noted
		Review the reservation to article 32 of the Convention on the Rights of the Child.	Netherlands	Noted
01	Consider signature and ratification of ILO Conventions No. 138 and 182.	Brazil	Noted	
2nd	06	Ratify ILO Convention 138 and 182 and regarding Child Labour	Norway, Ireland, Ghana, Germany, Sweden, Hungary,	Noted
	12	Children Education	Australia, Greece, Liechtenstein, Qatar, Indonesia, Mexico, Ecuador, Slovakia, Senegal, Cuba, Slovenia, Malaysia,	Noted – 05 Supported - 07
	05	Child Mortality and health issues	Liechtenstein, Norway, Austria, Egypt, Mexico	Noted – 01 Supported – 04
	10	Protection of Child Rights	Norway, Ireland, Canada, Qatar, Japan, Iran, Nepal, Ghana, Algeria, Slovakia	Noted – 06 Supported – 04
	02	Child Marriage	Switzerland, Chile	Noted- 01 Supported – 01
	05	Sexual/Girl child violence	Liechtenstein, Canada, Kyrgyzstan, Bahrain, Mexico	Noted – 03 Supported – 05
	03	Poverty alleviation	Singapore, Vietnam, South Africa,	Supported
	3rd	13	Right to Education	Australia, Oman, Holy See, Kyrgyzstan, Mexico, Brunei Darussalam, Vietnam, Qatar, Myanmar, Laos, Iraq, Czechia, Slovakia,
07		Child Labour	France, Spain, UK, Thailand, Slovakia,	Supported – 04
08		Slovenia, Uruguay Child Marriage	Noted – 03 Israel, Iceland, Gabon, Sierra Leone, Czechia, Brazil, Honduras, Peru	Supported

06	Protection of Child Rights	Turkey, Portugal, Botswana, Kenya, Bulgaria, Chile,	Noted – 02 Supported – 04
12	Girl Child Violence/ Sexual Violence	Liechtenstein, Italy, Spain, Ireland, Vietnam, Japan, Gabon, Zambia, Honduras, Kenya, Slovakia, Mexico,	Noted – 04 Supported – 08
03	Child Mortality	Norway, Bahrain, Zimbabwe	Noted – 01 Supported – 02
01	Corporal punishment	Zambia	Supported

Source: Recommendations, Database, UPR information. <https://upr-info-database.uwazi.io/en/library/>

Actions at the Domestic Level

This section discusses how India responded to the recommendations made during the UPR process. In the first cycle, India received four recommendations from member states but did not accept any of them, simply noting all of them. In the second cycle, India was given forty- three recommendations, of which it accepted eighteen and noted the rest. During the third cycle, fifty recommendations were made, and India agreed to accept thirty-nine of them.

India has steadily increased the number of accepted recommendations, demonstrating its commitment to addressing issues raised in the UPR process. A key recommendation across all cycles has been for India to ratify ILO Conventions 138 and 182. The Indian government has responded by affirming its full support for the objectives of the Convention on the Rights of the Child (to which India is a party) and ILO Conventions 138 and 182. However, at the time of accession to the Convention on the Rights of the Child, India made a declaration regarding Article 32, stating that ‘*Measures would be undertaken to progressively implement the provisions of Article 32 since it is not practical immediately to prescribe minimum age for admission to each and every area of employment in India*’ (United Nations 2024).

Considering the country’s socio-economic conditions, India has adopted a multi-faceted approach to eliminate child labour, focusing on legislative measures, general development programs for families of child labourers, and targeted actions in areas with high child labour concentrations. Under the Child Labour (Prohibition & Regulation) Act, 1986, children under

14 years old are prohibited from working in hazardous occupations or processes listed in the Act. Because the minimum age for employment is set at 18 in the ILO Conventions, India has yet to ratify them, though the government is working on the necessary steps, particularly for Convention 182.

In the past five years, the government has issued three notifications expanding the list of hazardous occupations and processes in Schedule II of the Child Labour (Prohibition & Regulation) Act, 1986 (Ministry of Labour, GOI 1986). Currently, Part A lists 18 occupations, and Part B lists 65 processes. Additionally, the worst forms of child labour are already banned under various laws, including the Bonded Labour System (Abolition) Act of 1976, the Immoral Traffic Prevention Act of 1956, the Prevention of Illicit Traffic in Narcotic Drugs and Psychotropic Substances Act of 1988, and the Child Labour (Prohibition & Regulation) Act (Human Rights Council 2012).

India has enacted several laws in response to recommendations made by member countries on various issues. One such law is the Right to Education Act of 2009, which guarantees free and compulsory education as a fundamental right for all children aged 6 to 14. Additionally, to reduce school drop-out rates and improve child nutrition, the mid-day meal scheme was introduced. This program also includes special provisions for girls. In line with this, India launched the Sarva Shiksha Abhiyan (SSA) in 2010. According to India's national report during the second UPR cycle, the drop-out rate for girls decreased from 11.2% to 5.9%. Furthermore, India enacted the POCSO Act of 2012 (Protection of Children from Sexual Offences) and passed the Prohibition of Child Marriage Act (PCMA), which redefined child marriage as a prohibited act rather than merely an offense, as in previous legislation (National Report, Human Rights Council 2012).

Conclusion

This article sought to explore the issue of child rights under the UPR, using India as a case study. It highlights that children, as a vulnerable group, require special attention, and India has struggled to meet their specific needs. The article also emphasized the significance of the UPR, pointing out that countries need such a mechanism to be periodically reviewed and held accountable by the Human Rights Council. The UPR applies its assessments uniformly, examining both developed and developing countries. The article provides a comprehensive view of children's rights in India before and after globalization, showing how India has evolved into a more responsive nation regarding these issues.

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Microfinance and Women's Digital Inclusion: Exploring the Opportunities and Challenges

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Abstract

This study explores the convergence of women's digital inclusion and microfinance, focussing on the possible opportunities and challenges that occur when microfinance organisations use digital technology to serve female clients. Although the possibility of digital technologies to increase women's financial inclusion and empowerment, significant barriers and challenges remain. This study examines the current state of digital inclusion programs in microfinance organisations serving women, finding best practices and areas for improvement. This study highlights the complex relationships between digital accessibility, microfinance, and women's empowerment, emphasising the importance of gender-sensitive digital solutions that address the specific requirements and challenges of female clients. The findings help to deepen our understanding of the role of digital technologies in promoting women's financial inclusion and empowerment, as well as inform microfinance institutions, policymakers, and stakeholders on how to bridge the digital divide and improve women's economic opportunities.

Keywords: Women's digital inclusion, Microfinance, Financial inclusion, Women's empowerment, Digital technologies

Introduction

Microfinance has recently emerged as a significant tool for poverty alleviation, particularly in developing countries where access to mainstream financial institutions is limited. Microfinance institutions (MFIs) provide small loans and financial products to under-represented populations, empowering individuals, particularly women, to engage in entrepreneurial activities, increase household income, and attain greater economic independence. Women, who frequently face systemic difficulties to formal employment and traditional banking institutions, have been the principal beneficiaries of microfinance efforts, with beneficial knock-on benefits for their families and communities.

Parallel to the expansion of microfinance, the digital revolution has completely impacted the global economy, allowing for new financial inclusion via mobile technologies and online platforms. For women, digital inclusion—the ability to access and successfully use digital technologies—has become an essential tool of economic participation, helping reduce gender gaps in education, employment, and entrepreneurship. Mobile banking, digital payment systems, and financial literacy apps have transformed access to financial services, allowing women to run their businesses, save money, and carry out transactions using their mobile devices.

In today's digital age, technology has changed the way we live, work, and obtain financial services. Microfinance, a critical tool for achieving financial inclusion, has also changed dramatically as a result of the rise of digital technologies. While the promise for digital microfinance to increase women's economic empowerment, women are still significantly excluded from the digital financial scene. This study explores the intersection of women's digital access and microfinance, including the possible opportunities and challenges that arise when microfinance organisations use digital technology to serve female clients.

The United Nations' Sustainable Development Goals (SDGs) emphasise the significance of financial inclusion and women's empowerment in reaching global development. Microfinance has helped to increase financial access for underprivileged people, specially women. However, the digital gap remains, with women facing distinct challenges to digital inclusion, such as inadequate access to digital gadgets, internet connectivity, and digital literacy.

The merging of microfinance and digital inclusion has the potential to significantly increase women's economic empowerment, particularly in areas where gender inequities and financial exclusion are common. This study looks at how digital tools might improve the success of microfinance programs for women, the challenges of implementing digital solutions in low-income communities, and the larger social and economic consequences of women's digital inclusion in the context of microfinance.

By exploring the opportunities and challenges of digital microfinance for women, this study aims to contribute to a better understanding of the role of digital technologies in enhancing women's financial inclusion and empowerment.

Objectives

1. To know the current digital inclusion initiatives for women in microfinance.
2. To study the challenges and opportunities of digital microfinance for women's financial inclusion and empowerment.

Review of Literature

Chandrashekhar and Nandagopal (2013) examined the challenges that merchants experience when adopting mpayment at retail point of sale locations in India. Interviews with 33 retailers in Coimbatore city revealed limited readiness for m-payment implementation due to trust difficulties. Merchants should be educated on the advantages of mobile payment.

Mishra and Purohit's 2017 in their work "Payment Banks - A Revolutionary Step in India for Financial Inclusion," the Indian government and Reserve Bank of India's decision to establish payment banks through mobile phones will encourage individuals to adopt m-banking and commerce in the future. The researchers cited Paytm as an example of a payment method that is widely accepted, including at tea stalls and corner shops, for the convenience of ordinary folks. According to a survey by the United States Agency for International Development (USAID), 97 percent of retail transactions in India still take place in cash due to a lack of a digital ecosystem for both merchants and consumers. Indian Post has been licensed as a payment bank and will begin operations in January 2017.

(Suprun et al., 2020) and (J. Anderson, 2010), finds cutting-edge internet technologies and mobile money can lead to increased competition between banks and FinTech firms. Technology is improving state control of digital currencies and the foreign exchange market.

Ultimately, they have a clear position on digital currencies. Digital access to financial services is critical for developing countries, particularly in increasing financial inclusion. Digital financial services limit cash movement in the economy, reducing black market activity and tax avoidance.

(Ingalagi et al., 2020) find in their study that microfinance institutions play a crucial role in financial inclusion, particularly in remote rural areas. Financial sector organisations have made significant efforts to enhance financial inclusion. However, engaging industry through corporate social responsibility has little impact. Under corporate social responsibility obligations, the sector has used self-help groups (SHG) to market their products, with a lesser emphasis on financial inclusion.

Solomon and Dr. Ranu Sharma (2022) A study on the role of microfinance in empowering the women in Alwar. The study aims to identify the influence of psychological empowerment on women through SHGs. The researchers conducted this investigation using both primary and secondary data. Primary data was acquired from 496 participants using a standardised 5-point Likert scale questionnaire, while secondary data was gathered from published sources such as research publications and journals. This study used correlation and regression methods to analyse data using SPSS. The data suggests that microfinance can empower women psychologically through self-help groups, reducing poverty and breaking down societal barriers.

Methodology

This article is based on secondary data gathered from several articles, periodicals, and websites. This paper is exploratory in nature.

Analysis

To know the current digital inclusion initiatives for women in microfinance.

Microfinance institutions (MFIs) are increasingly leveraging digital technology to expand their reach and services, especially to women who are often underserved by traditional financial institutions. Here are some common digital inclusion initiatives:

1. Mobile Banking
2. Digital Lending
3. Digital Financial Literacy
4. Digital Savings
5. Digital Payments
6. Digital Insurance
7. Digital Analytics

1. Mobile Banking:

- Agent Networks: MFIs often partner with local agents, such as shopkeepers or community leaders, who can provide basic banking services like deposits, withdrawals, and transfers using mobile devices.
- Mobile Wallets: These digital wallets allow women to store and access funds using their smartphones. They can make payments, receive remittances, and even access loans.

2. Digital Lending:

- Online Loan Applications: MFIs are developing online platforms where women can apply for loans, submit documents, and track their applications.

- Mobile Loan Disbursement: Loans can be disbursed directly to women's mobile wallets, reducing the need for physical visits to branches.

3. Digital Financial Literacy:

- Online Training: MFIs are offering online courses and tutorials to teach women about financial concepts, budgeting, and responsible borrowing.
- SMS and WhatsApp Alerts: MFIs can send reminders about loan repayments, due dates, and interest rates via SMS or WhatsApp.

4. Digital Savings:

- Automated Savings: MFIs can set up automatic savings plans where a portion of a woman's income is automatically transferred to a savings account.
- Goal-Based Savings: Women can create savings goals for specific purposes, such as education or healthcare, and track their progress.

5. Digital Payments:

- QR Code Payments: MFIs can enable women to make payments using QR codes, which can be scanned on smartphones or at merchants.
- Online Bill Payments: Women can pay bills for utilities, mobile phones, and other services online.

6. Digital Insurance:

- Microinsurance: MFIs are offering affordable microinsurance products, such as life insurance and health insurance, that can be purchased and managed online.

7. Data Analytics:

- Customer Insights: MFIs can use data analytics to better understand the needs and preferences of their female customers, tailoring their products and services accordingly.

Examples of Successful Initiatives:

- Grameen Bank: This pioneering MFI in Bangladesh has been at the forefront of inclusion, using mobile banking and digital literacy programs to reach millions of women.
- Women's World Banking: This global nonprofit organization works with MFIs around the world to promote digital financial inclusion for women.

By taking digital technology, MFIs can empower women to achieve greater financial digital independence and improve their lives.

To study the challenges and opportunities of digital microfinance for women's financial inclusion and empowerment.

Digital microfinance is a double-edged weapon for women's empowerment.

Digital microfinance, a combination of traditional microfinance and current technologies, has vast potential for women's financial inclusion and development.

However, it is not without challenges.

Opportunities of Digital Microfinance for Women:

1. Enhanced Excess
2. Improved Efficiency
3. Financial Literacy
4. Financial Inclusion
5. Empowerment

- i. Enhanced Access: Digital platforms can reach women in distant locations, reducing geographic obstacles to financial services.
- ii. Improved efficiency: Automated processes save operational expenses, enabling microfinance institutions to reach more women.
- iii. Financial Literacy: Digital tools can provide educational resources to enhance women's financial literacy and decision-making skills.
- iv. Financial Inclusion: Digital payments and mobile banking can facilitate transactions and enable women to engage in the formal economy.
- v. Empowerment: Digital microfinance can improve women's confidence and decision-making by providing them authority over their funds.

Challenges of Digital Microfinance for Women

1. Digital Gap
2. Privacy Concerns
3. Technological Barriers
4. Cultural Norms
5. Regulatory Hurdles
 - i. Digital Gap: Women may face barriers to digital microfinance due to limited access to smartphones, internet, and digital literacy.
 - ii. Privacy Concerns: Women are especially at risk of identity theft and financial abuse, making data security and privacy a serious concern.
 - iii. Technological Barriers: Women with inadequate technical abilities may encounter barriers to accessing digital platforms due to complicated controls and language limitations.
 - iv. Cultural Norms: Cultural norms may limit women's autonomy and decision-making authority, even with access to digital financial services.
 - v. Regulatory hurdles: Inadequate laws and enforcement can hamper microfinance institutions and women from accessing and using digital financial services.

Overcoming Challenges and Maximizing Benefits

To completely understand the potential of digital microfinance for women's empowerment, it's essential to address these challenges. This involves:

1. Promoting Digital Literacy
2. Ensuring Affordability
3. Strengthening Data Security
4. Tailoring Products and Services
5. Creating Supportive Ecosystems
 - Promoting digital literacy: Providing training and education to help women develop the skills needed to use digital technologies effectively.
 - Ensuring affordability: Making digital financial services accessible to women with low earnings by offering affordable tariffs and devices.
 - Strengthening data security: Implementing strong security measures to protect women's personal and financial data.
 - Tailoring products and services: Designing financial products and services that meet the specific needs and preferences of women.
 - Creating supportive ecosystems: Fostering partnerships between governments, financial institutions, and technology providers to create enabling environments for digital microfinance.

By addressing these challenges and leveraging the opportunities, digital microfinance can play a key role in empowering women, promoting financial inclusion, and driving economic development.

Conclusion

Digital inclusion initiatives for women in microfinance are making great progress and provides an incredible chance for women to gain financial empowerment, contribute to economic development, and enhance their standard of living. Digital microfinance holds great promise for increasing financial inclusion and empowerment for women. However, tackling challenges such as the digital gap, data privacy, and trust is critical to ensuring its long-term and equal impact. Policymakers and stakeholders may build an enabling environment for women to benefit from digital technology opportunities by investing in digital literacy, strengthening regulatory frameworks, and developing collaborations.

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Women Entrepreneurships in Changing Indian Economy: Issues and Perspectives

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Abstract

This paper attempts to highlight entrepreneurship as a strategy for promoting enterprise, which can only be successful if it is properly transmitted and encouraged. This argument is particularly strong when such a method is implemented on women. Nowadays, more women are breaking away from traditional gender roles and entering the business world. Not only do they have prominent corporate positions, but they are also successful female entrepreneurs. There are various reasons for the constant rise in female entrepreneurship, the majority of which share the same rationale as their male counterparts: love for their ideas, a desire to be their own boss, and a desire to address humanitarian problems. The study of women entrepreneurs is critical because their economic function is directly related to their overall well-being. Every Indian homemaker is an entrepreneur in her true sense. Their function as house manager is similar to the basic management practices employed in business. Many entrepreneurs appear to be self-motivated to start their own businesses. Many of these entrepreneurs do not have or received structured entrepreneurial input. They learn through trial and error. Keeping these entrepreneurship perspectives in mind, the article discusses the issues that these self-motivated women entrepreneurs face, as well as the opportunities and future challenges. The article explains how entrepreneurship training might help these self-motivated women launch self-sustaining businesses. The article outlines the concerns of these businesswomen and recommends what type of entrepreneurial training would be most beneficial. The author believes that some formal instruction is essential while attempting to make them self-sufficient.

Keywords: Development of Women Entrepreneurs, Formal Training

Introduction

Indian women are considered as source of power (Shakti) since mythological times. With modernization, urbanization and development of education and business. "When women move forward; the family moves, the village moves and the nation moves". These words of Jawaharlal Nehru are often repeated because it is a reality. For growth of women entrepreneurs a conducive environment has to be created. Women Entrepreneurs is defined "as the women or a group of women who initiate, organize and operate a business enterprise". The Government of India has defined women entrepreneurs as "an enterprise owned and controlled by women having a minimum financial interest of 51 per cent of the capital and giving at least 51 per cent of the employment generated in the enterprise to women. It is estimated that presently women entrepreneurs comprise about 10 per cent of the total entrepreneurs in India. It is also clear that this percentage is growing every year. Self-

employment is the safe way to generate income. Self-employment also changes the position of women from being job seeker to job givers.

This study advances our knowledge of women's entrepreneurship in India and adds to the theoretical understanding of entrepreneurship by illuminating the entrepreneurial perspective of Indian women. The study can also guide support entrepreneurial training programs for entrepreneurs, and policy interventions that encourage women's entrepreneurship and inclusive economic growth in India.

Objectives of the Study

1. To make suitable suggestions for the development of women entrepreneurs.
2. To find out the various methods of formal training for the development of women entrepreneurs.

Review of Literature

(Kumar, 2004) Women Entrepreneurs may be defined as the “women or a group of women who initiate, organize and operate a business enterprise. Government of India has defined “women entrepreneurs as an enterprise owned and controlled by a woman having a minimum financial interest of 51% of the capital and giving at least 51% of employment generated in the enterprise to women”. Like a male entrepreneur, a women entrepreneur has many functions. They explore the prospects of starting new enterprise; undertake risks, introduce new innovations, coordination, administration and control of business and above all provide effective leadership in all aspects of business.

Dr. A.S. Shiralashetti (2013)- “Awareness Level towards Government Schemes- A Study on Women Entrepreneurs of North Karnataka Districts” (Part of UGC Supported Major Research Project). This study examined the amount of awareness about government schemes. The survey found that women entrepreneurs have high awareness of the Stree Shakti Scheme but poor awareness of the Swarna Jayanthi Gramme Swarojgar Yojana (SJGSY), Udyogini, Rastrya Mahila Kosh, and Prime Minister Employment Generation Programme.

Garg and Agarwal (2017), In this study, policymakers see women entrepreneurs as key drivers of economic growth and prosperity in the nation. Globally, they are becoming increasingly successful entrepreneurs.

Dr. R. Paulmoni, Dr. P. Geetha (2019)- “A Study on Women Entrepreneurs Awareness about Government Schemes- Special Reference to Kanyakumari District”. This study examined women entrepreneurs' awareness of government schemes using a ranking approach. The survey ranked Mudra Yojana Scheme for Women first, Annapurna Scheme second, Micro Credit Scheme third, and Mahila Vikas Nithi fourth.

Dayananda Huded, Mallikarjun M. Maradi (2020) - “Skill Development Programmes for Women Entrepreneurship in India: A Case Study of Rudset Vijayapur”. This study examined RUDSET's skill development programmes for women entrepreneurs in Vijayapur district. It analysed the growth of trained women entrepreneurs and their success rates. The study found that women entrepreneurs in the Vijayapur district were not taking use of RUDSET, resulting in a lower percentage of settlements due to a lack of risk-taking.

Methodology of the Study

This study used secondary data. This article is completely based on information provided in government websites and various other websites.

Analysis of the Study

1. Suggestions for the Development of Women Entrepreneurs

The following recommendations are made for removing the obstacles faced by the women entrepreneurs:

- Women entrepreneurs should make every effort to make work- life balance.
- The prospective women entrepreneurs should remain calm and poise and keep on convincing their family members and husbands in a positive way.
- In addition to the different financial organizations, separate financial institutions have to be formed to provide financial aid.
- There should be some flexibility if the repayment of loans. Loan should be on easy terms and interest rate must be low.
- Assistance should be provided for procurement of raw materials.
- Women entrepreneurs should be advised on various issues of women entrepreneurship development.
- Separate outlets must be created for selling of the products of their enterprises.
- The women entrepreneurs should get help from various institutions to develop and evaluate their projects.
- Re-orientation on several things right from the grass-root level through formal training so that they can build their own enterprise and make it a successful one.

2. Methods of Formal Training for the Development of Women Entrepreneurs.

Individual based Approaches

- Information sessions and awareness raising seminars: These are very short sessions and are mainly used for awareness creation and the giving of information. These are also used to provide opportunities for exchange of experiences.
- Short formal training courses: Short training courses in general management and in specific functional areas which are offered in convenient time for women entrepreneur-managers (e.g. evenings, weekly one-day or half-day sessions, weekend sessions) could be cost effective for building their competencies. The courses should be practical and application oriented rather than theoretical, highly participative, and incorporating opportunities for the participants to work on real problem areas of their enterprises. The content and methodologies should be flexible and easily adaptable to the specific training needs of the participants.
- Combined training and consultancy approach: In the combined training and consultancy approach, general and functional courses are given in very short sessions and are aimed at providing specific knowledge and skills that can be used immediately. Participating women entrepreneur-managers then carry-out activities and applications under the guidance of the trainer or consultant. The cycle is then repeated addressing a different management development need or area that logically follows from the results of the application of learning from the earlier cycle. This approach is very effective when introducing new management systems and practices e.g. new bookkeeping, information system, maintenance management, quality control, etc.

Group-based Training and Development

- Study Visits: Study visits and observational study missions are organized way of exposing the participants to contrasting management practices. Visits were arranged to three types of enterprises in the same business: smaller, same, and bigger and better than

those of the participants. Discussions with the host entrepreneurs were also arranged for more sharing of experiences. The visits were then followed by group discussions by the participants to share their observations and lessons learned. Follow-up evaluations, the first one was after six months and the second one was after a year, showed significant transfer of management practices and techniques. The approach is best done with trade associations and small business associations or be done in conjunction with association-building programmes as it requires high level of trust and willingness to share among the participants and host enterprises.

- **Inter-firm comparison and benchmarking:** Interfirm comparison is a process whereby key performance indicators for a group of small enterprises engaged in similar activities, e.g. transport operators, garment manufacturers, are presented in such a way that allows any enterprise to compare its own performance with those of other enterprises in the group, with the group's averages and with the best performer in the group. The broader approach of benchmarking can also be used by the group. In this process, the participating small enterprises identify and target key improvement areas within their respective enterprises, identify and study best practices by other enterprises (not necessarily member of the study group) in these areas and then implemented in their respective enterprises improvements to enhance their performance.
- **Business clinics:** This is an arrangement whereby a group of small business women entrepreneur-managers meets to get advice from trainers and consultants and exchange experiences on how to deal with the problems commonly faced by all of them. It can be a one-off exercise (e.g. an afternoon session) or the problem may require a series of meetings. The group may decide to meet regularly where they would tackle specific problems per meeting. A business clinic can be combined with interfirm comparison and benchmarking. Just like the study visits, it is best to organize this in cooperation with trade associations or the local small business association.
- **Action learning workshops:** Participants in these workshops get together in order to work collectively and gain from each other's experiences in solving problems faced by their small enterprises. As a rule, the workshop focuses initially on problem identification and on selecting those problems which are of common interest to most participants and thus should be examined collectively. The problems selected are then analysed in greater depth by the whole group or its subgroups. The group comes-up with one or more possible solutions. The group could meet once a week and continue to have short meetings for some eight to twelve weeks. In between meetings, the members of the group could undertake information gathering and even experimentation and testing of some ideas. If the group's knowledge and experience are not enough, the group defines information and training requirements that are then met by the consultant acting as facilitator or an expert invited for a specific purpose. Combination of individual and group-based approaches

Integrated Sector-specific Approach

- An integrated and comprehensive package of training and development programmes that focuses on a specific group of small enterprises and their women entrepreneur-managers in a particular industry sector is very effective in developing not only individual enterprises but also the linkages and networking among them, in developing mutually beneficial linkages with larger enterprises and in bringing the small enterprises in closer association with the support institutions in the environment. It is however, a long-term approach and can involve any or all of the following:
- Sectoral small business groups and association building, Undertaking studies of the problems and constraints faced by the small enterprises in the sector (policy and

- regulatory framework, technological, managerial, etc.),
- Promotion of business linkages such as sub-contracting and franchising,
 - Technology support services and integrated and holistic management development programme which focuses on general and sector specific management development requirements

Learning Networks and Clusters

While not exactly a training approach in the traditional sense, the building of learning networks from where the small enterprise and its women entrepreneur-manager could learn is essential in their development. As indicated earlier, being very practical and pragmatic persons, the women entrepreneur-managers of small enterprises learn by doing where each experience, each transaction is a learning exercise.

Thus, one of the approaches to small and medium enterprise development that is getting widespread is the promotion of networks and clusters. Such networking and clustering could be among small businesses in similar or related businesses, or could be broad-based encompassing the key stakeholders. The objectives of the networking could range from joint marketing and promotion initiatives to design and development of products, technologies and business processes. The enterprises are encouraged to join the network and organize mutual learning activities such as workshops, conferences, seminars and other events that enable the network members to have face to face contact for sharing of experiences and knowledge as well as get to know each other better. Electronic networking for sharing of information through the INTERNET is also being used.

Conclusion

Women Entrepreneurs may face various problems during their entire span of entrepreneurship. But they should not lose heart and become demotivated. In spite of that they should make efforts to sustain their projects through proper training and development methods especially aimed at exploiting the various resources at their disposal for the sustenance of their business.

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An Analytical Study on Social Media and Digital Journalism (Special Reference to Facebook and Twitter)

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Abstract

The current study is titled as 'An Analytical study on Social Media and Digital Journalism (with Special Reference to Facebook and Twitter)'. This research focuses on the details of the current relevance of the variables. In this research, such books, research papers and articles have been taken which are close to our study or their variables match the study variables and some other extensive studies have also been taken. According to the objectives of this study, the type of messages, accessibility, ethics and digital media have been tested. This research uses descriptive research format which shows the status quo and content analysis has been used. The purposive sampling method which is a non-probability sampling is applied. SPSS has been used to derive the frequency. The data compilation and analysis is done and shown through analysis in form of tables and graphs.

The study discuss about the society and the power that ensures expression, the users of social media are in the illusion and thereby the possibilities of its maximum misuse are present. It is being used as a medium of propagation and publicity. The study not only examine social media, but also test and analyze the power of its expression and form of digital media.

Key Words: Digital Media, Social Media, Facebook, Twitter, Social media messages

Introduction

Social Media has revolutionized how people communicate, access information, and build communities. The platforms are driven by content created and shared by users, including text, photos, videos, and links. Users can engage with content through likes, comments, shares, and other forms of interaction, facilitating two-way communication. Information and updates are disseminated in real time, allowing users to stay informed about current events and trends. Algorithms personalize content feeds based on user preferences,

interactions, and behaviours, tailoring the experience to individual interests. Social media bridges geographical distances, enabling instant communication with people worldwide. Platforms like Facebook, Twitter, and Instagram have introduced new ways to interact, from direct messaging to sharing multimedia content. News and information can spread quickly, reaching large audiences almost instantly. Users are exposed to a wide range of viewpoints and content, contributing to a more diverse information landscape. Social media has played a crucial role in the rise of trends and social movements, from viral challenges to advocacy campaigns. Influencers and celebrities leverage social media to engage with fans and promote products or causes. Platforms offer sophisticated targeting options for advertisers to reach specific demographics based on user data. The rapid spread of misinformation and fake news can mislead users and impact public opinion. Governments and organizations are increasingly focused on developing regulations to address issues like misinformation, privacy, and content moderation. Thus, Social media continues to evolve, shaping how individuals and societies communicate and interact. While it offers significant benefits in terms of connectivity and information sharing, it also presents challenges that require careful consideration and management. As social media becomes more integrated into daily life, understanding its impacts and navigating its complexities remain crucial for users, businesses, and policymakers. Digital journalism often combines various media forms, including written articles, podcasts, and videos, to enhance storytelling and engagement. Interactive graphics, maps, and data visualizations are used to present information in a more dynamic and accessible way. News is updated in real-time, allowing for immediate dissemination of information as events unfold. Platforms enable live reporting through text updates, video streams, and social media feeds. Readers can interact with journalists and news organizations through comments, shares, and social media, fostering a two-way communication channel. Digital platforms provide metrics and feedback mechanisms, helping journalists understand audience preferences and engagement levels. News is delivered through news websites, mobile apps, and other digital platforms, providing users with easy access to content. Social media channels are used for distribution, promotion, and engagement, expanding the reach and visibility of news stories. Audiences can access news content anytime and anywhere, leading to a shift from traditional print and broadcast media to digital platforms. Journalists use data analysis to uncover trends, present insights, and provide context, enhancing the depth and accuracy of reporting. Data visualizations, such as charts and infographics, help convey complex information in a more understandable format. The spread of false information and fake news is a significant challenge, requiring rigorous fact-checking and source verification. Protecting the privacy of sources and ensuring the security of data is crucial in maintaining trust and credibility. The demand for rapid news updates can sometimes compromise the quality and accuracy of reporting. Many digital news outlets are adopting subscription-based models to sustain quality journalism and reduce reliance on advertising revenue. Digital journalism represents a fundamental shift in how news is produced, delivered, and consumed. It offers opportunities for innovation and greater engagement but also presents challenges related to accuracy, privacy, and monetization. As technology continues to evolve, digital journalism will need to adapt to maintain its role in informing the public and upholding journalistic standards. Social media amplifies the reach and impact of digital journalism while also introducing new dynamics and challenges that journalists must navigate. The interplay between these platforms continues to evolve, influencing how news is produced, shared, and consumed.

Literature Review

Bruns (2008) and Pavlik (2013) discuss how social media has empowered individuals to produce and share news content, leading to the rise of citizen journalism. This user-generated content can supplement traditional journalism but also raises concerns about credibility and verification.

Williams and Delli Carpini (2011) explores that how social media facilitates the globalization of news, allowing stories to cross borders more efficiently than traditional media channels. Social media platforms enable news to reach global audiences almost instantaneously, significantly impacting the traditional news cycle.

Neuberger (2014) explores that social media provides a platform for direct interaction between journalists and audiences. This engagement includes comments, shares, and likes, which can influence content production and editorial focus.

Kent and Taylor (1998) study that social media enables journalists to build communities and foster relationships with their audience, enhancing engagement and feedback mechanisms.

Pariser (2011) and Eslami et al. (2015) explore how algorithms on social media platforms prioritize content based on user behaviour, potentially creating echo chambers and affecting the diversity of news exposure.

Allcott and Gentzkow (2017) study the challenges of misinformation on social media. The rapid spread of fake news can undermine the credibility of digital journalism and complicate fact-checking efforts.

Lewandowsky et al. (2012) discuss various strategies for combating misinformation, including enhanced fact-checking practices and the role of algorithms in curbing the spread of false information.

Solove (2021) addresses the privacy issues associated with data collection and surveillance on social media, which impact both journalists and their sources. Ethical considerations in digital journalism include safeguarding the privacy of sources and ensuring the secure handling of personal data.

Research Objective

The objective of the study is to find the type of messages, accessibility, and ethics followed in digital media on different social media platforms.

Research Methodology

This research uses descriptive research format which shows the status quo and content analysis has been used. The purposive sampling method which is a non-probability sampling is applied. SPSS has been used to derive the frequency. The data compilation and analysis are done and shown through analysis in form of tables and graphs.

Data Analysis

Table 1: Facebook and Twitter Messages Frequency

<i>Social Networking Sites</i>	<i>Frequency</i>	<i>Percentage</i>
Facebook	166	33.2
Twitter	334	66.8
Total	500	100.0

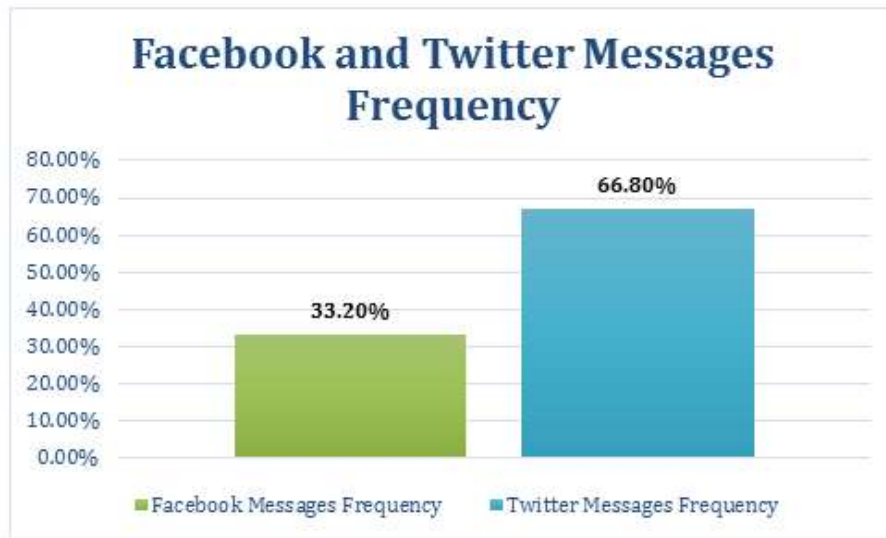


Figure 1: Facebook and Twitter Messages Frequency

In this study social media content and messages of 15 journalists are analysed. In Figure 1, the twitter messages are larger in number in comparison to facebook messages. It showcase that study samples were more active on twitter in comparison to facebook.

Table 2: Format of Messages Communicated on Facebook and Twitter

S.No.	Form of Messages	Frequency	Percentage
1	Text	300	60
2	Picture	75	15
3	Text & Visual	6	1.2
4	Video	38	7.6
5	Cartoon	6	1.2
6	Symbol	7	1.4
7	Weblink	63	12.6
8	Webpage	5	1

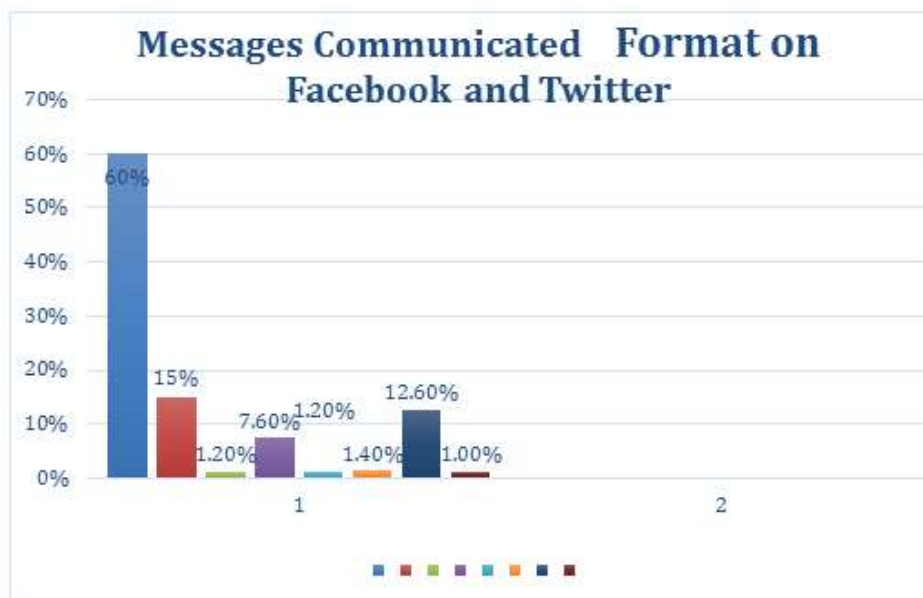


Figure 2: Format of Messages Communicated on Facebook and Twitter

The messages are communicated in different forms on Facebook and Twitter. 60 per cent of the messages are in text form, 15 per cent are in picture form, 1.20 per cent are in the form of infographics (texts& visuals), 7.60 per cent of messages are shared in video format, 1.20 per cent are in the form of cartoon or animation, 1.40 per cent are in form of symbols, 12.60 per cent messages are shared in a form of weblink and 1.00 per cent page links are shared through social networking sites.

Different categories of messages on Facebook and Twitter.

Table 3: Environment related Messages

<i>S.No.</i>	<i>Message Category</i>	<i>Frequency</i>	<i>Percentage</i>
1.	Flood	1	21.0
2.	Drought	1	20.0
3.	Crop	1	19.0
4.	Farmer	10	24.0
5.	Weather	2	16.0

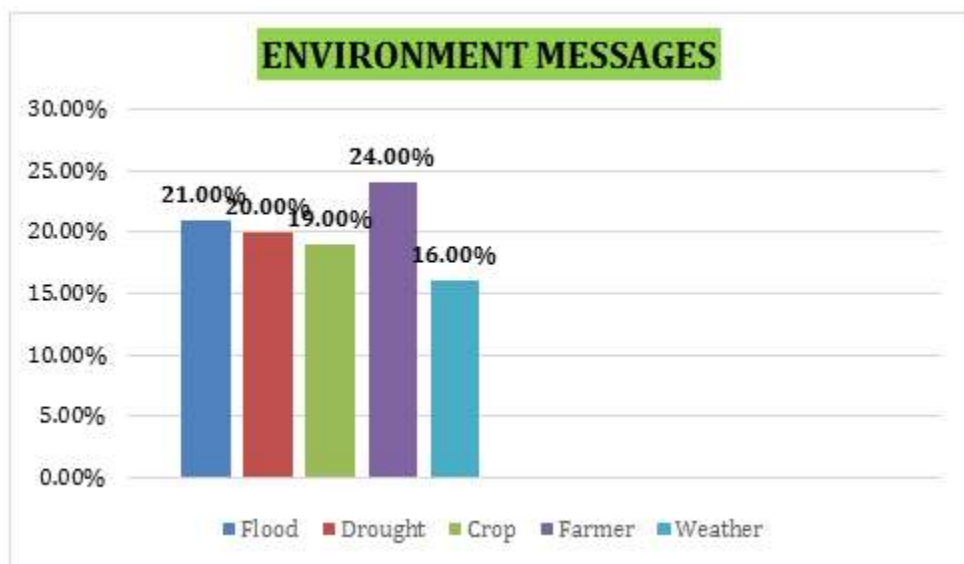


Figure 3: Environment related Messages

There are several categories observed under environment related messages where farmer related issues are shared highest in number i.e. 24 percent, messages related to floods are 21 per cent followed by drought based messages that are 20 per cent. Issues related to crops are 19 percent and weather related 16 percent messages are shared by the study samples on social networking sites facebook and twitter.

Table 4: Financial Sector Messages

<i>S.No.</i>	<i>Message Category</i>	<i>Frequency</i>	<i>Percentage</i>
1.	Market	2	10.0
2.	Banking sector	2	12.0
3.	Non-Banking sector	4	28.0
4.	GDP	2	10.0
5.	Budget	4	29.0
6.	Share Market	1	11.0

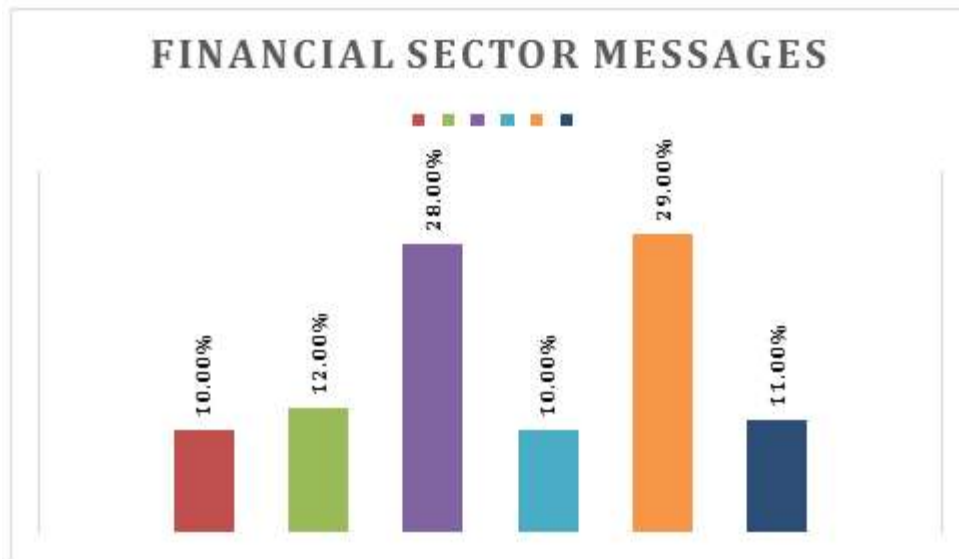


Figure 4: Financial Sector Messages

In the above graph, the sample of the study shared 29 per cent budget-related messages, non-banking sector messages are also 28 in percentage, followed by 12 per cent bank related messages, share market related 11 per cent and GDP and market related messages 20 in percentage.

Table 5: Law and Order system based Messages

S.No.	Message category	Frequency	Percentage
1.	Rape	4	45.0
2.	Murder	2	24.0
3.	Torture	1	17.0
4.	Kidnapping	1	14.0

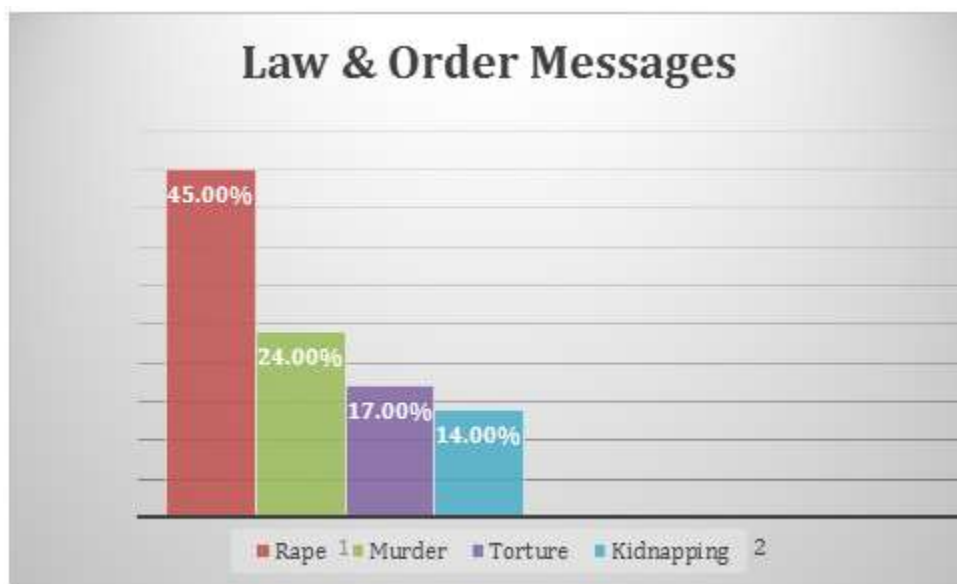


Figure 5: Law and Order system based Messages

In the category of law and order, highest messages are shared related to rape i.e. 45 in percentage followed by 24 murder related messages, 17 torture related and 14 percentage messages related to the issue of kidnapping.

Table 6: Categories of response messages on Facebook and Twitter

S.No.	Category	Frequency	Percentage
1.	Texts on Fb	145	29.0
2.	Images on Fb	6	1.2
3.	Emoticons on Fb	10	2.0
4.	Twitter Response	334	66.8
5.	Other	5	1.0

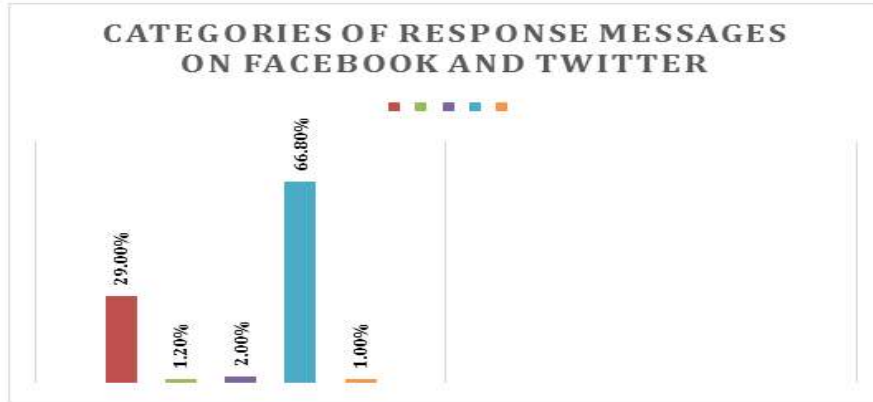


Figure 6 : Categories of response messages on Facebook and Twitter

In the above graph, activism on facebook in text form is 29 per cent, activism in the form of images is 1.2 in percentage, 2 per cent in form of emoticons and the highest 66.8 per cent through twitter and in any other is 1 per cent.

Table 7: Form of Likes on Facebook and Twitter

S.No.	Number of Likes	Frequency	Percentage
1.	0-50 (Facebook)	14	2.8
2.	50-100 (Facebook)	6	1.2
3.	100-200 (Facebook)	22	4.4
4.	200-300 (Facebook)	17	3.4
5.	300-500 (Facebook)	5	1.0
6.	500-750 (Facebook)	85	17.0
7.	750-1000 (Facebook)	9	1.8
8.	1000-2000 (Facebook)	5	1.0
9.	2000-5000 (Facebook)	3	0.6
10.	Likes (Twitter)	334	66.8

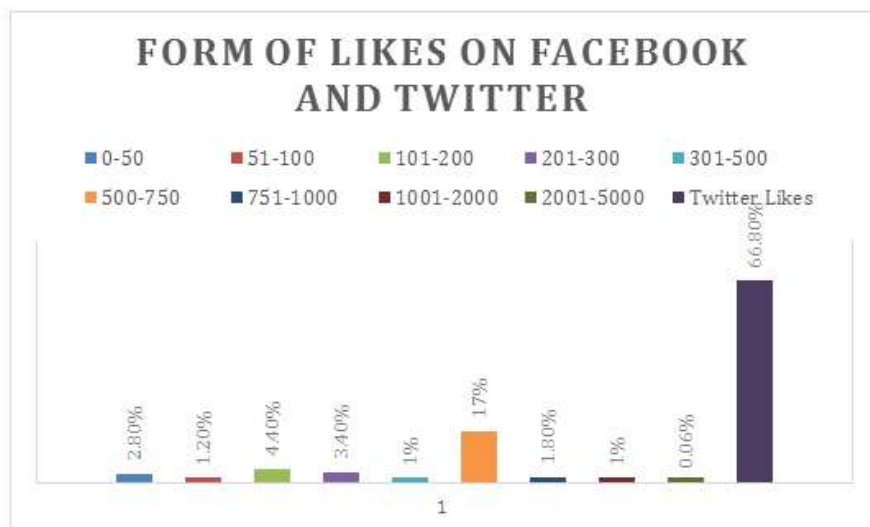


Figure 7: Form of Likes on Facebook and Twitter

In the above graph, the highest number of likes on Facebook is 501-700 category i.e. 17 per cent followed by 101-200 category i.e. 4.40 per cent. The category of 301-500 consists of 3.40 per cent followed by 0-50 category i.e. 2.80 per cent. 751-1000 category consists of 1.80 per cent followed by 51 -100 i.e. 1.20 per cent, then 1001-2000 category of 1.0 per cent followed by 2000 -5000 category of 0.60 per cent and twitter activism in the form of likes is the highest in number that is 66.8 percentage.

Table 8: Comments on Facebook and Twitter

<i>S.No.</i>	<i>Number of Comments</i>	<i>Frequency</i>	<i>Percentage</i>
1.	0-20 (Facebook)	159	31.8
2.	20-40 (Facebook)	5	1.0
3.	40-60 (Facebook)	2	0.4
4.	Twitter Comments	334	66.8
5.	Total	500	100

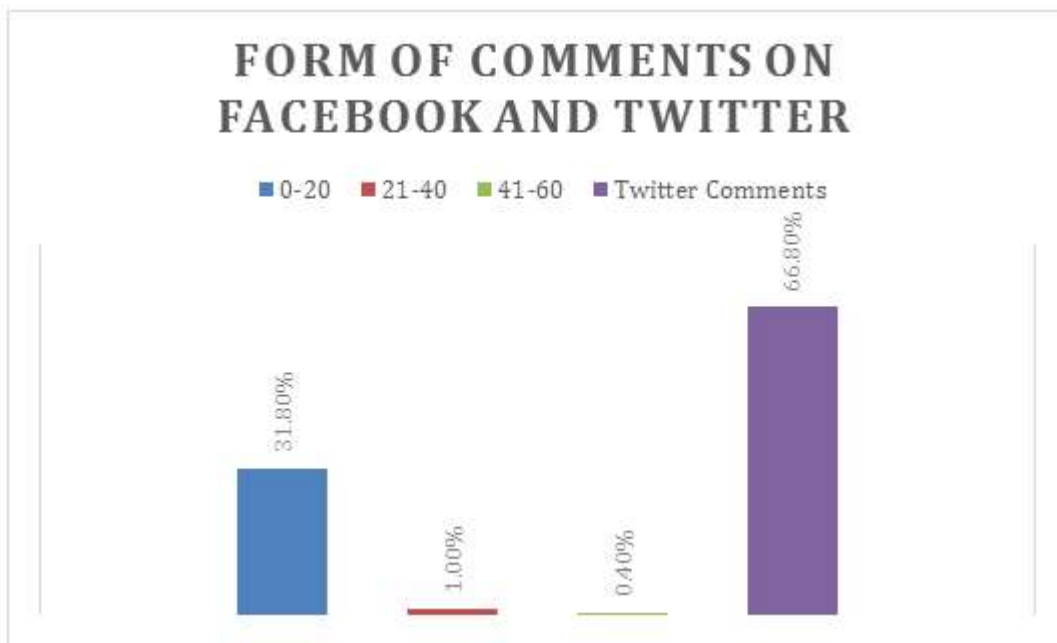


Figure 8: Comments on Facebook and Twitter

In the above graph, activism in the form of comments on Twitter is highest in number i.e. 66.8 percentage, followed by Facebook comments of 0-20 category i.e. 31.8 in percentage, 1 percentage in 21-40 FB comments category and least activism in the category of 41-60 Facebook comments category that is 0.4 percentage.

Table 9: Share and Retweets on Facebook and Twitter

<i>S.No.</i>	<i>Number of Shares (Activism)</i>	<i>Frequency</i>	<i>Percentage</i>
1.	0-20 (Facebook)	152	30.4
2.	20-40 (Facebook)	10	2.0
3.	40-60 (Facebook)	3	0.6
4.	60-80 (Facebook)	1	0.2
4.	Share on Twitter	334	66.8
	Total	500	100

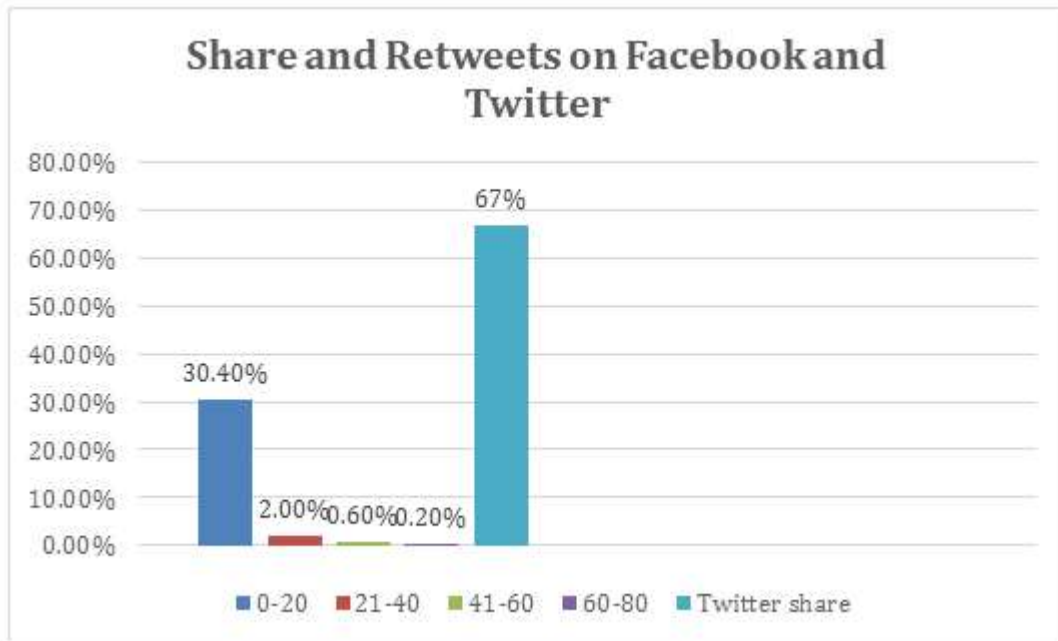


Figure 9: Share and Retweets on Facebook and Twitter

In the above graph, the highest amount of activism in the form of Twitter share is done that is 67 in percentage followed by the 0-20 Facebook share category (30.4) percentage, 2 per cent activism is done in 21-40 category of Facebook share followed by 0.60 percentage in the category of 41-60 and 0.2 percentage in the category of 60-80 Facebook share.

Findings and Conclusion

In this study social media content and messages of 15 journalists are analysed. The twitter messages are larger in number in comparison to facebook messages which analyse that the study samples were more active on Twitter in comparison to Facebook. The samples are active on facebook and Twitter and share messages in different forms. These messages are in form of texts, pictures, infographics, videos, cartoons and animations which are shared through these social networking sites. Several categories of messages are posted on these social media platforms such as the social messages, religious, administrative, environmental, financial, law and order related messages and other categories. It is found that self promotion messages are posted and shared the most in comparison to any other category of messages. It is one of the most observed activity on social media websites. Self promotion messages are the highest in number in social messages category that belong to different social issues.

The above conclusion analyse the following points:

- A large number of messages are used to promote a particular issue.
- Messages are sent on these social networking sites for self-promotion about their social identity.
- Social media is increasingly used as an information and promotional tool.
- The conclusion of the present study is based on quantitative and qualitative analysis.

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Indian Pharmaceutical Industry- Current Scenario

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Abstract

The Indian pharmaceutical industry currently ranks top among India's science-based industries, with extensive capabilities in the complex field of drug manufacturing and technology. The Indian pharmaceutical industry ranks third globally in drug production by volume and is known for its generic drugs and low-cost vaccines. The sector contributed about 1.32% to the Indian economy's gross value added (at constant 2011–12 prices) in 2020–21. Access to affordable HIV treatment from India is one of the biggest success stories in the medical sector. Due to low price and high quality, Indian medicines are preferred worldwide, making it the “pharmacy of the world”. The sector is growing at a healthy rate.

However, the Indian pharma sector is facing certain challenges and hence this paper critically analyses the existing challenges and discusses their impact on public health and economy.

Keywords- Indian Pharmaceutical Industry, challenges, Current Scenario.

Introduction

The Pharmaceutical sector plays a fundamental part in supporting the financial improvement of a country. The goal of this study is to find out how satisfied employees of various pharmaceutical companies are with their jobs. It centers around the general significance of occupation fulfillment.

Health is one of the most important sectors in the social and economic development of the world. This is the reason why the pharmaceutical industry is seen as a major industry in the process of economic development. The Indian pharmaceutical industry occupies an important place in the global pharma sector and has also grown significantly in recent years. But the increasing impact of Covid-19 is expected to affect the Indian pharmaceutical industry. Keeping this in mind, recently the Union Cabinet has approved a scheme to promote bulk drug parks with financial assistance of Rs 3,000 crore for the next five years. Along with this, Rs 6,940 crore has also been approved for the Production linked Incentive Scheme for the manufacture of intermediate components and active pharmaceutical ingredients (API) useful in the drug manufacturing process.

Manufacturing plant and their effects on the general work fulfillment of representatives. It also looks into how attitudes about job satisfaction are affected by age, sex, pharmaceutical type, and work experience. The findings indicate that coworker relationships, salary, work

efficiency, fringe supervision, and job satisfaction are the most significant factors. The pharmaceutical industry's workforce is generally content with their jobs. The pharmaceutical companies' way of doing business, work environment, and level of job satisfaction have all changed dramatically.

As a business proposal, a significant investment was made, but the majority of their stock is falling, causing employees to worry a lot about job security. This summary focuses on a few of these issues and shows how satisfied employees are with their jobs. Pharmaceutical companies take advantage of the dramatic shifts in the environment and adapt. They must improve the organization's employee satisfaction in order to achieve management efficiency. As a result, the primary goal of this study was to determine the significance of factors such as job security, fairness, working conditions, pay and promotions, and relationships with coworkers and supervisors in determining job satisfaction. This Exploration presents an exhaustive determination of occupation fulfillment records of drug business, the variables making the disappointment and ideas further develop them.

Because "performance appraisal is a system whereby superiors or managers evaluate the work performance of subordinates," it is one of the most widely used management techniques worldwide. Execution examination can be depicted as a deliberate endeavor to recognize the more proficient specialists from the less productive laborers and to separate among strength and shortcomings of an individual has across many work components. In a nutshell, a performance evaluation is a measurement of how well an employee completes work-related tasks. Numerous studies have led researchers to the conclusion that performance evaluation systems are ineffective if raters and ratees do not respond positively.

Status of Indian Pharmaceutical Industry

Current Scenario:

1. India is one of the largest suppliers of low-cost vaccines in the world and is also the largest provider of generic medicines globally, accounting for 20% of global supply.
2. India contributes 60% of global vaccine production, making it the world's largest vaccine producer.
3. The pharmaceutical industry in India is the third largest in the world by volume and the 14th largest by value.
4. The pharma sector currently contributes around 1.72% to the country's gross domestic product (GDP).

Market Size and Investment:

1. India is one of the top 12 biotechnology destinations globally and the third largest destination for biotechnology in the Asia Pacific region.
2. The Indian pharmaceutical industry has witnessed massive expansion in the last few years and is expected to reach around 13% of the global pharma market size, enhancing its quality, affordability and innovation.
3. Foreign Direct Investment (FDI) up to 100% is permitted through automatic routes for greenfield pharmaceutical projects.
4. FDI up to 74% is permitted through automatic route for brownfield pharmaceutical projects and beyond that requires government approval.
5. The Indian pharmaceutical market is estimated to be worth US\$130 billion by the end of 2030.

Exports:

1. Pharmaceuticals is one of the top ten attractive sectors for foreign investment in India. Pharmaceutical exports reach over 200 countries across the globe, including the highly regulated markets of the US, Western Europe, Japan and Australia.
2. India's drugs and pharmaceuticals exports stood at US\$22.51 billion in FY24 (April-January), registering a growth of 8.12% year-on-year during the period.

Greenfield vs. Brownfield Investments

Greenfield project: This refers to an investment in a manufacturing, office or other physical company-related structure or group of structures in an area where no facilities previously exist.

Brownfield investment: Projects that are modified or upgraded are called brownfield projects. The term is used to describe the purchase or lease of existing production facilities to start a new production activity.

Key Challenges Facing India's Pharma Sector

1. Violation of IPR rules: Indian pharmaceutical companies have faced allegations of violating Intellectual Property Rights (IPR) laws, resulting in legal disputes with multinational pharmaceutical companies.
2. Roche accused Cipla of violating its patent for the cancer drug Tarceva by producing a generic version of the drug. The dispute escalated, leading to a court battle between the two companies, in which Cipla was found guilty and ordered to pay compensation to Roche.
3. One such case was in 2014 involving Swiss pharmaceutical company Roche and Indian drugmaker Cipla.
4. Pricing and Affordability: India is known for its generic drug manufacturing capabilities, which have contributed to affordable healthcare globally. However, ensuring availability of drugs in India and maintaining profitability of pharmaceutical companies is challenging. Additionally, quality issues of generic drugs can harm the reputation of the industry, which supplies more than 90% of US prescriptions.
5. Healthcare Infrastructure and Access: Despite India's strong pharmaceutical industry, access to healthcare remains a challenge for a significant section of the population. Issues such as inadequate healthcare infrastructure, uneven distribution of healthcare facilities and low health insurance coverage create barriers to access to medicines.
6. High dependence on imports: The Indian pharma sector is highly dependent on imports for Active Pharmaceutical Ingredients (APIs), which are the raw materials for medicines. Disruptions in global supply chains could lead to shortages and price hikes.

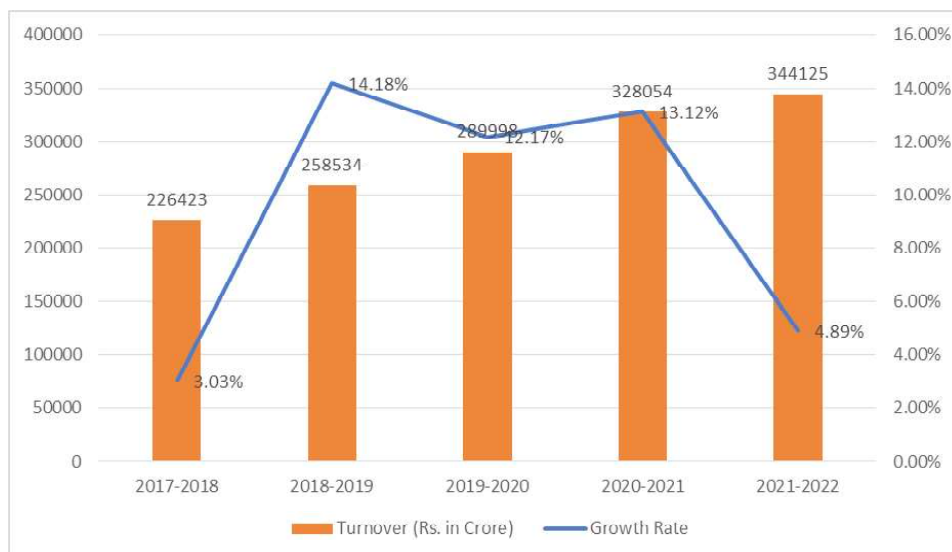
The trend of annual turnover in the sector over the last five years can be seen in Table-1.1.

Table 1.1 (Pharma Sector's Growth at Current Prices)

Financial Year	Turnover (Rs. in Crore)	Growth Rate
2017-2018	2,26,423	3.03
2018-2019	2,58,534	14.18
2019-2020	2,89,998	12.17
2020-2021	3,28,054	13.12
2021-2022	3,44,125	4.89

Source: Pharmatrac/NPPA/DGCIS, Kolkata

Fig.1.1 (Pharma Sector's Growth at Current Prices)



The total annual turnover of pharmaceuticals in FY 2021-22 was Rs 3,44,125 crore (US\$ 42.34 billion). The key sectors of the Indian pharmaceutical industry include generic drugs, OTC drugs, bulk drugs, vaccines, contract research and manufacturing, biosimilars and biologics. India is the global leader in the supply of DPT, BCG and measles vaccines. India is one of the largest suppliers of low-cost vaccines in the world.

India accounts for 60 per cent of global vaccine production, contributing 40 to 70 per cent of the WHO demand for diphtheria, tetanus and pertussis (DPT) and Bacillus Calmette-Guérin (BCG) vaccines and 90 per cent of the WHO demand for measles vaccine. There are 500 API manufacturers contributing about 8% to the global API industry. India is the largest supplier of generic drugs. It manufactures nearly 60,000 different generic brands across 60 therapeutic categories and accounts for 20% of the global supply of generic medicines.

Foreign Direct Investment

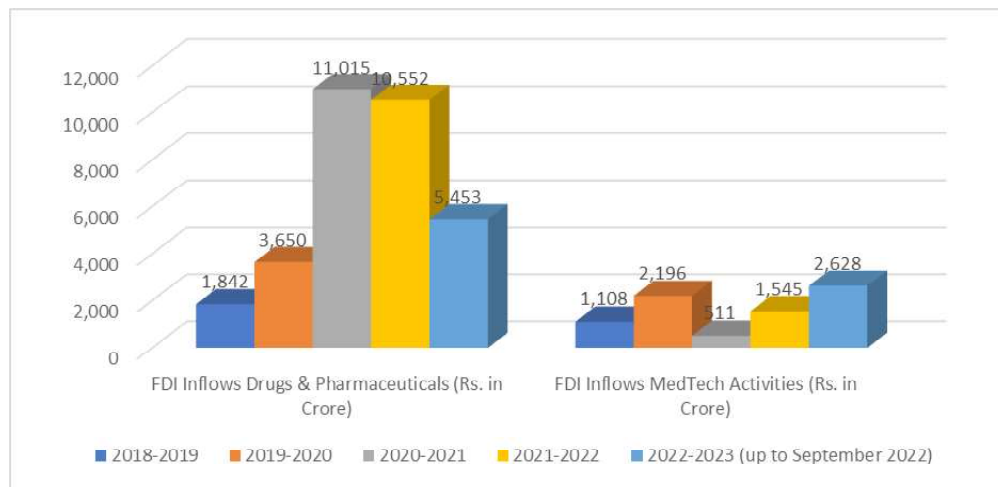
FDI inflows under both government and automatic routes in the pharmaceutical sector (pharmaceuticals and MedTech activities) over the last four years are shown in Table 1.2 below:

Table 1.2 (FDI inflows in Drugs & Pharmaceuticals Activities)

Financial Year	FDI Inflows Drugs & Pharmaceuticals (Rs. in Crore)	FDI Inflows MedTech Activities (Rs. in Crore)
2018-2019	1,842	1,108
2019-2020	3,650	2,196
2020-2021	11,015	511
2021-2022	10,552	1,545
2022-2023 (up to September 2022)	5,453	2,628

Source- <http://fdi.pharmaceuticals.gov.in>.

Fig.1.2 (FDI inflows in Drugs & Pharmaceuticals Activities)



The sector contributes about 3.71% of total FDI inflows in the country across various sectors. Total FDI inflows in Pharma and MedTech Sectors have been ¹ 1,32,568 crores from April 2000 to September 2022. During the financial year 2022-23 (till December 2022), Department of Pharmaceuticals approved 13 FDI proposals that would result in foreign investment inflow of ¹ 2,814 crore in the brownfield projects of pharmaceutical sector.

The pharmaceutical industry in India caters to nearly 70% of the country's demand for bulk drugs, drug intermediates, pharmaceutical formulations, chemicals, tablets, capsules, orals and injectables. Globally, the Indian pharmaceutical industry ranks third largest in terms of volume and 10th largest in terms of value. The sector is highly knowledge-based and its steady growth is positively impacting the Indian economy. The organized nature of the Indian pharmaceutical industry is attracting many industries that find it viable to expand their operations in the country. Over the past decades, the pharmaceutical industry has entered a difficult phase with the entry of multinational industries and the era of globalization, where shareholders, the market and regulators have created significant pressure for change. As a result, large pharmaceutical industries are shifting to new business models, strengthening their R&D activity.

Related Government Initiatives:

1. Production Based Incentive (PLI) Scheme for Pharmaceuticals
2. Expansion of Bulk Drug Park Scheme
3. Strengthening the Pharmaceuticals Industry Scheme
4. National Medical Devices Policy, 2023

Suggestions and Conclusions

1. Legislative Changes and Centralized Database: The Drugs and Cosmetics Act (1940) needs to be amended and establishment of a centralized drugs database can enhance oversight and ensure effective regulation of all manufacturers.
2. Legislative Changes and Centralized Database: The Drugs and Cosmetics Act, 1940 needs to be amended and establishment of a centralized drugs database can enhance oversight and ensure effective regulation of all manufacturers. India has 36 regional drug regulators, consolidating them into a single entity can reduce the risk of regulatory oversight and influence networks. Furthermore, uniform quality standards need to be enforced across states to ensure consistent product quality.

3. Promoting continuous improvement programmes: Motivate pharmaceutical companies to implement voluntary quality management systems and self-improvement initiatives. This can be promoted through industry associations and government incentives.
4. Transparency and Public Reporting: Increase transparency in regulatory actions and public reporting of quality control failures. This can be achieved through a designated government portal for sharing inspection reports and drug recalls.
5. Focus on Sustainable Manufacturing Practices: Emphasis on sustainable manufacturing practices, including green chemistry, waste reduction and energy efficiency, can enhance the environmental sustainability of the sector while reducing costs. Adopting eco-friendly practices can also contribute to a positive brand image and attract environmentally conscious consumers.
6. Digital Drugs Regulatory System (DDRS): Digital Drugs Regulatory System (DDRS), which will serve as a central portal for all functions related to drug regulation, has issued a Request for Proposal (RFP). The Sugam portal is being upgraded to make it more accessible. This new version will integrate all activities and functions of CDSCO. It will eventually cover State Drug Controllers and other related agencies as well.
7. Streamlining and rationalizing drug regulatory structure and functions: The government should establish a single, central authority with adequate powers, resources, expertise and autonomy to regulate the entire pharma sector and ensure effective enforcement and compliance with drug laws and norms.
8. Strengthening pharmacovigilance: There is a need to improve post-marketing drug surveillance to promptly identify and address adverse effects. This is in line with recommendations for stringent quality control measures.

Indian drug manufacturers play an important role in ensuring access to better healthcare facilities for the citizens of the country as well as availability of medicines at low cost in other countries of the world. The recent efforts of the government have helped in ensuring positive growth of the sector and the government's announcement has also boosted the morale of drug manufacturers amid the economic challenges arising from COVID-19.

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Numerical Analysis of Heat Transfer Enhancement by Using Reverse Bell Shaped Rib in Solar Air Heater

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Abstract

Numerical analysis of heat transfer enhancement by using reverse bell shaped rib in solar heater to stud mainly heat transfer and friction characteristics. For this analysis ANSYS FLUENT (19.0) is used to investigate the effect of relative roughness height (0.0129 - 0.0368), Reynolds number (4615 – 21538), relative roughness pitch (5.8 – 27.5) on duct thermal performance & results are compared with smooth duct. The roughened absorber plate is uniformed heated b using uniform heat flux of 1000 w/m^2 . Maximum nusselt number (Nu) and friction factor (f) found to be 72.92, 0.015 and 63.34, 0.009 for artificially roughened duct and smooth duct respectively. Nusselt number enhanced by approx 9 % in roughened SAH over the smooth duct. Optimum parameter in roughened duct found to be bell diameter 1, pitch 20, relative roughness pitch (p/e) = 11.775 & Reynolds number =21538.

Keywords: Heat exchanger, Nusselt number, Friction factor, CFD, reverse bell shaped rib

Nomenclature		
Symbol	Title	Unit
L	Total Duct length	mm
L_1	Duct entrance length	mm
L_2	Duct test length	mm
L_3	Exit length	mm
W	Duct width	mm
p/e	Relative roughness pitch	
H	Duct height	mm
Dh	Hydraulic Diameter	
D	Bell Diameter	
Re	Reynolds number	
Pr	Prandtl number	
Nu	Nusselt number	
f	Friction factor	
e/Dh	Relative roughness height	
K	Thermal conductivity	W/mK
ρ	Density	kg/m ³
μ	Viscosity	kg/m ² s
q	Heat flux	w/m ²
A	Thermal diffusivity	J/Kg.K
Cp	Specific heat	J/Kg.K
ν	Kinematic viscosity	m ² /s
T	Temperature	K
V	Velocity	m/s
P	pressure	Pa
SAH	Solar air heater	
HT	Heat transfer	
THP	Thermal hydraulic performance	
KE	Kinematics Energy	
PR	Pitch ratio	

1. Introduction

Solar energy is basically produced in the presence of the sun light. It is the very renewal source of the energy. This energy can either be stored in the form of heat or used time to time. This energy can be used many purpose as for example heating of water, cooling &

ventilation, cooking, water treatment plant, production of electricity, architecture planning, agriculture, transport etc. Improved heat exchange in such applications will greatly boost the thermal efficiency, economics of its design and aerate. To increase the performance of heat exchanger with cost saving the solar energy is very renewal source. The total energy output of the sun is found to be about 3.8×10^{20} MW which is emitted in all directions from the sun's surface and is equal to an energy density of 63 MW/m^2 . Of this only a tiny fraction of 1.7×10^{14} kW is intercepted by the earth which further undergoes absorption and reflection by various atmospheric components.

Solar air heating, as the name implies, basically it is solar thermal technology in this process the energy to be produce with the presence of sun rays.

[1] Singh, I., & Singh, S. (2018) investigated CFD analysis of solar air heater duct having square wave profiled transverse ribs as roughness element at in this investigation the outcome at Reynolds number 15000 the value of nusselt number is 2.14 times increases as compare to smooth duct and friction factor decreases 3.55 times. The value of THPP for the non-uniform cross-section wave rib is 1.43 and uniform cross-section rib & uniform cross-section circular rib is 1.39 & 1.25 respectively (Singh, I., & Singh, S. (2018)). [2] Lanjewar, A., Bhagoria, J. L., & Sarviya, R. M. (2011) in this investigation the maximum enhancement of nusselt number and friction factor result of providing artificial roughness has been found to be 2.36 & 2.01 respectively that of smooth duct for angle of attack 60°C at Reynolds number 14000.[3] Kumar, R., Goel, V., & Kumar, A. (2018) in this investigation the maximum deviation range of 6.29% and 5.15% of friction factor & nusselt number respectively.[4] Kumar, V., & Prasad, L. (2019) the maximum nusselt number for varying p/e, e/dh and e/d was found to be 2.6-3.55 times, 1.91-3.42 times n 3.09-3.94 times respectively as compared to 1-side roughen duct and rise in friction of 3-side over 1-side roughened for different value of p/e, e/dh, and e/d are 1.62-2.79 times, 1.52-2.34 times and 2.21-2.56 times.[5] Yadav, A. S., & Bhagoria, J. L. (2014) carried out CFD analysis the maximum value of nusselt number has been found 3.073 times over the smooth duct at value of $e/D = 0.042$, $p/e = 7.14$ and $Re = 15000$. The maximum enhancement of friction factor has been found 3.356 times decreases over the smooth duct at the value of $e/D = 0.042$, $p/e = 7.14$ of $Re = 3800$, THPP = 2.11. [6] Singh, S., Singh, B., Hans, V. S., & Gill, R. S. (2015) for this investigation carried out uniform cross-section ribs, the Nusselt number was found to be highest for trapezoidal rib followed by square rib and circular rib for the range of Reynolds number investigated. For the range of Reynolds number investigated, the respective enhancement in friction factor was 2.64 to 3.74, 2.59 to 3.58 and 2.43 to 3.40. [7] Prasad, B. N., Kumar, A., & Singh, K. D. P. (2015) The optimal thermo hydraulic performance condition corresponds to the optimal value of roughness Reynolds number, $e_{opt}^+ = \frac{e}{D} \sqrt{\frac{f_r}{2}} Re = 23$. [8] Jin, D., Zhang, M., Wang, P., & Xu, S. (2015) The maximum average Nusselt number and thermo hydraulic performance parameter occur at $W/w \frac{1}{4} 6$ for a Reynolds number ranging from 8000 to 15,000, and $W/w \frac{1}{4} 3$ for a Reynolds number between 18,000 and 20,000. The friction factor attains a maximum value corresponding to $W/w \frac{1}{4} 6$ for a Reynolds number ranging from 8000 to 12,000, and $W/w \frac{1}{4} 8$ for a Reynolds number between 15,000 and 20,000. [9] Gawande, V. B., Dhoble, A. S., Zodpe, D. B., & Chamoli, S. (2016) maximum $Nu = 2.827$ times increases over the smooth duct at $Re = 15000$ and friction factor 3.42 times decreases over the smooth duct corresponding to relative roughness pitch(p/e) = 7.14, relative roughness height (e/D) = 0.042 at $Re = 3800$ and THPP = 1.90 at $Re = 15000$. [10] Gupta, A. D., & Varshney, L. (2017) $Nu = 2.56$ times increases at $p/e = 10.7$ & $Re = 12000$ an maximum increment of friction factor equal to 3.3

with respect to smooth duct and optimum value of performance index equal to 1.91 for rectangular sectioned tapered ribs. Nu and f are maximum at relative roughness pitch of 10 and both decrease on either side of this value. For proposed new geometry maximum thermo-hydraulic parameter attained is 1.41 whereas of existing best arc rib geometry it is 1.29. [15] Arunkumar, H. S., Kumar, S., & Karanth, K. V. (2020) in this investigation carried out the deviation of nusslet number correlations for spring pitch ratio & spring diameter ratio are $\pm 10\%$ and $\pm 5\%$ in terms of parity and friction factor correlation of spring pitch ratio, wire diameter ratio and spring diameter ratio are $\pm 10\%$ in terms of parity.

2. Methodology and Calculation

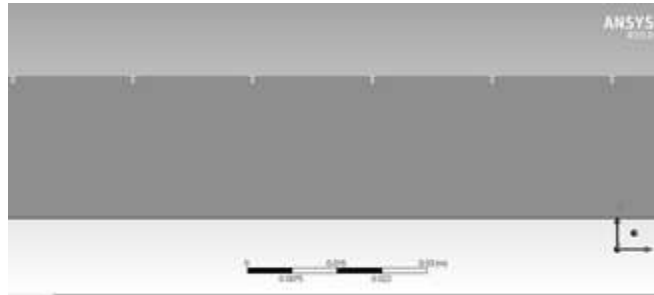


Fig-1. 2-D model of reverse bell shaped

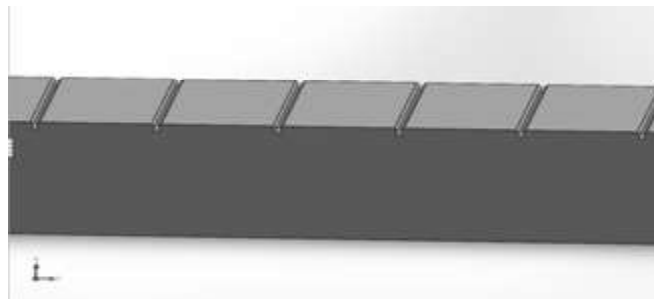


Fig-2. 3-D model of reverse bell shaped

2.1 Parameters Range

In top of the walls in the test area providing with 1000 w/ constant flux of heat and rest of the walls are adiabatic. A variety of bell-shaped ribs are set up on the duct's heated bottom well to increase coefficient of heat transfer b/w the hot walls & air. in the rectangular duct total length equal to 2400 mm, entrance length is 525 mm and exist length is 875 mm. The range of the Reynolds number is 4615, 9230, 15384, 18461, 21538. The flow under consideration should achieve a fully defined of flow. In rectangular duct air inters with inlet temperature, of 300 K. The total length of the rectangular duct is 640 mm and the cross section area of the rectangular duct is equal to 25mm \times 100mm. Diameter (ϕ) of duct is 46.154 mm.

Table 1: Details of geometric parameters of reverse bell shaped roughness.

2.2 Governing Equations

Standard K- ϵ Model

This is essentially a turbulence model of the two equations. The k-model's strength and weakness have become established, changes have been made in modeling and performance enhancement. Although the methodology used to derive the standard wall equations at the time was very innovative, its use was lower key. The k-epsilon equation is the most common

turbulence flow models, but in the case of wide adverse pressure gradients it simply does not perform well. There are two equations in the model; it means two extra flow properties. This two equation are historical effect such as turbulent energy convection and diffuse and KE turbulence k & its rate of dissipation. For is derived same equations, while the transport model equation for same computed using physical region and kinetic energy destruction rate per unit time.

Turbulent Flow

This governing equation is basically solved the characteristics of the flow. Such as velocity, temperature & pressure field in the fluid.

Continuity Equation

Basically continuity equation is dealing with the mass flow rate. It deals about the conservation of mass during the flow within the control volume. Continuity equation is given as flows.

$$\frac{\partial \bar{u}}{\partial x} + \frac{\partial \bar{v}}{\partial y} = 0 \quad \dots\dots\dots(2.1)$$

Momentum Equation

It is based on law of conservation of momentum for turbulent flow area. It is conserved according to Newton's 2nd law of motion. So, it is defined as the net force applying on a mass acceleration fluid is equal to the change in flow in the direction of momentum per unit time.

X- Direction momentum equation:

$$\left(\bar{u} \frac{\partial \bar{u}}{\partial x} + \bar{v} \frac{\partial \bar{u}}{\partial y} \right) = -\frac{1}{\rho} \frac{\partial p}{\partial x} + \nu \left(\frac{\partial^2 \bar{u}}{\partial x^2} + \frac{\partial^2 \bar{u}}{\partial y^2} \right) \quad \dots\dots\dots(2.2)$$

Y- Direction momentum equation:

$$\left(\bar{u} \frac{\partial \bar{v}}{\partial x} + \bar{v} \frac{\partial \bar{v}}{\partial y} \right) = -\frac{1}{\rho} \frac{\partial p}{\partial y} + \nu \left(\frac{\partial^2 \bar{v}}{\partial x^2} + \frac{\partial^2 \bar{v}}{\partial y^2} \right) \quad \dots\dots\dots(2.3)$$

Energy Equation

Flow with constant thermal conductivity is steady and incompressible, no compression work & no heat generation in steady turbulent flow. The energy equation is as follows.

$$\left(\bar{u} \frac{\partial \bar{t}}{\partial x} + \bar{v} \frac{\partial \bar{t}}{\partial y} \right) = \alpha \left(\frac{\partial^2 \bar{t}}{\partial x^2} + \frac{\partial^2 \bar{t}}{\partial y^2} \right) \quad \dots\dots\dots(2.4)$$

Reynolds Number

Reynolds number is a dimensionless number; it is the ratio of inertia force of the fluid flow & the viscous force of the fluid.

$$\frac{\rho V d}{\mu} \quad \dots\dots\dots(2.5)$$

Friction Factor

It is the ratio of all shear stress to the KE flow. It is the related to the heat exchange to pressure drop tube.

$$F = \frac{\Delta p \cdot Dh / Lt}{\frac{1}{2} \cdot \rho \cdot U_i^2} \dots\dots\dots(2.6)$$

Where L is length of duct, (m); ρ is air density (Kg/l); p is pressure drop (P_a).

Nusselt Number

It is the ratio of convective conductance h to molecular thermal conductance k/Dh .

$$N_u = \frac{h}{K / Dh} \dots\dots\dots(2.7)$$

Where, D_h equal to hydraulic diameter. Various calculations available in this analysis the hydraulic diameter are the ratio of 4th times of the minimum free wet perimeter.

The expression of D_h

$$D_h = \frac{4(Fp-t)(Pt-Dc)Pl}{2\left(PlPt - \frac{Dc^2}{4}\right) + Dc(Fp-t)} \dots\dots\dots(2.8)$$

Prandtl Number

Basically Pr is the ratio of a fluid’s momentum diffusivity to thermal diffusivity.

$$P_r = \frac{\nu}{\alpha} = \frac{\mu C_p}{k} \dots\dots\dots(2.9)$$

2.3 Material Properties

Better thermo-physical properties, high thermal conductivity, machinability & low cost, the reverse bell shape rib are used from aluminum solid material in the analysis. The numerical calculation follows for aluminum.

Table 2 Thermo-physical properties of bell shaped

Properties	Value
Density, ρ	2719
Specific heat	871
Thermal conductivity k	204.4

Table 3 Thermo-physical properties of working fluid

Properties	Value
Density (ρ)	1.225
Specific heat	1006.4
Viscosity (μ)	1.7894-05
Thermal conductivity	0.707

2.4. Mesh Generation

The CFD study has been carried out some few flow problems. Hear to solve the flow phenomena to the whole domain i.e. fluid domain is sub divided into the small-small elements which is called cells. In CFD application the all the results are depends on a good quality mesh if the mesh is proper the then the results will be leading towards accuracy. Here in mash for heating zone dement size is taken as 0.1 mm for wall dement size is taken 1 mm. Here, triangular Mash is generated throughout the section. Triangular mash used becomes

it is used to capture each and every corner of heating section where roughness is created. Skewness of the mesh almost 0.71-0.85 which is acceptable.

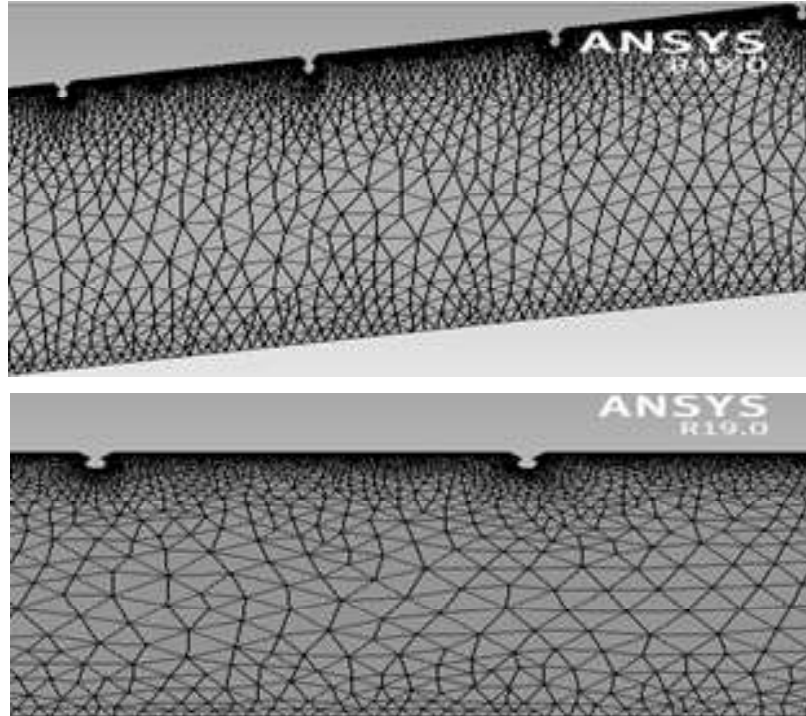


Fig.3 Meshed Model of reverse bell roughness ribs.

2.5. Grid Independent Test

Table 4. Grid independence test for rectangular duct with bell

S.No	Numbers of nodes	Numbers of cell	Nusselt No.
1.	36518	35520	19.76
2.	50627	48482	19.75
3.	85529	83432	19.73
4.	110122	108832	19.71
5.	122451	120000	19.7

3. Results and discussion

Fully developed turbulent flow of the rectangular duct with the reverse bell roughness is used for numerical approach and better thermal performance in present study. It is aimed to find out the effect of the geometry of the duct as well as combination roughness and change in bell diameter 0.6, 0.8 and 1 and pitch 10, 20,30. The use of artificial roughness as a reverse bell shaped rib was established to be an effective way of improving transfer of heat to fluid flows in the duct. In this research, in SAH they are different types of artificial roughness can be used in the form of ribs & wire of different shaped as well as reverse bell shaped has recommended to modify the transfer of heat in this research. It has checked out the thermal resistance to convective heat transforming due to present of sub-layer of laminar at the heat transforming surface which is due to changes in spacing of the ribs pitch.

3.1 Temperature contours

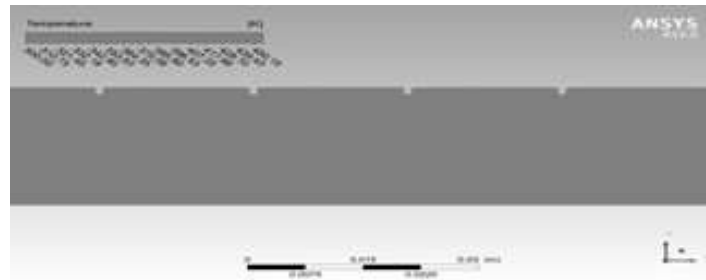


Fig.4. Temperature contour at pitch 20, bell diameter 1 & $Re = 21538$

3.2 Velocity contours

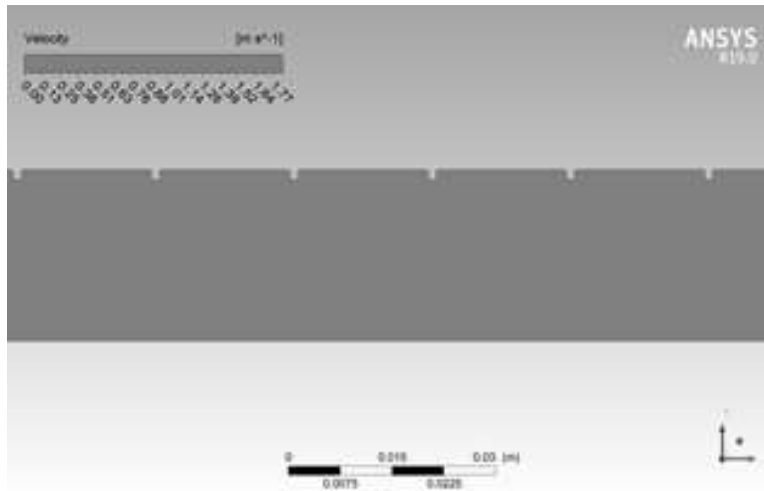


Fig.5. Velocity contour at pitch 20, bell diameter 1 & $Re = 21538$

3.3 Effect of Reynolds number on fluid flow and heat transfer characteristics.

This part we discoursed different value Reynolds number ($Re = 4615, 9230, 15384, 18061, 21538$) with constant heat flux condition of top surface are investigated. For the simplicity, only the region around the reverse bell. From the graph, observed that nusselt number gradually increase & reached max value that corresponds to flow reaches the reattachment point of the main recirculation vortex and maximum nusselt number absorbed in the value of Reynolds number 21538. Further nusselt number decreases because of formation in the boundary layer. In this analysis, variation of transfer of heat coefficient is absorbed again when flow arrives at the next ribs. Following graph it is observed that if the increasing the nusselt number with increasing in Reynolds number.

Figure 6 to 9 effects of Reynolds number & nusselt number for different-different value of relative roughness specific temperature in all graphs. In the existence of reverse bell shaped roughness produce highest nusselt number compeer to the smooth SAH as expected. From the flowing graph it is absorbed that in all cases as predicted, the average value of the nusselt number of the rough duct regarding the smooth duct increases with an increased value of the Reynolds number. The velocity increases in the rate of heat transfer results will also increased.

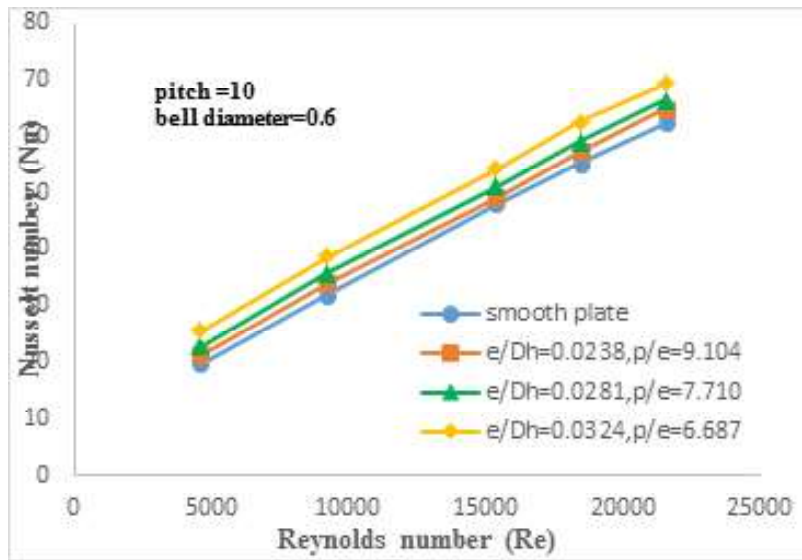


Fig. 6 Variation of nusselt number and Reynolds number (4615-21538) for pitch 10 and bell dia. 0.6

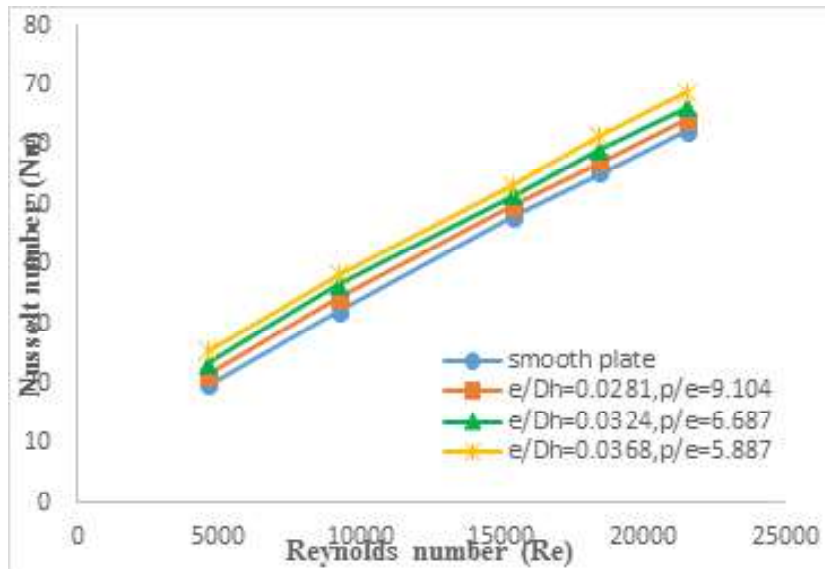


Fig. 7 Variation of nusselt number and Reynolds number (4615-21538) for pitch 10 and bell dia. 1

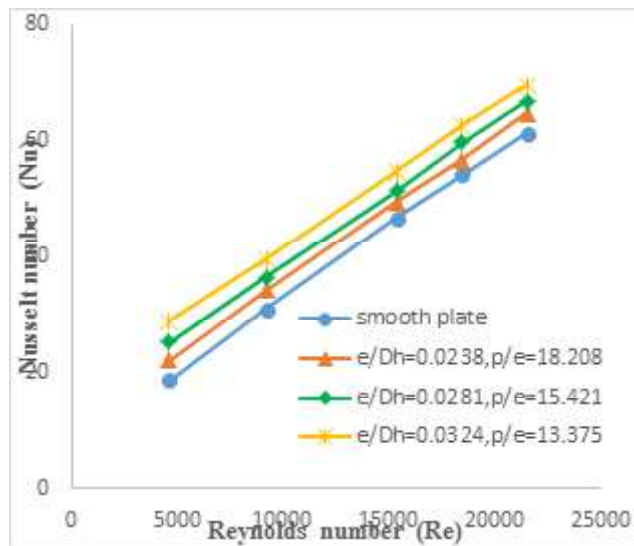


Fig. 8 Variation of nusselt number and Reynolds number (4615-21538) for pitch 20 and bell dia. 0.6

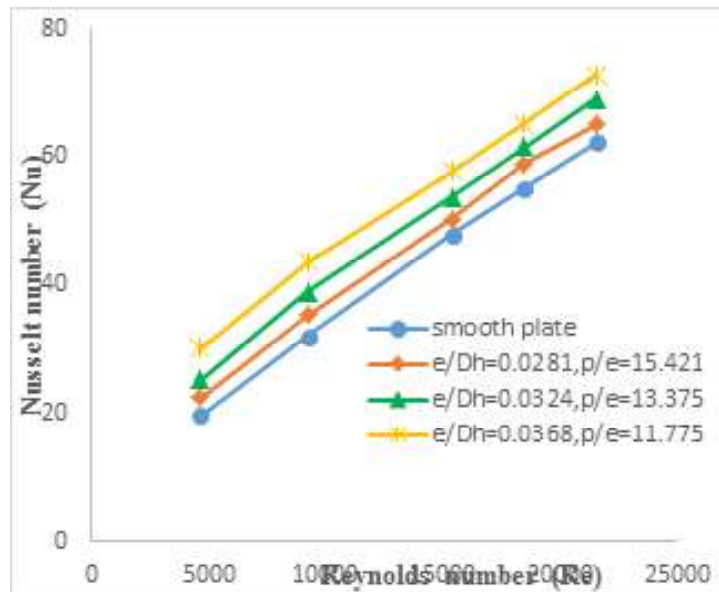


Fig. 9 Variation of nusselt number and Reynolds number (4615-21538) for pitch 20 and bell dia. 1

3.4 Friction factor

The overall friction co-efficient is shown in graph together with the laminar and turbulent. Figure 10-15 as offer compared between the laminar flow. In numerical analysis the Reynolds number between 4615-21538. In the reverse bell there is no isolation of the flow and the reduction of the friction factor increases of the area of the cross-section and velocity will be reduce and again increases. As the re increases there is a gradual reduction in the co-efficient of friction. Thus reverse bell has the ability to be used effectively in the laminar system to minimize friction in non-heat transfer regions.

The design of the reverse bell shape induces a normal separation of the boundary layers. This is expressed in as pressure drop will be increased and thus raises the friction factor in the roughened duct as compared to the smooth duct with higher blockage of the duct due to a rise in SAH pressure without substantial growing in the transfer of heat.

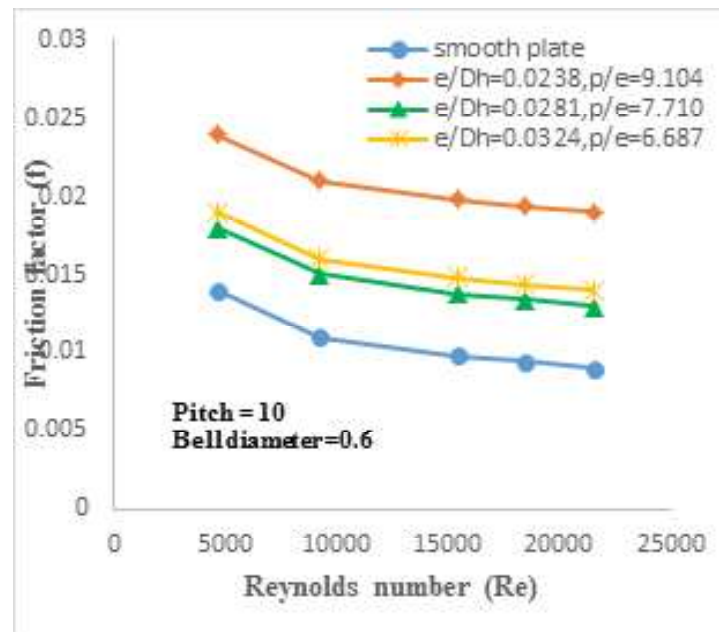


Fig.10 variation of friction factor and Reynolds number (4615-21538) for pitch 10 and bell dia 0.6

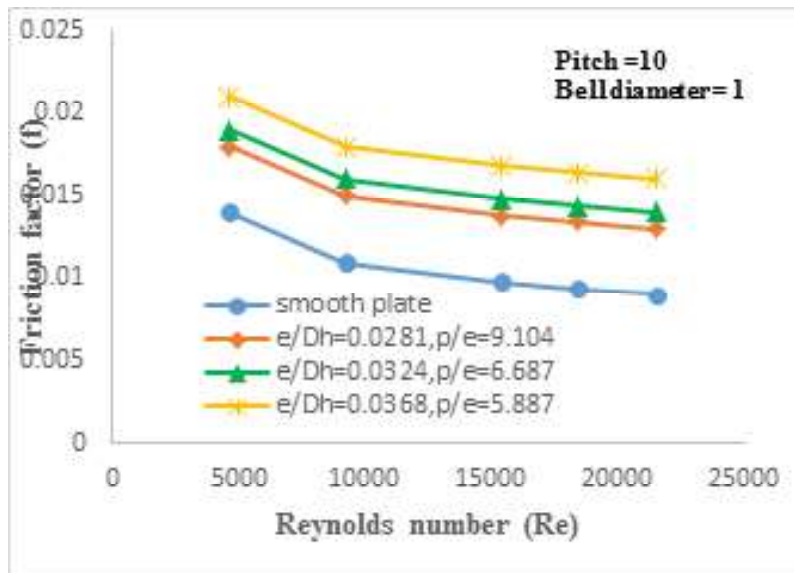


Fig.11 variation of friction factor and Reynolds number (4615-21538) for pitch 10 and bell dia 1

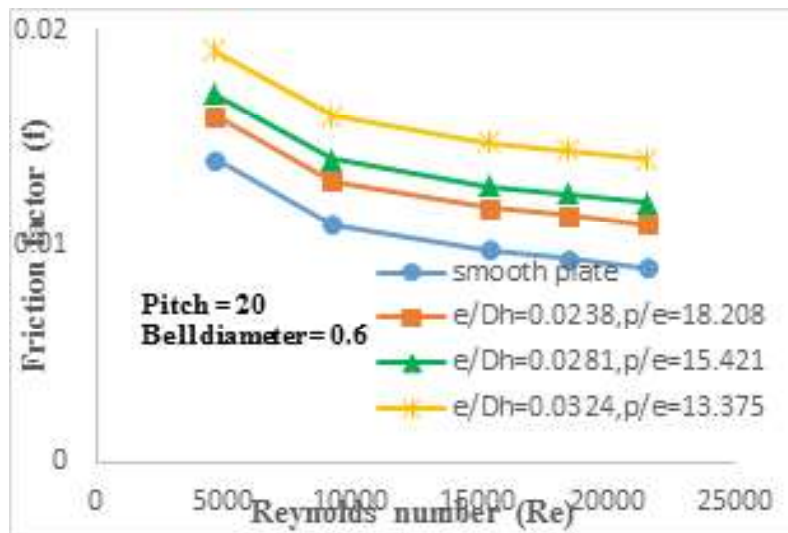


Fig.12 variation of friction factor and Reynolds number (4615-21538) for pitch 20 and bell dia 0.6

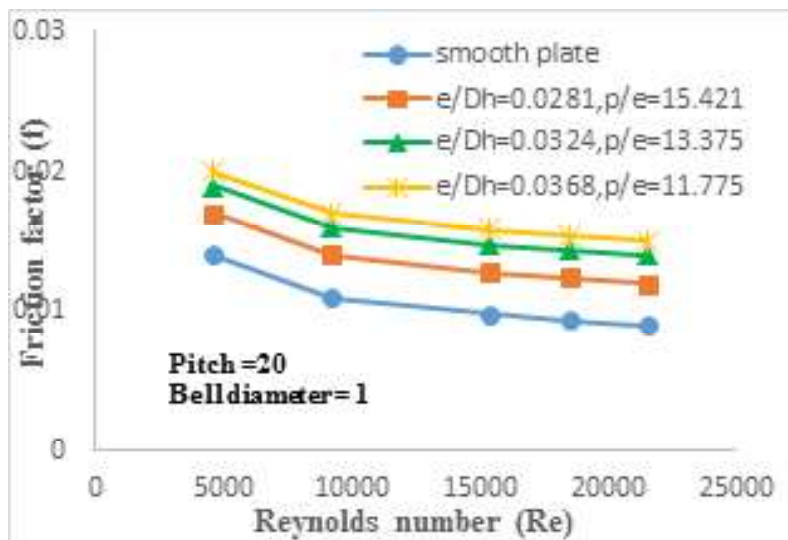


Fig.13 variation of friction factor and Reynolds number (4615-21538) for pitch 20 and bell dia 1

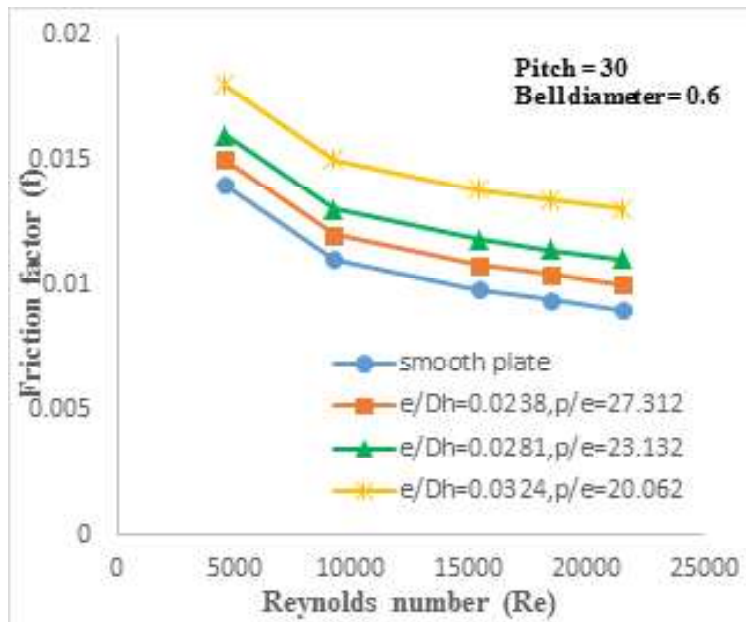


Fig.14 variation of friction factor and Reynolds number (4615-21538) for pitch 30 and bell dia 0.6

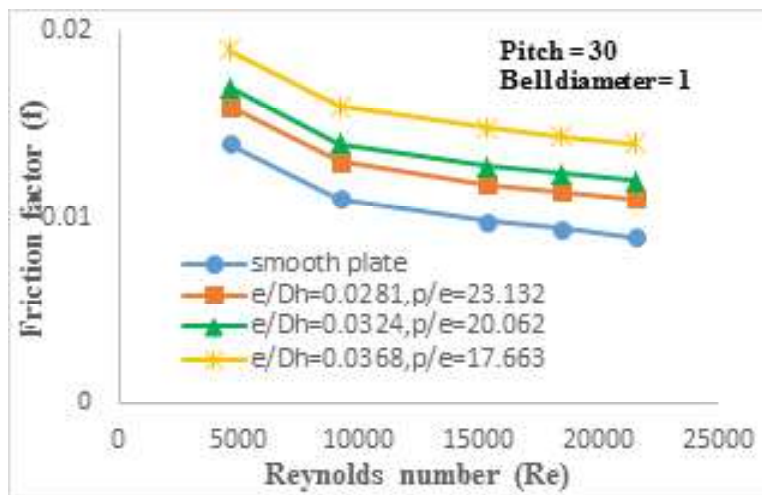
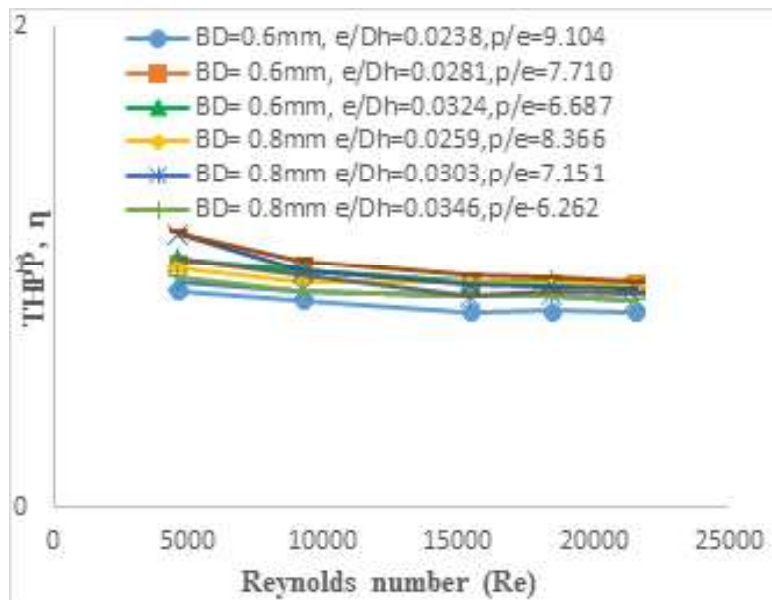


Fig.15 variation of friction factor and Reynolds number (4615-21538) for pitch 30 and bell dia 1

4. Thermo- Hydraulic Performance

Physical model of roughness in the form of reverse bell roughness section rib on the absorber material plate has been found in significant heat transfer enhancement. In any case this improvement is trailed by a significant increment of the rubbing factor. Accordingly, it is attractive to pick the roughness geometry it is very important to choose those type of geometry which is the transfer of heat is maximum and maintain the pumping loss at minimum possible time to assess the total efficiency of SAH, THP should evaluate by considering both thermal & hydraulic performance simultaneously. The performance of heat of a SAH concerns to the mechanism of transfer of heat inside the solar collectors while the THP concerns the pressure drop inside the duct. Webb and Eckert [27] recommended a THP parameter, which are analyses the exploration in H.T of roughened duct comparison b/w the smooth duct by the same hydraulic efficiency requirement. The meaning is as.

$$\sigma = \frac{(Nu_r / Nu_s)}{(f_r / f_s)^{1/3}} \dots\dots(4.1)$$



5. Conclusion

In this article a two-dimensional CFD model of an artificially roughened solar air heater having reverse bell shaped rib roughness on the absorber plate has been proposed and used to predict the heat transfer and flow friction characteristics. Using this approach a detailed study is performed to analyze the impact of three parameters on the thermal and hydraulic performance of an artificially roughened solar air heater: relative roughness pitch (P/e), relative roughness height (e/D) and Reynolds number (Re). The major conclusions of this article are as follows:

1. From the result, it is clear that k-ε standard model could provide results which acceptable engineering accuracy for the analysis of the flow and heat transfer patterns in rectangular duct with intersecting the reverse bell shaped ribs which increase the thermal performance.
2. The optimum value of Nusselt Number (72.92) is obtained over the smooth duct at bell diameter 1, pitch 20, hydraulic diameter ($(e/D_h) = 0.0368$ and relative roughness pitch ($(P/e) = 11.775$ at Reynolds number (Re) = 21538.
3. The optimum value of thermo-hydraulic performance parameter has been found corresponds to bell diameter 1, pitch 20, hydraulic diameter (e/dh) is 0.0268 and relative roughness pitch (p/e) is 11.775. The optimum value of thermo- hydraulic performance parameter has found to be 1.139 for Reynolds number (Re) of 21538 within the range of the parameter investigated.

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An Investigation into the Impact of Climate Change on Flora and Fauna in Kaushambi District, Uttar Pradesh

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Keyword: Climate Change, Flora and Fauna, Biodiversity, Agricultural Practices, Ecosystem Vulnerability

Abstract:

This research paper explores the effects of climate change on the flora and fauna in Kaushambi district, Uttar Pradesh. Climate change, characterized by shifts in temperature, precipitation patterns and extreme weather events, has profound implications for biodiversity and ecosystem of the vicinity. The study investigates the specific climatic changes observed in Kaushambi over the last few decades and examines how these changes have impacted local plant and animal species. By analyzing climate data and conducting field surveys, the research highlights key environmental challenges and the vulnerability of local ecosystems. The paper concludes with policy recommendations aimed at mitigating the adverse effects of climate change on biodiversity in the district.

Introduction:

Kaushambi district of Uttar Pradesh, is predominantly an agricultural region with diverse flora and fauna. Over the past few decades, the district has experienced notable climate fluctuations, including rising temperatures, changing rainfall patterns and increased frequency of extreme weather events such as droughts and floods or water logging. These changes have directly affected the agricultural productivity, water availability and biodiversity in the area. Flora and fauna in Kaushambi, including various plant species, wildlife and domesticated animals, are vulnerable to the impacts of these shifts in climatic conditions. This study aims to understand the extent of climate change in Kaushambi district and its consequences for the local ecosystem.

Objective:

The main objectives of the study are:

1. To analyze the trends of climate change (temperature, rainfall etc.) in Kaushambi district.
2. To assess the impact of these climatic changes on local flora and fauna.
3. To examine the vulnerability of different plant and animal species to climate change in the district.
4. To identify potential adaptive strategies to mitigate the adverse effects of climate change on biodiversity.

5. To propose policy recommendations for conservation and sustainable management of natural resources in Kaushambi.

Source of Data:

The research uses both primary and secondary data sources:

1. Primary Data:

- Field surveys conducted in Kaushambi district to gather firsthand information on local plant and animal species.
- Interviews and focus group discussions (FGD) with local farmers, wildlife experts, environmentalists and forestry officials to understand the perceptions of climate change impacts on biodiversity.
- Observations from forest areas, agricultural regions and rural- urban areas.

2. Secondary Data:

- Climate data from the India Meteorological Department (IMD), including temperature and precipitation records over the last few decades.
- Government reports and research publications on environmental changes and biodiversity in Uttar Pradesh.
- Literature on climate change impacts on flora and fauna from national and international studies.

Methodology:

The study employs a mixed-methods approach, combining both qualitative and quantitative research methods.

1. Quantitative Analysis:

- Statistical analysis of historical climate data to identify trends in temperature, rainfall, and extreme weather events (e.g., droughts, floods).
- Spatial analysis using GIS to map the changes in temperature and precipitation patterns across different regions of Kaushambi.
- Analysis of species distribution and changes in biodiversity over time, using ecological data on the flora and fauna of the district.

2. Qualitative Analysis:

- Semi-structured interviews with local residents, farmers, and experts in climate change and biodiversity conservation.
- Focus group discussions to understand community-level impacts, especially in rural areas that depend heavily on agriculture and natural resources.
- Case studies of specific plant and animal species vulnerable to climate change, such as certain crops, trees, and wildlife species (e.g., migratory birds and aquatic life).

3. Ecological Field Studies:

- Field visits to different ecosystems (forests, wetlands, agricultural lands, etc.) to observe firsthand the effects of climate change on plant and animal populations.
- Surveys of local plant species to record their growth patterns, health, and reproduction rates.
- Wildlife monitoring to identify the shifts in species migration, breeding, and behavior due to climate change.

Findings / Results:

1. Climate Trends in Kaushambi: Temperature fluctuations significantly affect various

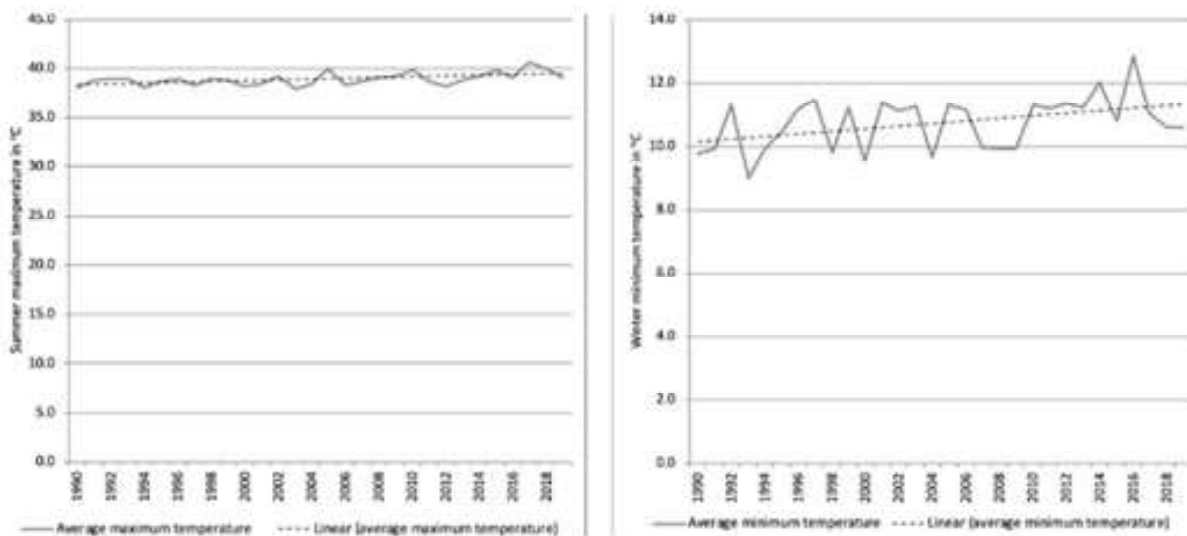
aspects such as flora, fauna, human health and water resources. In Uttar Pradesh, these changes exhibit both spatial and temporal variability. The table below summarizes the trends and statistics related to temperature patterns in the region.

Temperature variability

Season	Statistics	Temperature	
		Maximum (°C)	Minimum (°C)
Annual	Average	31.4	18.4
	Range	26.7-32.6	14.9-19
	Trend	-0.11	0.57
Winter	Average	23.5	8.9
	Range -Average	23.9-29.5	6.3-9.9
	Trend	-0.91	0.98
Pre Monsoon	Average	36.1	20.2
	Range -Average	30-38.1	15.8-21.2
	Trend	0	0.56
Monsoon	Average	34.2	25.2
	Range -Average	30.2-35.8	21.4-26
	Trend	0.31	0.23
Post Monsoon	Average	28.3	13.7
	Range -Average	18.7-25.9	10.9-15.1
	Trend	-0.23	0.77

Source: IMD Gridded temperature data (1969-2005)

Uttar Pradesh recorded a moderate warming of 0.31°C to 0.62°C in the summer maximum temperature and 0.18°C to 0.35°C in the winter minimum temperature during the historical period.



Graph: Mean summer maximum and winter minimum temperatures in Uttar Pradesh during the historical period (1990–2019)

- Temperature: The analysis indicates a consistent rise in the average temperature of Kaushambi district as well as Uttar Pradesh over the past 30 years. The mean annual temperature has increased by approximately 0.60°C, with significant warming during the summer months.
- Rainfall: There has been a noticeable change in rainfall patterns, with a reduction in the monsoon period’s consistency and intensity. This has led to both prolonged dry spells and heavy rainfall events, disrupting agricultural cycles.

- **Extreme Weather Events:** The frequency of extreme weather events, including floods or water logging and droughts, has increased over the past decade. These events have caused severe damage to crops, wildlife habitats and infrastructure.
2. **Impact on Flora:**
- **Agricultural Crops:** Changes in temperature and rainfall have led to decreased yields of traditional crops such as wheat, rice and sugarcane. Droughts and erratic rainfall patterns have particularly affected water-intensive crops.
 - **Forest and Wild Plant Species:** Certain native plant species, especially those that thrive in stable climate conditions, are showing signs of stress. There has been a decline in the growth of certain tree species like Sal, Banyan, Neem, Mahua, Shesham etc., which are highly sensitive to changes in rainfall and temperature.
 - **Invasive Species:** The changing climate has allowed certain invasive plant species, such as Lantana camara and Parthenium hysterophorus, to proliferate, further threatening native flora.
3. **Impact on Fauna:**
- **Wildlife:** The changing climate has disturbed the natural habitats of various species in the district. Species such as migratory birds, amphibians and small mammals have altered their migration and breeding patterns due to the continuous change in the climate. For instance, the local population of migratory birds has reduced as wetlands dry up or become less hospitable.
 - **Aquatic Life:** The water scarcity caused by fluctuating rainfall and increased evaporation rates in adjoining rivers i.e. Ganges and Yamuna and ponds has negatively impacted aquatic species, particularly fish.
 - **Domesticated Animals:** Farmers reported that climate change has led to increased stress on domesticated animals, particularly cattle, due to rising temperatures and inadequate grazing conditions.
4. **Vulnerability of Species:**
- **Highly Vulnerable Species:** Certain species of birds, amphibians and water-dependent plants are particularly vulnerable to climate change due to their specialized habitat requirements.
 - **Adaptation and Migration:** Many species are forced to migrate to more suitable areas, while some are adapting to the changing conditions by altering their reproductive cycles or behaviors.

Conclusion:

Climate change in Kaushambi district is having a significant and multifaceted impact on both the flora and fauna of the region. Rising temperatures, altered rainfall patterns and the increasing frequency of extreme weather events are stressing local ecosystems and threatening biodiversity. While some species show resilience and adaptability, many are struggling to cope with the rapidly changing conditions. Agricultural practices, which form the backbone of the district's economy, are also being disrupted, leading to reduced crop yields and increasing vulnerability for local farmers.

To mitigate the impacts of climate change in Kaushambi district, a comprehensive policy should focus on promoting climate-resilient agricultural practices, such as the adoption of drought-tolerant crop varieties and efficient water management techniques, including rainwater harvesting and drip irrigation. The government should invest in reforestation and afforestation programs to restore local ecosystems and protect biodiversity, while also

conserving critical wildlife habitats. Additionally, policies should prioritize public awareness campaigns and community engagement to ensure local stakeholders actively participate in climate adaptation and conservation efforts. Collaborative actions involving government, environmental organizations and local communities will be essential to safeguard both the environment and livelihoods in the region.

With concerted efforts from the government, local communities and environmental organizations, Kaushambi can better manage its natural resources and preserve its biodiversity in the face of climate change. The findings underscore the importance of adopting sustainable and climate-conscious policies to safeguard both the environment and the livelihoods of local people.

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Lightening and Thunder: An Analysis of General Features and Trends

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Abstract

Lightning is the most noticeable feature of a thunderstorm. In fact, that's how thunderstorms got their name. Lightning is a discharge of electricity.

Although a lightning bolt usually only hits one spot on the ground, it travels many kilometers through the air. When you listen for thunder, you first hear the thunder produced by the part of the lightning channel closest to you. As you continue to listen, you will hear the sound being produced from increasingly distant parts of the channel. A sharp pop or click will usually indicate that a lightning channel has passed nearby.

Owens et al (2104 Environ. Res. Lett. 9 115009) found that the occurrence of lightning over the UK is up to ~50% greater than usual when the magnetic field outside the Earth's magnetosphere in interplanetary space is directed towards the Sun rather than away from it. But why this is happening is still not entirely clear. The increase in the frequency of atmospheric hazards in a changing climate has attracted interest in the study of regional features of mesoscale convective systems and trends in lightning activity.

Severe convective storms are the most destructive weather phenomena that cause significant damage and loss of life. In this article, we analyze general features and trends in lightning activity.

Keywords: Atmospheric electricity; storm; aerosol; electric field; electric potential; flash action; numerical simulation; weather forecast

Introduction

Lightning is a very powerful electrical discharge that creates glowing particles of gas called plasma that light up the night sky. Lightning is the most noticeable element of a thunderstorm. In fact, that's how thunderstorms got their name.

A single lightning strike can heat the air around it to 30,000°C (54,000°F)! This great temperature causes the atmospheric air to expand explosively. The expansion creates a shock wave that turns into a rumbling sound wave known as thunder.

This discharge can produce a wide range of electromagnetic radiation, from heat generated by the rapid movement of electrons to brilliant flashes of visible light in the form of blackbody radiation. Lightning produces thunder, the sound from a shock wave that develops when the gases near the discharge experience a sudden increase in pressure. Lightning is an atmospheric electrical phenomenon and contributes to the global atmospheric electrical circuit.

The three main types of lightning are distinguished according to where they occur: either within a single thunderstorm cloud (intra-cloud), between two clouds (cloud-to-cloud) or between cloud and ground (cloud-to-ground) in which case it is referred to as a lightning strike.

What's Happening in the Cloud?

As ice crystals high in a thunderstorm flow up and down in the turbulent air, they crash into each other. Small negatively charged particles called electrons bounce off some ice crystals and add to other ice crystals as they bump around each other. This separates the positive (+) and negative (-)

charge of the cloud. The top of the cloud becomes positively charged with particles called protons, while the base of the cloud becomes negatively charged.

How is Lightning Formed?

Because opposites attract, the negative charge at the bottom of the storm cloud wants to combine with the positive charge of the earth. Once the negative charge at the bottom of the cloud becomes sufficiently large, a stream of negative charge called the step leader rushes towards Earth. The positive charges on the ground are attracted to the stepped platform, so the positive charge flows up from the ground. This electric current is known as the reverse stroke. We see it as a bright flash. Thunder and lightning occur at roughly the same time, although you see the lightning before you hear the thunder. Light travels much faster than sound.

Lightning occurs when negative charges (electrons) at the bottom of the cloud are attracted to positive charges (protons) in the ground. The bond is formed and the protons rush to meet the electrons. It is at this moment that we see lightning and hear thunder. Lightning heats the air in its path, and expand it rapidly. Thunder is a sound caused by rapidly expanding air.

What Causes Thunder?

- Thunder occurs as a result of lightning. When lightning strikes, it heats the air around the lightning channel to over 50,000 degrees Fahrenheit.
- This extreme heating causes the air to expand rapidly, resulting in a shock wave.
- As this shock wave travels outward from the lightning channel, it travels through the atmosphere at the speed of sound – around 760 MPH at sea level.
- When the shock wave reaches your ears, it causes your eardrums to vibrate and your brain interprets this as the sound of thunder.
- The amount of time between seeing the lightning and hearing the thunder gives an indication of how far away the lightning strike occurred. Sound travels roughly 1 mile every 5 seconds, so you can estimate the distance by dividing the time (in seconds) by 5. The loud crash you sometimes hear is made by the main lightning channel as it reaches the ground. Since you can see lightning instantly and the sound of thunder takes about 5 seconds to travel a mile, you can calculate the distance between you and the lightning. For example, if you see lightning and hear thunder 10 seconds later, the lightning strike was roughly 2 miles away (10 seconds divided by 5 = 2 miles).

The louder the thunder, the closer the lightning strike. Distant thunder sounds quieter because more of the shock wave's energy is dispersed over a longer distance.

Some Amazing Facts about Lightning and Thunder

1. Electricity in Lightning

It never travels from the cloud to the ground, but from the ground up.

2. Lightning Speed

A lightning strike travel at the speed of light (670,000,000 mph), the authentic lightning strike travels at a comparatively modest 270,000 mph. This means it would take about 55 minutes to travel to the moon, or about 1.5 seconds to travel from London to Bristol.

3. Lightning Finds the Fastest Way to Earth

Lightning always follows the path of least resistance. It finds the fastest way by bouncing off the charges that attract it the most. Imagine the lightning as if you were walking through a crowd of people. You can't go straight through the crowd, but you weave your way around looking for gaps.

Essentially, the path of least resistance, much like walking through a crowd, represents the path that electricity follows as it seeks the most efficient and most conductive path between two points, following the basic principles of electrical physics.

4. An Inch Wide and Hotter than the Sun

While the intensity of the lightning strike can cause it to appear across the sky as powerful bolts of lightning, the actual width of the lightning is only about 2-3 cm. The average length of lightning is about 2-3 miles. The charge carried by this small channel is so intense that the lightning reaches a temperature of 30,000°C – five times hotter than the sun when it strikes. (The temperature during a lightning strike can reach 30,000 K. While the surface of the Sun is only 6,000 K). But the normal lightning strike persists only 30 microseconds.

The temperature during a lightning strike can reach 30,000 K. While the surface of the Sun is only 6,000 k. that is five times hotter than the surface of the Sun.

5. Lightning Strikes

Lightning strikes 8.6 million times a day and almost 1,400,000,000 strikes each year.

Lightning strikes an average of 8.6 million times each day. Lightning is one of the most frequently recurring and common spectacles in nature. There are more than 3,000,000 flashes worldwide every day. That's about 44 beats every second.

6. The place most struck by lightning in the world Lake Maracaibo in Venezuela is the place with the highest number of lightning strikes in the world on Earth. Massive thunderstorms occur 140-160 nights per year with an average of 28 lightning strikes per minute lasting up to 10 hours at a time.

That's up to 40,000 flashes in one night!

7. When Lightning Strikes the Beach

When lightning strikes sand or sandy soil, it fuses the grains together to form a small glass tube known as fulgurite.

They are not only prized by collectors, but also have great scientific value in proving past occurrences of thunderstorms.

8. Lightning Starts Forest Fires

Lightning has the ability to start fires like the one in California. As the climate warms, they have the potential to spawn more storms.

As a result, lightning from these extreme events can ignite the first wildfires with billions of dollars in damage. The destructive potential of lightning-triggered wildfires underscores the need for prudent fire management and prevention strategies.

9. Distance from Thunder to Lightning

We can use thunder as a measure of how far lightning is. That's because light travels at a breakneck speed of 186,282 miles per second. However, sound travels much more slowly, approximately 1 mile every 5 seconds. So when you calculate the time it takes to hear thunder, counting to 5 means it's 1 mile away. If you count just one second, the lightning is only 3,056 feet away. This simple rule serves as a practical way for individuals to estimate the distance of a lightning strike and gauge their proximity to an impending storm.

10. Volcanic Lightning

While lightning storms are impressive in their own right, they don't quite compare to the spectacle of volcanic eruptions unleashing lightning strikes. When an eruption occurs, earth and ash are thrown into the air in a huge cloud, colliding to create an electrical charge. Like normal lightning, an imbalance between the electrical charge of the plume and the charge in the atmosphere leads to lightning strikes.

11. Snowfall can Cause a Lightning Strike

Winter storms (thunder snow) occur during snowfall, instead of rain. Rain is heavier and has more moisture than snow, so it is more likely to produce lightning.

But when you make snow from lake effect snow, it can build up enough static electricity in the atmosphere for thunderstorms.

12. Light can Help Plants Grow

While nitrogen is in the air all around us, plants rely on a process called nitrogen fixation to absorb it (a process vital to their growth). Although much of this process is done by bacteria and algae, the extreme heat of a lightning strike causes nitrogen to combine with oxygen to form nitrogen oxides, which combine with moisture in the air and fall as rain, dousing the plants with nitrate-rich water.

13. Helicopters Cause Lightning

Recent Met Office research has revealed that helicopters can cause an isolated lightning strike. During flight, the helicopter acquires a negative charge, so if it flies near an area that is positively charged (such as hail or a positively charged part of a cumulonimbus cloud), it can trigger a lightning strike.

14. Almost 90% of people survive a lightning strike. But it doesn't necessarily lead to death. This is often because lightning does not strike a person directly, but mostly in the general vicinity. How can humans survive 100 million to 1 billion volts of electricity from a lightning strike? Lightning strikes are short discharges that can burn.

15. Take a Bath during a Thunderstorm

When a house is struck by lightning, the pipes can conduct this electrical current. These pipes lead directly to the bottom of the tub. If you are in a pool of water, you can feel a

fraction of the total current of a lightning strike. But lightning strikes typically range from 5,000 to 20,000 amperes. Swimming during a thunderstorm is not recommended as water is an excellent conductor of electricity.

When lightning strikes some place, it can lead to electrical rushes and safety hazards. Therefore, it is always safer to wait until the storm has passed to minimize the risk of electrocution in your bathroom.

Conclusion

There is increasing evidence that lightning activity is enhanced by particulate emissions (a form of air pollution). However, lightning can also improve air quality and clear the atmosphere of greenhouse gases such as methane, while creating nitrogen oxides and ozone. Lightning is also a major cause of forest fires, and forest fire can also contribute to climate change. More studies are needed to clarify their relationship. The distribution of lightning across the planet is directly related to Earth's climate, which is driven by solar radiation. Diurnal and seasonal heating of continental landmasses results in large temperature fluctuations that affect atmospheric stability and storm development. Lightning activity is related to the impact of future global warming on lightning, thunderstorms and other severe weather.

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The Origin and Development of Manipuri “Nata Sankirtana” (A Cultural Heritage of India)

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1. Introduction

From the time of Meidingu Kiyamba (1467-1508), Meidingu Chalamba (1545-1562), Meidingu Mungyamba (1562-1597), Meidingu Khagemba (1597-1652), Meidingu Paikhomba (1666-1697), Meidingu Charairongba (1697-1709), etc, the then kings of Manipur who ruled the kingdom, people from different parts to the west of Manipur started coming to the princely state. Though Manipur had its association with the people from the west since early times, nevertheless Hinduism could not be spread widely in the state. On the other hand, in books like the ‘Vishnupuran’ (written in Manipuri) and ‘Vijay Panchaali’ etc, it has been found the frequent mention of the pong king Kikhomba passing the Vishnu chakra to King Kiyamba, the chakra thereby being worshipped by creating a temple at Bishnupur, offering Aratis which marked the origin of Sankirtana in Manipur.

2. Historical Background and Development

A point to be discussed here is, Bishnupur was earlier known by the name Lamangdong. The naming of Lamangdong to Bishnupur was during the reign of Maharaj Bhagyachandra Meidingu Chingthangkomba (1763-1798) and this has been mentioned in the books ‘Shamu phaba’ and ‘Shree Govinda Nirupan’ as

“Loiya mataima khuroi haora lamlangtong khoimom laimitkhu kumanaram, Chingu laiwangla tanalmata poirei leipak pumna tinna konung chaokoi semna asumna poirei leipak loingkhatlarabada chingu maranku khoimom khoimom mathoujanki poirei marang hou, wangam mathi nairakle | Konung mamingthongbu Bishnupur haina koloi maming tholle |”¹

The temple of Vishnu was built during the time of Charairongba according to the archeologists, Dr Kunjeshwari Devi, her statement being quoted in the book ‘Archeology in Manipur’ page 113,

“We find that it was during the period of Charairongba (1697-1709) which marked the beginning of Temple Construction in Manipur. Further King Kiyamba was not formally initiated into Vaisnavism. Actually the Vishnu Worship and Vishnu Cult attained popularity first during the time of Charairongba.”²

But, then again, according to other scholars, based on the structure, materials, environment of the place, ecology, etc, it is therefore deduced that the temple in Bishnupur cannot be dated to have been built earlier to that of the reign of King Bhagyachandra. As a result of which, several information mentioned in ‘Vishnupuran’ and ‘Vijay Panchaali’ calls for a thorough discussion.

2.1 Origin of Sankirtana

In 1597, the influence of Hinduism became more prominent during the reign of Meidingu Khagemba. Bramhin Bhavani Nath as the priest, conducted the puja offering Sankirtana in the puja in which Yadavdas, Gouridas and Devidas kritaniyas were the performers playing the percussion as they sang. Hence, it is evident that since King Khagemba's time, Sankirtana started to be offered in pujas (Sankirtana Vichar, Chitreswor Sharma).

In 1697 Meidingu Charairongba's reign saw Rai Banamali, a Brahmin from Orissa's Set-Ganga visit the palace at Kangla. Following his advice, the King took Diksha and took refuge into Vaishnava Dharma considering Banamali as his Bramhin Guru. Thereafter, an idol of Radha Krishna made of bronze started to be worshipped. In 1907, on the 19th day of kalen, Friday a temple of Radhakrishna was constructed with bricks and Rai Banamali was handed over the charge of serving the Idol in the temple. The king also came to worship the holy idol. The temple built at that time exists even today where the Brahmins of Guruaribam serves the mandir at Thumbuthong near Brahmapur. After the construction of the temple, more and more people of Manipur became devotees of Radhakrishna as days passed on. Rai Banamali was the guru of that time. (*Cheitharol Kumbaba*)

2.2 Rise of Vaishnavism

In 1709, Meidingu Garibniwaz was initiated into Vaishnavism through Brahmin Gopal Das. Subsequently, as per the advice of Santidas Gosai who came from Slyhet Narsingtila, Ramandi Dharma started to flourish in Manipur. Following this, there were several changes in the cultural and traditional events. Thus, while worshipping Ramji Prabhu, the earlier singing styles were changed to that in Bengali language. The group of people performing such singing styles came to be known as Bangdesh Pala. Since then, following the death of a person, Sankirtana started to flourish over the state as various ritualistic occasions like asti, shradha, phiroi (*samvatsar*) etc. were performed offering Sankirtana in the process.

2.3 Offering of Raas Lila

In 1779, in the month of Hiyangei, Shree Shree Govinda Abhishek was performed at Canchipur following which Raasa was offered at Raasmandal continuously for five days. In the Raasa performance offered, Bhagyachandra Maharaj himself played pung in the Nipa pala, Oja Premananda followed him as tung inba while Maton Ibungo Ngoubam Sai took the part of Ishei hanba and Maton Ibungo Dhar sai sang Duhaar, thus marking the evolution of Nata Sankirtana. Subsequently, it resulted in the formation of the Palas of different Panas as Khwai, Yaiskul, Khurai, Wangkhei and Sebok pala etc. that shaped the current form of Nata Sankirtana with Pung and Kartaal as the percussion. 'Bangdesh pala' or 'Ariba Pala' is known to have existed before the reign of Maharaja Bhagyachandra, however Meidingu has in his credit of popularizing it wide and far. Moreover, majority of the Gurus of Bangdesh Pala and Pung Ishei are of this time. Also during this period, princess Bimbabati sang for 'Rasheshori Pala', hence the starting of this pala and 'Holi shakpa' trend find a mention in *Cheitharol Kumbaba*.

If few names of the Gurus who were the pioneers of the Bangdesh Pala, Pung and Ishei are to be noted down, Dhaniram, Langlen Hanba, Kirtana Roop, Kirta Radha, Tensuba etc. Konthoujam Leibakmacha, Rupanand, Swarupanand, Premanand etc were prominent Gurus of Ishei. The Gurus of Pung for Nata Pala were Shree Govindajiu, the king himself, Huirongbam Ramananda, Yengkhom Rudra, Sinam Indra etc and Cheitanya, Rasananda

marked a name for themselves in the field of Ishei. These Gurus were the Hanjaba and Hidangs of the palace. They created several Raagas, Sanchaar, and Taalas of Pung and Ishei. In addition to these, they also created the punglon of “Mahadhummel” in consultation with several Gurus, however before it could be offered to Shree Shree Govinda, Rajarshi breathed his last.

2.4 Nityai Dhumel

Nityai Dhumel was introduced during the time of Maharaj Marjit. Post his reign, peaceful environment did not prevail in Manipur and hence no Manipuri King could rule peacefully in the state. Consequently, the heirs of the kings along with their subjects fled to the neighboring state and took over Cachar. There, Cachar was divided into 3 parts viz. Gumera, Jhapirbond, and Dungurirpar, where King Gambhir Singh, Marjit and Chourjit respectively ruled over the three places. Even if Meiteis were known to have existed before this event, a sizeable population of Manipuris was already residing in Cachar. During this time, when Marjit Maharaj ruled Jhapirbond, the offering to “Nityai Dhumel” after performing “Maha Sankirtana” is often talked about by the aged people of Jhapirbond even today. Nata Sankirtana gained more popularity when Maharaj Gambhir Singh returned to Manipur in 1825 ruling Manipur once again. The King being a Pung Yeiba (Drummer) himself, introduced ‘Dhop Kirtan” and “Kang Chingba” (Rath Yatra) along with “Jayadeva Chongba” and “Khubak Ishei” etc. After this, when Ningthem Pishak Chandrakirti became the king at a very young age, “Naam Pala” was formed. Several Punglons like the Gourdhummel, various Raagas, Taalas were composed along with the introduction of Jhulon Pala, Gourlila, Shansenba. When wearing Pheijom, the style of namei leiba, wearing a tight khwangchet, using kokyet, kartaal with long mari etc. these were introduced during the reign of Maharaj Nara Singh.

2.5 Golden Period of Nata Sankirtana

It was when Meidingu Chandrakirti ruled Manipur once again, Nata Sankirtana enjoyed the golden period of wide acceptance that aided to shine in glory. Palahan, Lamboiba Pala, Lairembe Dhumel, the Mel Taranithoi, Cholom Areibi, Cholom Achumbi, Seigonnabi Tanchap Pareng, Menkup Pareng Punglon etc. were introduced in this period. Here, it is noteworthy to mention the names of the gurus in Pung- Yumnam oja Jadunath, Nongmaithem Marei Chura, Bachaspati Hanjaba, while those who gained expertise of being regarded as Gurus of Ishei and Cholom were Sorokhaibam Oja Sengumba and Haorokcham Shamu. The usage of Moibung in Nata Sankirtana was however allowed only for the grand marriage ceremony of the King and restricted in the marriages of laymen after the King himself requested the strong and mighty.

The reign of Meidingu Surchandra did not have an introduction of Taalas and Punglons indeed. Following this, during the reign of Maharaja Churachand when British ruled Manipur, Nata Sankirtana did not lose its charm. The Gurus of this time along with their disciples put maximum effort to elevate its glory. In 1931, in the month of March, with Waikhom Chaoba as the Ishei Hanba, Sankirtana in Meiteilon was introduced at the Muktaar Mandap Shingjamei. The Meiteilon Sheishak which was performed for the very first time on March 18, 1896, it has been written as follows:

*“14 ni Thangjada Shree Govindagi Mandapta Bamon
Phurailatpam Bidhu, Khaidem Macha Nongyai |
2 mana semduna holigi Isheibu Meiteilonna Shake”³*

Holi Ishei performed at Shree Shree Govindaji Mandap had its fair share of appreciation as well as criticism. Churachand Maharaj put an end to the argument, as a result of which the public fully supported the Holi Ishei sung in Manipuri Language gaining wide acceptance subsequently. A consequence of this fruitful initiative resulted in Churachand Maharaj himself singing in Meiteilon at Shree Shree Govindaji Mandap, which has been written as-

“Taibang panbagi mapu

Shree Govinda Nangi khuyada

Meitei Ningthou Eina haijeiye

Leipak pumnamak loinana,

Nangi seva toujabasi

Nangidamakni, penbiyu haina khurumjei⁴ *Ashamba Manipuri sahityagi Itihas* written by kalachand Shastri and published by O K store Imphal (1982) page-165.

Conclusion

In short, it can be inferred that the origin of Sankirtana in Manipur happened in earlier part of the 18th century, while Sankirtana evolved into its complete form gaining popularity during the rule of Maharaja Bhagyachandra to Maharaja Nara Singh. However, it reached its zenith during the reign of Meidingu Chandrakirti, whose fruits the generation of today is enjoying.

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Risk of Financial Leverage and Its Impact on Value of Firm: A Case Study of Bata India Limited

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Abstract

This study investigates to establish the relationship between change in capital structure (Leverage) and firm's value.. The study covers the period from 2005-06 to 2013-14 financial year. Data was sourced from primary and secondary both. Primary data have collected through a mailed structured questionnaire. It includes quite multiple choice questions. Most of the respondents are above the level of Finance Manager.

The main sources of secondary data are audited annual reports and statements of accounts of the company under consideration, The Bombay Stock Exchange Directory and Moneycontrol.Com. Data was analyzed using descriptive statistics and correlation analysis. For the test of significance 't' test was used in this study.

Introduction

The Capital Structure of a company is a particular combination of debt, equity and other sources of finance that it uses to fund its long-term asset. The key division in capital structure is between debt and equity. The proportion of debt funding is measured by gearing or leverages. In other words, Capital structure means the structure or constitution or break-up of the capital employed by a firm. The capital employed consists of both the owner's capital and the debt capital provided by the lenders or Capital Structure of a firm is a reflection of the overall investment and financing strategy of the firm. It shows how much reliance is being placed by the firm on external sources of finance and how much internal accrual is being used to finance expansions etc.

Value of firm is a particular combination of market value of equity and market value of debt at a certain time. It is a measure of a company's total value, often used as a more comprehensive alternative to equity market capitalization. The market capitalization of a company is simply its share price multiplied by the number of shares a company has outstanding. Enterprise value is calculated as the market capitalization plus debt.

The relationship between capital structure and firm value has been the subject of considerable debate, both theoretically and in empirical research. Throughout the literature, debates have focused on whether there is an optimum capital structure for an individual Firm or whether the proportion or level of debt usage is irrelevant or relevant to the Firm's value

Companies have been struggling with capital structures for more than four decades. During credit expansions, companies have been unable to build enough liquidity to survive the contractions, especially those enterprises with unpredictable cash flow streams which end up with excess debt during business slowdowns. Chief financial officers (CFOs) constantly encounter these questions when managing their balance sheets: firstly, is it advisable to return the excess cash to shareholders or invest it, and secondly, should they finance their new projects by adding debt or raising capital from equity? Achieving the right capital structure by defining the composition of debt and equity for an organization to finance its operations and investments has challenged academics and practitioners alike. Some companies focus on the traditional tax benefit of debt, since interest is often a tax deductible expense, while many other companies hold substantial amounts of cash and explore options of what to do with it. The choice of capital structure for firms is by and large the most fundamental issue of the financial framework of a business entity. Methods by which public corporations finance their assets set up their ownership structure and reflect standards of their corporate governance.

Do changes in capital structure affect the value of a firm? This question has been puzzling the minds of both the finance managers and academicians for the last 40 years especially since the publication of the path breaking articles by Franco Modigliani and Merton Miller. In a perfect capital market, their irrelevancy model is perfectly valid and is supported by all. But, in case of an imperfect market, the views differ greatly and, as a result, till date, no universally accepted model has been developed on this crucial issue.

Review of Literature

(Modigliani and Miller, 1958) were the first to raise the question of the relevance of capital structure for a firm. They argued that under certain conditions, the choice between debt and equity does not affect firm value, and, hence the capital structure decision is irrelevant. The conditions under which the irrelevance proposition holds includes, among others assumptions, a situation where there are such as no taxes, no transaction costs in the capital market, and no information asymmetries among various market players. Financial theorists have however since provided several possible explanations for the financing decisions of firms. Major hypotheses include tax effects, signaling effects, bankruptcy effects, agency issues and industry effects.

Several theories have emerged to explain firms' capital structures and their resultant effects on their market values. Among these theories include the Capital structure relevance theory, pecking order theory, the free cash flow theory, the agency cost theory and the trade-off theory (Bokpin and Isshaq, 2008).

Capital Structure Irrelevance and Relevance Theory

These theories as propounded by (Modigliani and Miller, 1958 and 1963) state that under perfect capital market conditions, a firm's value depends on its operating profitability rather than its capital structure, that is, value irrelevant (Modigliani and Miller, 1963). But, in their tax-corrected paper, (Modigliani and Miller, 1963) showed that when corporate tax laws permit the deductibility of interest payments, the market value of a firm is an increasing function of leverage. With corporate income tax rate T_c and P on an after tax basis, the equilibrium market value of levered firm is given by:

$$VL=X(1-T_c)/P+T_cDL$$

Where, X equals expected earnings before interest and taxes, $X(1-T_c)/P=V_u$ value of the firm if all-equity-financed, and T_cDL is the present value of the interest tax-shield, the tax advantage of debt. Given X , V_L increases with the leverage, because interest is a tax-exempt expense. But while this theory successfully introduced the potential effects of corporate taxes into the capital structure theory, it only leads to an extreme corner effect as the firm's value is maximised when 100 percent debt finance is used (Mollik, 2008).

In reality, it is impracticable, probably because of the uncertainty of interest tax-savings, and the existence of personal taxes (Miller, 1977) and non-debt tax shields (DeAngelo and Masulis, 1980) putting limit to this limitless tax advantage to debt. Following this theory, it is apparent that a significant relationship exists between a firm's choice of capital structure and its market value.

Capital Structure and the Pecking Order Theory

The pecking order theory of capital structure as introduced by (Donaldson, 1961) is among the most influential theories of corporate leverage. It goes contrary to the idea of firms having a unique combination of debt and equity finance, which minimize their cost of capital. The theory suggests that when a firm is looking to finance its long-term investments, it has a well-defined order of preference with respect to the sources of finance it uses. It states that a firm's first preference should be the utilization of internal funds (i.e. retain earnings), followed by debt and then external equity. He argued that the more profitable firms become, the lesser they borrow because they would have sufficient internal finance to undertake their investment projects. He further argued that it is when the internal finance is inadequate that a firm should source for external finance and most preferably bank borrowings or corporate bonds. And after exhausting both internal and bank borrowing and corporate bonds, the final and least preferred source of finance is to issue new equity capital. According to (Myers, 1984), due to adverse selection, firms prefer internal to external finance. When outside funds are necessary, firms prefer debt to equity because of lower information costs associated with debt issues. These ideas were refined into a key testable prediction by (Shyam-Sunder and Myers, 1999), that the financing deficit should normally be matched dollar-for-dollar by a change in corporate debt. As a result, if firms follow the pecking order, then in a regression of net debt issues on the financing deficit, a slope coefficient of one is observed.

(Fama and French, 2002) tested some qualitative predictions of the pecking order theory as against the qualitative predictions of the tradeoff model. In their findings, they suggested that more profitable firms are less levered and it is consistent with the pecking order. And also, that firm with greater investment opportunities is less levered as predicted by the tradeoff theory.

3. Objective of the study

To explain the relationship between leverage and the value of the firm

4. Hypothesis of the Study

• H1:- There is no definite relationship between change in the capital structure and the value of the firm

Table-1.0: Showing Compiled Financial Data Of Bata India Limited

YEAR	NET PROFIT (IN CR. ₹)	TOTAL LONG TERM DEBT (IN CR. ₹)	EARNING PER SHARE (IN ₹)	NO. OF EQUITY SHARE (IN CR.)	CLOSING MARKET PRICE PER EQUITY (IN ₹)	TOTAL SHAREHOLDERS' EQUITY (IN CR. ₹)
2005	12.49	23.96	1.94	6.426	89.88	261.47
2006	40.15	6.32	6.25	6.426	101.40	212.00
2007	47.44	6.73	7.38	6.426	143.60	251.38
2008	60.74	8.72	9.45	6.426	53.50	291.16
2009	67.23	10.40	10.46	6.426	99.40	334.29
2010	95.35	13.77	14.84	6.426	181.28	398.24
2011	225.84	0.00	35.14	6.426	265.23	574.31
2012	171.60	0.00	26.70	6.426	433.48	700.53
2013	190.74	0.00	29.68	6.426	528.28	841.00
2014	231.17	0.00	35.97	6.426	652.85	1022.15

Sources:-audited Balance Sheet And P&L Account Of The Company (2005 - 2014)

The above table shows financial data like as Net profit, Total long term debt value, Earning per share, No. of equity share, Closing market price of per equity share and Total shareholders' equity. The above financial data is imperative to find out the leverage ratio and value of the firm.

Table-1.1: Showing Market Value Of Equity Share & Leverage Ratio Of Bata India Limited

YEAR	NO. OF EQUITY SHARE (IN CR.)	CLOSING MARKET PRICE OF PER EQUITY (IN ₹)	CLOSING TOTAL MARKET VALUE OF EQUITY SHARE (IN CR. ₹)	MARKET VALUE OF LONG TERM DEBT (IN CR. ₹)	TOTAL SHAREHOLDERS' EQUITY (IN CR. ₹)	LEVERAGE RATIO
1	2	3	4 = 2 X 3	5	6	7 = 4/4+5
2005	6.426	89.88	577..56	23.96	261.47	.0839
2006	6.426	101.40	651.59	6.32	212.00	.0289
2007	6.426	143.60	922.77	6.73	251.38	.0260
2008	6.426	53.50	343.79	8.72	291.16	.0290
2009	6.426	99.40	638.74	10.40	334.29	.0301
2010	6.426	181.28	1164.90	13.77	398.24	.0334
2011	6.426	265.23	1704.36	0.00	574.31	0.000
2012	6.426	433.48	2785.54	0.00	700.53	0.000
2013	6.426	528.28	3394.72	0.00	841.00	0.000
2014	6.426	652.85	4195.21	0.00	1022.15	0.000

The above table-1.1 shows closing total market value of equity share and leverage ratio of Titan Company Ltd. It helps to find out value of the firm and the correlation between leverage ratio and value of the firm.

Table-1.2: Showing Value Of Bata India Limited

YEAR	CLOSING TOTAL MARKET VALUE OF EQUITY SHARE (IN CR. ₹)	LONG TERM DEBT & PREFERENCE VALUE (IN CR. ₹)	VALUE OF BATA INDIA LIMITED (IN CR. ₹)
1	2	3	4 = 2+3
2005	577.56	23.96	601.52
2006	651.59	6.32	657.91
2007	922.77	6.73	929.50
2008	343.79	8.72	352.51
2009	638.74	10.40	649.14
2010	1164.90	13.77	1178.67
2011	1704.36	0.00	1704.36
2012	2785.54	0.00	2785.54
2013	3394.72	0.00	3394.72
2014	4195.21	0.00	4195.21

The above table shows value of Bata India Limited. It helps me to find out correlation between leverage ratio and value of the firm.

Table-1.3: Calculated Value Of Leverage Ratio And Value Of Bata India Limited

YEAR	LEVERAGE RATIO	VALUE OF BATA INDIA LIMITED (IN CR. ₹)
2005	.0839	601.52
2006	.0289	657.91
2007	.0260	929.50
2008	.0290	352.51
2009	.0301	649.14
2010	.0334	1178.67
2011	0.000	1704.36
2012	0.000	2785.54
2013	0.000	3394.72
2014	0.000	4195.21

Sources: - Author

The above table shows leverage ratio and value of Bata India Limited.

Table-1.4: Showing Overall Overview of the Findings

Company Name	Correlation Coefficient (r_{xy}) Between Leverage ratio(x) & Firm's value(y)	Test Statistic t-test Degree of freedom = 8 Level of significance=.05 With the result of correlation Of variables
Bata India Limited	-0.8330	-4.257

5 Interpretation of Result

The table-1.4 shows that the co-efficient of correlation and test statistics. Here we can see that the correlation coefficient between leverage ratio and value of Bata India Limited is showing negatively correlated and t- test result is showing insignificant because the tabulated value of t test is less than the calculated value at level of significance 5% and degree of freedom 8.

6. Conclusions

This study investigated the relationship between leverage ratio and firm's value. It was hypothesized that there is no definite relationship between leverage ratio and firm's value .significant relationship was found between change in capital structure and the value of a firm. This is because of the fact that the value of a firm affected by a multiplicity of factors and capital structure is just one of them. Many of these factors like the reputation of promoters, management of the company, economic and political conditions, role of bulls and bears, government policies, cost of capital etc. Since a majority of the factors are non-measurable as they are qualitative in nature, it is not possible to segregate their effects. Therefore, an exact relationship between capital structure and value of a firm cannot be established. This conclusion is further strengthened by the highly volatile behaviour of the stock markets.

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Effectiveness of Government Population Control Policies in Muzaffarpur District, Bihar: A Geographical Approach

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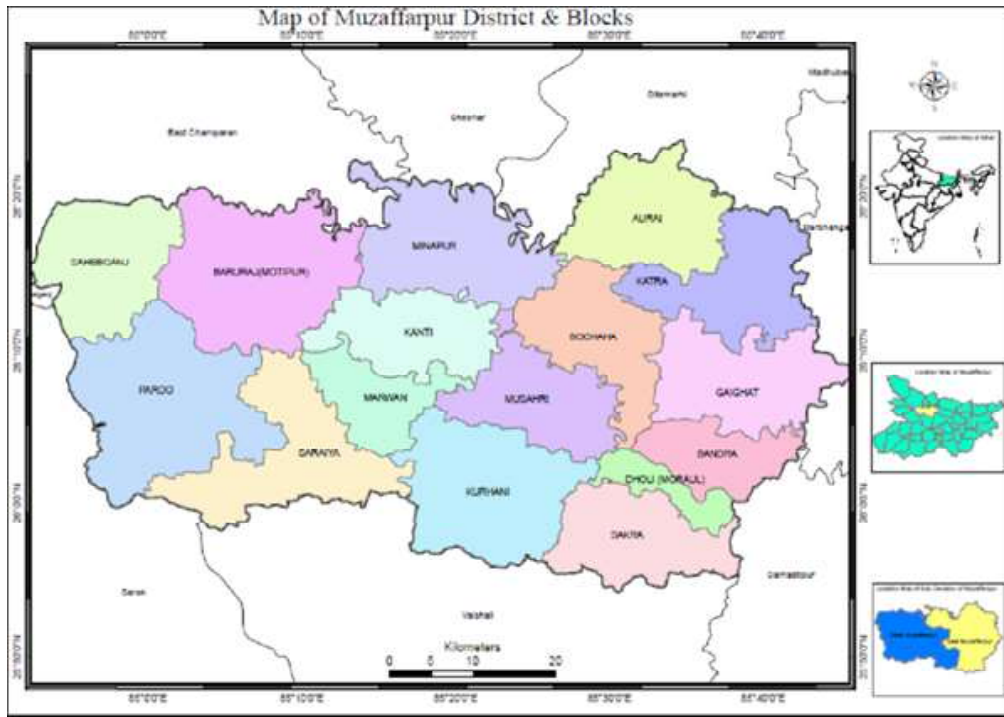
Abstract:

A geographical approach to studying government population control policies in Muzaffarpur District, Bihar, would analyse the impact of these policies across different geographical areas within the district. This could involve examining how policies are implemented and enforced in rural versus urban areas, and how geographical factors like access to resources, infrastructure, and socio-economic status influence policy effectiveness. To what extent have government population control policies (e.g., family planning programs, awareness campaigns) been effective in reducing fertility rates and influencing population dynamics in Muzaffarpur district, considering geographical variations? How do the effectiveness of population control policies vary across different regions within Muzaffarpur district (rural, urban, low-income areas, etc.)? How do socio-economic factors, such as literacy rates, access to education and healthcare, and employment opportunities, impact the effectiveness of population control policies in different geographical areas of Muzaffarpur district? How does access to transportation, communication infrastructure, and healthcare facilities influence the implementation and effectiveness of population control policies in various parts of the district? How are government population control policies implemented in Muzaffarpur district, and how do local administrators and community leaders influence the effectiveness of these policies?

Key Words: Effectiveness, healthcare, family planning programs, population control policies, contraceptive use, TFR.

Introduction:

The population of Muzaffarpur district in Bihar is 4,801,062 (Approx. 4.8 million, 2021 est.) as per the 2011 census. This includes 2,527,497 males and 2,273,565 females. The district's population density is 1,500 inhabitants per square kilometre. According to the 2011 census, Muzaffarpur district has a population of 4,801,062, roughly equal to the nation of Singapore or the US state of Alabama. This gives it a ranking of 24th in India (out of a total of 640). The district has a population density of 1,514 inhabitants per square kilometre (3,920/sq mi). Its population growth rate over the decade 2001-2011 was 28.14%. Muzaffarpur has a sex ratio of 900 females for every 1000 males, and a literacy rate of 66.4%. Scheduled Castes and Scheduled Tribes make up 15.66% and 0.12% of the population respectively.



Objectives:

- To study spatial distribution and density of population in Muzaffarpur.
- To assess how effectively population control policies are working in Muzaffarpur.
- To identify spatial variations in fertility, contraceptive use, and health service delivery.
- To examine correlations between policy success and factors like literacy, healthcare access, and culture.
- To provide a spatial assessment using GIS.
- To assess the implementation and impact of these policies at the village/block level.
- To understand socio-cultural and economic barriers to population control.

Methodology:

- Data Sources:
 - NFHS-4 & 5, Census 2011, SRS, District Health Dept.
 - GIS shape files for spatial analysis.
- Field survey (if applicable): Interviews with health workers (ASHA, ANM), local people, panchayat officials.
- Geographic Information System (GIS): Use GIS to map demographic data (population density, fertility rates, etc.) and analyse spatial patterns related to policy implementation and outcomes.
- Remote Sensing: Utilized remotely sensed data to assess changes in land use and land cover patterns related to urbanization, infrastructure development, and resource availability in the context of population control policies.
- Statistical Analysis: Employed statistical techniques to analyze trends in fertility rates, contraceptive use, and other relevant demographic indicators across different regions of the district.
- Qualitative Research: Conducted interviews and focus group discussions with community members, healthcare providers, and government officials to gain insights into local experiences and perceptions of population control policies.

- **Case Studies:** Analysed specific case studies of blocks (Sahebganj and Gaighat) with contrasting demographic profiles and varying degrees of policy implementation to understand how different factors influence policy effectiveness.

The District Health Department of Muzaffarpur, Bihar, plays a pivotal role in population control through comprehensive family planning initiatives, community engagement, and healthcare service delivery. Local health champions have been instrumental in promoting male participation in family planning. They have conducted awareness campaigns encouraging the use of contraceptives, including condoms, and have facilitated the adoption of non-scalpel vasectomy (NSV) among men. Additionally, they established a feedback mechanism with district health officials to address supply shortages and ensure consistent availability of contraceptive methods. The district health department monitors the reproductive health indicators, such as the crude birth rate (CBR) and total fertility rate (TFR). As of the 2022-23 Annual Health Survey, Muzaffarpur reported a CBR of 25.9 and a TFR of 3.4, indicating areas for improvement in population control efforts. Despite efforts in family planning, Muzaffarpur faces significant challenges in healthcare infrastructure. A 2023 evaluation revealed that all 103 primary health centres (PHCs) and the sole community health centre (CHC) in the district were rated zero out of five, primarily due to inadequate staffing and infrastructure. This deficiency hampers the effective delivery of reproductive health services. Muzaffarpur's healthcare network includes 103 PHCs, one CHC, and numerous health sub-centres across its blocks. However, the distribution and capacity of these facilities often fall short of meeting the population's needs, particularly in rural areas. While the Muzaffarpur District Health Department has made commendable efforts in promoting family planning through community engagement and advocacy, challenges in healthcare infrastructure and service delivery continue to impede the effectiveness of these initiatives. Addressing these infrastructural gaps is crucial for enhancing the impact of population control programs in the district.

4. Overview of Government Population Control Policies:

As of 2025, Bihar's approach to population control emphasizes on education, community engagement and participation and gender equality over legislative measures.

Major Strategy or Components of Bihar's Population Control:

1. Community-Based Family Planning Initiatives

Muzaffarpur district in Bihar has been actively implementing community-based family planning initiatives to promote reproductive health and address population growth challenges. These efforts are part of broader state and national programs aimed at improving access to family planning services and changing societal attitudes towards reproductive health. The district has established 15 rural health centers known as Ayushman Arogya Mandirs, which offer alternative medical treatments under the AYUSH system (Ayurveda, Yoga & Naturopathy, Unani, Siddha, and Homeopathy). These centers provide medical consultations, lifestyle counseling, and awareness sessions on medicinal plants and home remedies, contributing to holistic health education in the community. In alignment with the National Health Mission's strategy, the Population Foundation of India has strengthened capacities and empowered Panchayats and Village Health Sanitation and Nutrition Committees (VHSNCs) to increase demand and monitor the availability of services at health facilities. This approach aims to enhance accountability and ensure that family planning

services meet community needs. To address the gender imbalance in family planning responsibilities, Bihar launched the “Purush Nasbandi Pakhwara,” a 13-day male sterilization campaign. The initiative aimed to raise awareness about male sterilization and encourage men to take responsibility in family planning, thereby reducing the burden on women. Muzaffarpur’s community-based family planning initiatives reflect a multifaceted approach to reproductive health, combining traditional medicine, community engagement, gender-sensitive campaigns, and youth education. These efforts are essential in addressing the district’s population growth challenges and promoting sustainable reproductive health practices.

2. Focus on Female Education

In Muzaffarpur district, Bihar, integrating female education into family planning initiatives has proven to be a transformative approach. Educational empowerment not only enhances women’s autonomy but also fosters informed decision-making regarding reproductive health. AGYVS (Akhil Gramin Yuva Vikas Samiti) has been instrumental in providing vocational training to marginalized women and adolescent girls in Kanti block. By equipping them with skills in areas like hosiery, lac bangle making, and beautician services, the program aims to enhance their economic independence. This empowerment enables women to make informed choices about family planning, contributing to improved reproductive health outcomes. The UNFPA-supported ‘Taalim-i-Naubalighan’ program has introduced life skills education in madrasas across Bihar, including Muzaffarpur. This initiative focuses on educating adolescent girls about gender equality, reproductive health, and personal rights, thereby fostering a generation of informed young women capable of making autonomous decisions regarding family planning. Local activists have been actively promoting family planning awareness in rural Muzaffarpur. Their efforts include door-to-door campaigns to educate communities about the benefits of smaller families and the importance of female education in achieving these goals. By challenging traditional norms, they are paving the way for greater acceptance of family planning practices. Institutions like Mahant Darshan Das Mahila College in Muzaffarpur provide higher education opportunities exclusively for women. By offering courses in various disciplines, these institutions empower women with knowledge and skills, enabling them to make informed decisions about their reproductive health and family planning. Educational initiatives have led to a significant increase in contraceptive use in Muzaffarpur. According to the National Family Health (NFH) Survey-5, the use of contraceptives in the district has risen by over 40% since the previous survey. This uptick is attributed to improved awareness and access to family planning methods, facilitated by educational programs and community outreach efforts. The integration of female education into family planning initiatives in Muzaffarpur has yielded positive outcomes, including increased contraceptive use and enhanced women’s autonomy. Continued support for educational programs and community-based awareness campaigns is essential to sustain and expand these gains, ultimately leading to improved reproductive health and gender equality in the district.

3. Rejection of Population Control Laws:

The Bihar government has firmly opposed the enactment of a population control law. CM Kumar describes such proposals as “foolish talk,” emphasizing that laws alone cannot effectively control population growth. He points to China’s experience with strict population control measures, which led to unintended social consequences, as a cautionary example.

4. Addressing Gender Imbalance

Alarmed by the declining sex ratio at birth, with Bihar's figure dropping to 882 girls per 1,000 boys in 2023–24, the state is intensifying efforts to combat female foeticide. This includes stricter enforcement of the Pre-Conception and Pre-Natal Diagnostic Techniques (PC-PNDT) Act and expanding awareness campaigns to promote the value of the girl child.

Impacts in Muzaffarpur district:

The latest population control initiatives in Muzaffarpur district, have significantly impacted community health, family planning, and women's empowerment. These efforts align with Bihar's broader strategy, focusing on education, community mobilization, and gender equality.

Table 1: Parameters

Indicator	1990	2000	2010	2020
Total Fertility Rate (TFR)	3.8	3.2	2.6	2.2
Maternal Mortality Ratio (MMR)	556	374	178	113
Infant Mortality Rate (IMR)	80	68	47	28
Contraceptive Prevalence Rate	40%	48%	53%	54%

Table 2: Regional Disparities in Total Fertility Rate (TFR) (2020)

Year	Female Literacy Rate (%)
1951	8.6
1971	21.9
1991	39.3
2011	65.5
2020	70.3

1. Empowerment Through Community Mobilization:

Muzaffarpur is a focal point for Bihar's community-driven development programs, notably through the Jeevika initiative. Approximately 600,000 women in the district are engaged in various economic activities, from poultry and goat farming to bag manufacturing and retail. These women, known as Jeevika Didis, have become self-reliant and are challenging traditional gender roles. For instance, in the Bag Cluster, 615 Jeevika Didis produce over 150,000 bags monthly, earning up to ¹ 8,000 each. This economic independence enhances their decision-making power within households, indirectly influencing family planning choices.

2. Integration of Family Planning Messages:

To promote male involvement in family planning, Vikas Mitras, male community health workers, have been trained to disseminate information about contraceptive options, including non-scalpel vasectomy (NSV). This approach addresses the challenge of engaging men, who may be less comfortable with female health workers like ASHAs. In Muzaffarpur district, this strategy led to a significant increase in NSV uptake, from 15% to 43%, and is being considered for expansion to other districts.

3. Male Sterilization Campaign:

In November 2024, Bihar launched the "Purush Nasbandi Pakhwara" (Male Sterilization Fortnight) to encourage male participation in sterilization procedures. While specific data

for Muzaffarpur is not available, the campaign's reach across all government health centers suggests that residents of the district were likely included. The initiative offers financial incentives to both men and women undergoing sterilization, aiming to balance the gender disparity in family planning responsibilities.

4. Access to Healthcare Services:

The introduction of health helpdesks staffed by Jeevika Didis in hospitals has improved access to medical services for rural populations. For example, in a case from Muzaffarpur, a Swasthya Mitra assisted a family during a delivery at Sadar Hospital, ensuring timely medical attention. This support enhances the overall healthcare experience and may encourage families to seek medical advice on family planning.

Population Policy in the 21st Century: From Control to Development:

The current population policy in the district reflects a more holistic understanding of development. In the 21st century, the focus has moved from mere population control to sustainable development, with a focus on health, education, economic opportunities, and human rights. The 2000 National Population Policy (NPP) and its subsequent revisions emphasize the integration of population control with broader developmental goals.

Health and Rights-Based Approach:

The National Population Policy of 2000 marked a significant shift toward focusing on the quality of life and ensuring reproductive rights. This policy aimed to achieve replacement-level fertility (2.1 children per woman) by 2010, and it promoted reproductive health services and women's rights. The policy acknowledged that population control should not be seen as a goal in itself, but as a means to improve the quality of life for all citizens.

Case Studies of Sahebganj & Gaighat blocks :

1) Sahebganj block: While specific case studies focusing exclusively on family planning initiatives in Sahebganj block of Muzaffarpur district are limited, several broader programs and interventions have had an impact in the region. These initiatives, though not exclusive to Sahebganj, provide valuable insights into the strategies employed to promote family planning in similar rural settings within Bihar. In various districts of Bihar, including Muzaffarpur, organizations like Gramin Evam Nagar Vikas Parishad (GENVP) have identified and trained community champions to advocate for family planning. These champions conduct awareness sessions, addressing myths and misconceptions about family planning methods, and encourage delayed marriage and first pregnancy. Their efforts have led to increased male participation in family planning, including the adoption of non-scalpel vasectomy and condom use. While specific data from Sahebganj is not available, the success of this approach in neighboring areas suggests its potential applicability in Sahebganj as well. The PMBJP (Pradhan Mantri Bhartiya Jan Aushadhi Pariyojna) scheme has been implemented in various blocks of Muzaffarpur district, providing affordable sanitary napkins to women. A study in the Muraul and Sakra blocks assessed the impact of this initiative, revealing that 64% of women had medium awareness levels about the scheme, and 68.75% had partially adopted the use of Jan Aushadhi Suvidha sanitary napkins. While Sahebganj was not part of this study, the findings highlight the importance of awareness and accessibility in the adoption of health-related products. Health camps organized by various stakeholders, including the National Health Mission and local administrations, have been conducted in

districts like Sahibganj, which is geographically close to Sahebganj. These camps offer services such as cervical cancer screening, eye screening, malaria and filariasis screening, HIV and syphilis screening, and family planning-related advice. While specific data from Sahebganj is not available, the proximity and similar healthcare challenges suggest that such initiatives could be beneficial if implemented in Sahebganj. The Challenge Initiative (TCI) has demonstrated that engaging private sector providers can enhance the availability and uptake of family planning services. The introduction of fixed-day static services (FDS) for intrauterine contraceptive devices (IUCDs) led to increased demand and service utilization. While Sahebganj is not specifically mentioned. The similar strategies could be effective in Sahebganj, especially if private healthcare providers are engaged and trained to offer family planning services. Implementing community-based approaches, enhancing awareness through health camps, and engaging both public and private healthcare providers are strategies that have shown promise. Adapting these initiatives to the specific context of Sahebganj could potentially improve family planning outcomes in the region.

2) Gaighat block: In Gaighat block of Muzaffarpur district, Bihar, several initiatives have been undertaken to promote family planning and reproductive health. Organizations like Gramin Evam Nagar Vikas Parishad (GENVP) have identified and trained community champions to advocate for family planning. These champions conduct awareness sessions, addressing myths and misconceptions about family planning methods, and encourage delayed marriage and first pregnancy. Their efforts have led to increased male participation in family planning, including the adoption of non-scalpel vasectomy and condom use. This approach in neighboring areas suggests its potential applicability in Gaighat as well. The PMBJP (Pradhan Mantri Bhartiya Jan Aushadhi Pariyojna) scheme has been implemented in various blocks of Muzaffarpur district, providing affordable sanitary napkins to women. A study in the Muraul and Sakra blocks assessed the impact of this initiative, revealing that 64% of women had medium awareness levels about the scheme, and 68.75% had partially adopted the use of Jan Aushadhi Suvridha sanitary napkins. The findings highlight the importance of awareness and accessibility in the adoption of health-related products. Health camps organized by various stakeholders, including the National Health Mission and local administrations, have been conducted in Gaighat block. These camps offer services such as cervical cancer screening, eye screening, malaria and filariasis screening, HIV and syphilis screening, and family planning-related advice. The proximity and similar healthcare challenges suggest that such initiatives could be beneficial if implemented in Gaighat. The Challenge Initiative (TCI) has demonstrated that engaging private sector providers can enhance the availability and uptake of family planning services. The introduction of fixed-day static services (FDS) for intrauterine contraceptive devices (IUCDs) led to increased demand and service utilization. The strategies could be effective in Gaighat, especially if private healthcare providers are engaged and trained to offer family planning services.

A pilot project with digital Health Initiatives was launched in five blocks of Muzaffarpur district, including Gaighat, to enhance healthcare delivery through digital technology. The initiative introduced the 'Disease Spot System' app at Health and Wellness Centers, aiming to improve the diagnosis and treatment of children's illnesses. While the primary focus is on pediatric care, the integration of digital tools in healthcare settings can indirectly support family planning efforts by improving overall healthcare infrastructure and service delivery.

The case study from Gaighat block provides a few valuable insights. Implementing community-based approaches, enhancing awareness through health camps, and engaging

both public and private healthcare providers are strategies that have shown promise. Adapting these initiatives to the specific context of Gaighat could potentially improve family planning outcomes in the region.

Recommendations for Future Policies: Following recommendations may be done after the above mentioned case studies of rural blocks of Muzaffarpur district :

- Improve outreach in underserved blocks.
- Targeted awareness in low-literacy regions.
- Increase male engagement in family planning.
- Invest in health infrastructure in remote villages.
- Use mobile clinics or digital health education campaigns.
- Promote Gender Equality: Empower women through education, employment, and access to reproductive health services.
- Address Regional Disparities: Implement targeted interventions in high-fertility regions to achieve uniform demographic indicators.
- It is required to enhance Family Planning Services and expand the range and quality of contraceptive options and ensure their availability and affordability.
- Strengthen and improve healthcare infrastructure, particularly in rural and remote areas, to ensure access to reproductive health services.
- Engage Communities: Involve community leaders and stakeholders in awareness campaigns and initiatives to address socio-cultural barriers.
- Leverage Technology: Utilize digital platforms and mobile health initiatives to disseminate information and provide remote healthcare services.
- Focus on Adolescents: Implement comprehensive sex education and provide reproductive health services tailored to the needs of adolescents.
- Improve Data Collection: Enhance data collection and monitoring systems to track progress and identify areas for improvement.
- Region-specific strategies for population control.

Improving female literacy and health education.

- Strengthening primary healthcare and access.
- Encouraging youth engagement and awareness campaigns.
- Integrating cultural sensitivities into policy implementation.

Findings and Interpretation:

- Effective Areas: Correlate with better healthcare access, higher literacy, and strong local outreach.
- Ineffective Areas: Common factors—low literacy, poor health access, cultural/religious resistance.
- Geographical Patterns: Rural areas tend to lag; peripheral blocks may be underserved.
- Barriers to Success:
 - Social stigma around contraception.
 - Gender preference (son preference).
 - Low male participation.
 - Health worker shortages.

Conclusion:

The state population policies have undergone significant transformation over the decades, from coercive measures to a more holistic and reproductive health-focused approach. While

notable successes have been achieved in reducing fertility rates, improving maternal and child health, and increasing contraceptive use, several challenges persist. Addressing regional disparities, and socio-cultural barriers, and improving access and quality of services are critical for the success of future policies. By focusing on education, gender equality, community engagement, and leveraging technology, India can achieve its population stabilization goals and enhance the quality of life. Muzaffarpur's experience demonstrates the effectiveness of integrating community empowerment, male involvement, and accessible healthcare services in population control efforts. The district's initiatives have led to increased awareness and adoption of family planning methods, improved healthcare access, and enhanced women's roles in economic and decision-making processes. These outcomes align with Bihar's broader strategy of promoting sustainable population growth through inclusive and community-centred approaches. Bihar's population control policy centres on education, community involvement, and gender equality, steering clear of coercive laws. While the state continues to explore innovative approaches, it remains committed to strategies that respect individual rights and promote sustainable demographic changes.

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Role of Information and Communication Technologies (ICTs) in Rural Development

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Abstract

Information and communication technologies (ICTs) refer to technologies that provide access to information through telecommunication. It is similar to information technology (IT) but focuses primarily on communication technologies which include the internet, wireless networks; cell phone and other communication technologies have created a “global village” in which people can communicate with others across the world. For this reason, ICTs after studied in the context of how modern communication technologies affect society. Several initiatives way in India to demonstrate the significant benefits of ICTs for rural populations. The ICTs are expected to exert positive inference on Education, Health, Employment and Agriculture which will have impact on Socio-economic aspects of rural poverty. Information and communication technologies (ICTs) are crucial in improving access to health and education services and creating new sources of income and employment for the poor section of society. At present, the majority of applications and systems on climate change issues within the agricultural sector are related to scenario development, impact assessment and adaptation planning. Information is vital to tackle climate change effect for this reason, a shift is needed in the agriculture sector to disseminate appropriate knowledge at the right time to the ones who are at the frontline in the battle the farmers, in both developed and developing countries. Knowledge transfer should take into account farmers’ point of view, with the aim of building on their knowledge and capitalize on it. The decreasing cost of hardware, increase in reach of communication network and availability of the same at district and below district level is open –up huge potential for agricultural scientists and extension worker to reach the farming community in more focus ,precise and specific manner.

Keywords:- ICT, Farming community, Employment, Income, Farmers.

Introduction

Strengthening, Modernisation and development of rural India is a crucial question, today. If rural economy can not be upgraded as required, the upgradation of whole country has no meaning. Prime Minister Shri Narandra Modi has called a social mission with a vision of poverty less India till 2030. But, to save nearly 8.35 crore families from the demon of poverty is a difficult task to handle. Prime Minister has initiated to take necessary help of information technology in this task. The rapid development of agricultural and rural areas can be sustained with the reach of information in remote villages and towns of the country through information technology. Without the sustainable development of remote rural areas, the socio-economic development of the country is impossible. In today’s world, information technology is being used in a easy manner in every area of human life. This technology is

playing a chief role in the development and scope of education, health, infrastructure, trade, industry, commerce and marketing services etc. In this way, information technology revolution has transformed the vision, understanding and status of human life. The commerce and trade activities are the one where information technology has contributed a lot. Information technology has helped to diversify the localised trade and commerce beyond the boundaries in the shape of e-commerce. Financial literacy and Financial inclusion are another big hurdles of developmental pursuits of Indian economy.

Information technology, hereto, has played a catalytic role in bringing more population under the banner of financial literacy as well as financial inclusion. In the areas of education, information technology, again played a marvelous role as it made the access easy and simply. Massive Open Online Courses (MOOCs), e-pathshala and other platforms are providing easy patterns to educate remote and geographically weak area masses, too.

This way, by the implementation of information technology in such crucial areas where the development was stagnant, the condition of Indian Villages has improved over the years. Not alone, the inclusive development is initiated and achieved but also the progress and failure report has also started to reach government in due course of time. Therefore, a lot of wrong assumptions about rural life has started to improvise. New generation of employment, easy education, speedy infrastructural development, change in market, agro-innovations, decrease in corruption, prosperous rural life and other such changes have come due to information technology. These change not only upgraded the life urban but also the life rural areas.

Rural Areas in India need development more significantly rather than urban areas. Because, any plan or policy without the upgradation of rural areas is absolutely null and void. Government schemes such as Deendayal Upadhyaya Gram Jyoti Yojana (for rural electrification), Pradhan Mantri Gram Sadak Yojana, Urban Mission are focused on rural development. Effective implementation of these schemes would depend on the efficiency of our administrative machinery at ground level, but one more factor that can make the government efforts is availability of right technology for rural needs. So, the present scenario forced the authors to conduct a research on “Role of Information Technology in the rural development of Bihar.”

ICTs ‘as a range of electronic technologies which when converged in new configurations are flexible, adaptable, enabling and capable of transforming organisations and redefining social relations’ (Michiels and Van Crowder, 2001). The role of ICT is catalytic in the complex task of poverty reduction by leveraging the effects on earnings opportunities on educational and health services, on good governance and on promoting democracy. Since information exchange is part of nearly every element of the economy, the impact of improvements in the capacity for information exchange will depend critically on how the rest of the economy functions. This suggests the centrality of a holistic approach in evaluating the impact of ICT. For example, the impact of improved ICT access on farm earnings through increased knowledge of market prices will be muted if there are no roads to carry crops to markets, or there are no markets because of an unreformed agricultural sector (World Bank 2001). ICT can strengthen the role of each governance pillar in rural development and poverty reduction. It can facilitate speedy, transparent, accountable, efficient and effective interaction between the public, citizens, business and other agencies. This not only promotes better administration and better business environment, but also saves time and money in transactions costs of

government operations. In the rural context, development involves use of physical, financial and human resources for economic growth and social development of the rural economies. Information and communication activities are a fundamental element of any rural development activity. Rural areas are often characterised as information-poor and information provision has always been a central component of rural development initiatives.

Objectives of the study:

This article focuses on the role of information technology in rural development in India. Its main aim are:-

- To study the role of information technology in agricultural development.
- To study the role of information technology in animal and dairy development
- To study the role of information technology in rural people welfare.
- To study the role of information technology in rural educational development
- To study the role of information technology in rural health-issues development

Methodology:

The present paper is based on secondary data as an empirical study. The secondary data is collected from websites, various national and international journals, articles, publications, conference papers, reports.

Review of literature :

Information technology industry is one of the most important subjects of the new India. It has created a last longing impact on the development and other aspects of growth. A brief and latest review of available literature is executed here to know, to define and to explain different aspects of present research subject i.e., role of information technology in rural development. It's main purpose is to fill the gap in research by following and quoting the methods, objectives and limitations of available empirical research studies. Therefore, keeping in mind the main subject of this research work, the related literature is reviewed as under-

Atul D et.al. (2016) conveyed that Information and communication Technology (ICT) is the combination of three magic revolutionary words, 'Information', 'Communication' and 'Technology'. 'Information' is disseminating and promoted using 'Communication' and transmitted through 'Technology'.

Dwarka Nath, H.D. (2013) says that One of the major problems facing our country today is the continued migration of people from rural to urban areas which is essentially a reflection of the lack of opportunities in the villages. Unemployment and poverty continues to plague the Indian economy despite almost half a country of planned development.

Patel, Amrit (2014) is of the view that with the process of liberalization, privatization and globalization, India's economy has been witnessing metamorphic transformation.

Singh, K.M. & Singh, Pushpa (2018) write in their paper that the National Alliance for Mission 2007 and the Common Service Centre Scheme to establish telecenters country-wide in India are clear examples of the government's dedication to enhance rural access.

ICT and Agriculture

The vast majority of poor people lives in rural areas and derives their livelihoods directly or indirectly from agriculture. ICTs can deliver useful information to farmers about agriculture like crop care and animal husbandry, fertilizer and feedstock inputs, pest control,

seed sourcing and market prices. ICT can act as an accelerating force behind the productivity of Indian agricultural markets. Knowledge is a useful resource and backed by adequate technological infrastructure and appropriate strategies, it can become a transformational factor for overall development of agricultural markets. Agricultural extension is an essential mechanism for delivery of knowledge and advice as an input for modern farming. The need is of a shift of focus from delivery of technology to delivery of knowledge and information. This is possible with the use of Information and communication technologies which can make agricultural extension a more diversified, knowledge driven system for meeting on demand farmers information needs.

Market Information:

Market information including price updates of agricultural commodities of surrounding districts on a daily basis. For farmers, the price updates of markets outside their villages have a higher priority so that they can compare the prices and choose to sell at the appropriate place. Awareness of up-to-date market information on prices for commodities, inputs and consumer trends can improve farmers livelihoods substantially and have a dramatic impact on their negotiating position.

Enhancing Agricultural Production

Increasing the efficiency, productivity and sustainability of small scale farms is an area where ICT can make a significant contribution. Farming involves risks and uncertainties, with farmers facing many threats from poor soils, drought, erosion and pests.

ICT For Education:

Moreover, appropriate use of ICTs in the classroom fosters critical, integrative and contextual teaching and learning; develops information literacy (the ability to locate, evaluate and use information). Thus, it improves the overall efficiency of the delivery of education in schools and educational management institutions at the national, state/provincial and community level. The use of ICTs in education aims to improve the quality of teaching and learning as well as democratize the access to education.

ICT For Economic Development:

Information and Communication Technology has a vital role in connecting the rural community to outside world for exchange of information, a basic necessity for economic development. Effective use of ICT can demolish geographical boundaries and can bring rural communities closer to global economic systems and be of meaningful help to the underprivileged.

Employment Opportunities:

Poor people in rural localities have lack of opportunities for employment because they often do not have access to information about them. One use of ICTs is to provide on-line services for job placement through electronic labour exchanges in public employment service or other placement agencies.

ICT and Health

Health care is one of the most promising areas for poverty alleviation. ICTs are being used in India to facilitate remote consultation, diagnosis and treatment. Delivering health

care with ICTs enables health care professionals and institutions to address the critical medical needs of rural communities, especially those in remote locations and those that lack qualified medical personnel and services.

ICT Empowering Rural Life:

The most important role of ICT in empowerment is providing the accurate and timely information with appropriate quality and cost. In addition to this rural communities benefit from better access to credit and rural banking facilities. ICTs play a vital role in connecting the rural community to outside world for exchange of information. Proper use of ICTs can help in bringing rural community closer to global economic systems.

Direct and Indirect Benefits of ICT's in Rural Areas:

In modern context, efficient application of ICT's has an impact on rural society's socio economic ground either directly or indirectly. ICT infrastructure benefits rural societies at the household and institutional level. For instance, market and health information, informal knowledge and weather forecast are among the direct benefits believed to be obtained. Similarly, intensive agricultural research and development, administrative efficiency, training and experience sharing by teachers and health professionals, e-health services are among the indirect benefits accrued for rural households.

CONCLUSION:

Thus use of ICT tools help in strengthening social networks, empowerment and participation, as well as fostering productive processes at the local level through the provision of employment and skill. ICT can contribute to poverty reduction and rural development if it is tailored to the needs of the poor and if it is used in the right way for right purposes and complemented with required reforms.

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East Punjab Politics (1947-1950) Through Sardar Patel's Correspondence

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Abstract-

Sardar Patel's correspondence from 1947–1950, published in several volumes, provides important information about the turbulent politics of East Punjab. Its focus is on the immediate aftermath of Partition, the refugee crisis, the consolidation of the new administration, and the management of regional political conflicts. This correspondence reveals that Sardar Patel, as Deputy Prime Minister and Home Minister of India, played a central role in managing the complex challenges facing the newly formed state of East Punjab. This period was marked by communal violence during and after Partition. Patel's correspondence reveals his efforts to establish peace, order and guarantee for the safety of minorities in which he assured the community leaders that the government will take strict action against any failure to do so. This paper analyses the politics of East Punjab (1947-1950) through the correspondence of Sardar Patel.

Key Words: East Punjab, Partition, Politics, Sardar Patel.

The East Punjab government was organized with a temporary capital at Simla. Sir Chandu Lal Trivedi was appointed as Governor and Gopi Chand Bhargava elected as Chief Minister by the legislators who came over to the Indian side.¹ Initially the Punjab Legislative Assembly had a total of forty eight members; in 1948, it increased to seventy nine with the return of other members who migrated to India post partition and rose to one twenty six in the first legislative assembly elections in 1951.² The Minister to figure prominently in the early months of Independence was the Home Minister, Sardar Swaran Singh, who had been elected to the Punjab Assembly as an Akali candidate in 1946.³

The Congress became the governing party immediately after partition. The Akali legislators in the Punjab Assembly joined the Congress party. The Akali Dal had two main political goals after Independence one proximate and the other more long-term. The Akali Dal's immediate goal was to extract maximum protection and benefits for the Sikh community from the central government, and its eventual goal was to try to form a Sikh-majority state in north India. For achieving its immediate goal, the Akali Dal initially adopted an "infiltrational" strategy, whereas an "agitational" approach was preferred for its long-term goal.⁴

The Akalis as a group in the Congress as well as the Congress party were divided. The two factions of the Akali Dal were led by Giani Kartar Singh and Jathedar Udham Singh Nagoke. The group led by Nagoke extended its support to the Chief Minister, Dr Gopi Chand Bhargava, which annoyed a section of the Congress who felt that this would affect the secular character of the Congress. On the other hand, the Akali Dal tried to extract maximum

benefits from the Congress disunity. The Akali Dal was not yet a well organised political party and was trying to make a place in the politics of the country. It lacked coherence in its policies and programmes. Finding it difficult to ride over the communal forces in the province, the Congress government agreed to ally with the Akalis and banned the Rashtriya Swayamsevak Sangh (RSS). Akali leaders directed their representatives in Punjab Legislature to resign from the Akali Dal and join the Congress party. Gopi Chand Bhargava was elected as Punjab Congress leader. On 11 March 1949, Sardar Patel sent congratulatory message to Bhargava on his unanimous election as leader of the Congress Legislative Party.⁵ It was 'a happy augury for unity and cohesion in future'. Sardar Patel assured Bhargava of 'our best wishes for success in justifying confidence reposed in you'. Sardar Patel stressed that East Punjab had to be rebuilt and foundations of its structure to be well and truly laid.⁶ On 15 March 1949, a group of Akali legislators joined Congress.⁷ This process strengthened the Congress base among the peasantry and other rural classes. As the Sikh peasantry formed nearly two thirds of the Sikh population concentrated in a compact area of the central Punjab plains, this led to the rise of peasant leaders.⁸

This arrangement worked well for some time, till the internal differences in the Congress and the cliques raised their heads once again having an adverse effect on state politics and administration. Jagat Narain, Minister for Education, Health and Transport, deplored this tendency and remarked if "one set of Congress workers complained against an officer and demanded his removal another set supported him and requested his retention... Sometimes, Congress workers who originally complained against an officer, sought later that he should be excused and protected."⁹ In the wake of strong resistance to the Bhargava Ministry in the Congress, the Akalis switched their allegiance to the Bhim Sen Sachar led group.¹⁰ Gopi Chand Bhargava informed Sardar Patel about Sachar group and Giani group gave notice of no confidence motion on April 4, 1949.¹¹ Jawaharlal Nehru expressed anxiety to Baldev Singh on the issue of two rival groups in Punjab politics. He advised Baldev Singh to keep away from Punjab politics.¹²

The Congress now selected Bhim Sen Sachar for the office of Chief Minister of Punjab. He took oath on 13 April, 1949 and served till 18 October, 1949. Chandu Lal Trivedi informed Jawaharlal Nehru that Bhim Sen Sachar added four more deputy ministers in the cabinet: Pandit Shri Ram Sharma, Sardar Narotam Singh, Sardar Dalip Singh Kang, Chaudhary Kartar Singh and Sardar Ajit Singh. Sardar Patel believed that Sardar Ajit Singh and Chaudhary Kartar Singh did not have good reputation. Both of them had corruption complaints in near past.¹³

On 30 March, 1949, Gopi Chand Bhargava informed Sardar Patel that the Congress Legislative Party expected all groups to be represented in the Cabinet. Therefore, reshuffling was necessary. He proposed to do so in a day or two, selecting members from all groups who could work as a team. He hoped that the Parliamentary Board would have no objection.¹⁴ Only a few days later, however, the Sachar group and the Giani group gave notice of no-confidence motion, and a meeting had to be called within forty-eight hours. Bhargava removed Giani Kartar Singh from the Cabinet on 5 April 1949. When the meeting of the Party was held on the following day, Bhim Sen Sachar was elected leader of the Congress Assembly Party.¹⁵

On 11 April 1949, Sardar Patel sent to Bhim Sen Sachar a copy of his letter to Bhargava with regard to the speeches delivered by Giani Kartar Singh on the issue of formation of

linguistic state. His denial of having said anything of the kind alleged was not acceptable. On Sardar Patel's visit to Ambala, Giani Kartar Singh did not meet him when the whole Ministry was there. Apart from any other consideration, these lapses made Giani Kartar Singh entirely unsuitable for inclusion in the Ministry. Sardar Patel was strongly of the opinion that he should be excluded.¹⁶ Bhim Sen Sachar appeared to have been influenced by Sardar Baldev Singh. Jawaharlal Nehru wrote to Baldev Singh on 14 April, it was not desirable on his part to influence the decisions of a Minister in a state. In the confused state of affairs existing in East Punjab, such interference added to more confusion. Jawaharlal Nehru further added that even in the developments leading to Bhargava's resignation, Baldev Singh appeared to have taken active part in East Punjab politics. According to him it was constitutionally improper and practically unwise. The Central Ministers should keep away from provincial politics and keep their interest confined to their official work.¹⁷

Bhim Sen Sachar and Jawaharlal Nehru had a very lengthy correspondence regarding language issue and adequate representation for Sikhs in services. Nehru gave some instructions while framing the language in schools in primary education.¹⁸ The Sachar Formula came into existence on 2 October, 1949. It was signed by Bhim Sem Sachar (Chief Minister), Gopi Chand Bhargava on the one side and Giani Kartar Singh (SAD) and Sardar Ujjal Singh representing the other Sikhs. It was duly approved by Jawaharlal Nehru and Sardar Patel.

Sachar Formula held substantial place in Akali demands for the division of Punjab on language basis. This Formula was created with the intention of resolving the issue of the medium of instruction in schools. Under the Sachar Formula the Punjab was demarcated into three areas, the Punjabi-speaking the Hindi-speaking, and bilingual. The first consisted of six districts (Amritsar, Jullundar, Gurdaspur, Ferozepur, Ludhiana, Hoshiarpur) and two tehsils of Ambala (Rupar and Kharar, excluding Chandigarh). The Hindi-speaking area consisted of five districts (Rohtak, Gurgaon, Karnal, Kangra and Hisar except Sirsa tehsil) and two tehsils of Ambala (Jagadhari and Naraingarh). The remaining areas Simla, Ambala, Chandigarh, and Sirsa, were declared bilingual.

It stipulated that Hindi in Devnagri script and Punjabi in Gurmukhi script shall serve as the native tongues of Punjabi and Hindi speaking regions, respectively. In Punjabi speaking regions, upto the High school levels, Hindi would be served as a required subject beginning in the fourth grade. In the regions where Hindi was spoken, the opposite arrangements were to be used. 'Sachar Formula' holds a special place in the formation of Punjabi Suba.

Bhim Sen Sachar remained Chief Minister only from 13 April, 1949 to 18 October, 1949. In a letter to Sardar Patel, Jawaharlal Nehru discussed the distressed state of affairs in East Punjab. He wrote, "East Punjab has been shaken up by stories of corruption and black-marketing and there was general appreciation that some steps were being taken up by government to proceed against those who were found to be indulging in offences of this kind."¹⁹ Sardar Patel replied that Bhim Sen Sachar's low esteem and conflicts and dissension within Congress party was responsible to make the East Punjab political situation denigrated. He wrote that Sachar had upset the party position so completely as to reduce his own following to a bare handful." After Sachar's resignation the election of Party leader was held. Gopi Chand was elected by fifty two votes against nine.²⁰

Gopi Chand Bhargava again became the Chief Minister of Punjab on 18 October, 1949. In order to revive the Akali party on independent lines the Akali officially broke their pact

with the Congress in 1950 and directed its members in the legislature to resign from the Congress. In one of his letters to Sardar Patel, Jawaharlal Nehru observed that the Akali party is a most unreliable companion.²¹

The resignation call of the Akali party was responded only by one out of 22 Akali Legislatures. Giani Kartar Singh, an Akali leader who was members of the Bhargava ministry became so influential that instead of associating with the ministry, he became its directing force. Consequently strong opposition developed in the Congress party against the Bhargava Ministry. Before the Akalis could make another manoeuvre, the central Congress leadership directed Bhargava to resign. The resignation of Bhargava was followed by the proclamation of President's rule in June 1951 that continued till the first General Elections.

Conclusion:

The correspondence reveals how the central government, primarily through Patel's ministry, guided the provinces in the early years of Independence. He worked on issues such as communist activities in neighbouring areas and ensuring deployment of Indian Army brigades in sensitive areas to maintain security. The published volumes of Sardar Patel's Correspondence, 1945-50 serve as primary source study material for historians and researchers studying the tumultuous period of nation-building and post-Partition politics in East Punjab and India as a whole. The correspondence details the difficulties faced in establishing a functional provincial government and bureaucracy after the division of assets and personnel with Pakistan. Patel worked to ensure the loyalty and efficiency of existing Indian Civil Service officers, to differentiate between British and Indian officers, and to ensure their commitment to serving Independent India. Sardar Patel's work in East Punjab was crucial in integrating the divided province into the new Indian Union and developing a sense of national identity among its diverse population. Sardar was a person who knew his mind, and concentrated on the vital issues before the country and the congress, of which he was the organizational head. He never created unnecessary difficulties over matters of trifling importance.

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- ³ Raghuvendra Tanwar, *Reporting the Partition of Punjab 1947: Press, Public and Other Opinions*, Manohar Publishers, New Delhi, 2006, pp. 465-468.
- ⁴ Jugdeep S. Chima, *The Sikh Separatist Insurgency in India*, Sage Publication, New Delhi, 2010, p. 30.
- ⁵ Sardar Patel to Gopi Chand Bhargava, 11 March, 1949, Durga Das (ed.), *Sardar Patel's Correspondence 1945 - 50*, Vol. 9, p. 123.
- ⁶ *Ibid.*
- ⁷ Sardar Patel stood against the inclusion of Giani Kartar Singh in the East Punjab Cabinet as he was one of the members of the deputation who pleaded for separate state for the Sikhs at the

time of partition. Many leaders from various districts of the then Eastern Punjab emerged on the political scene after the partition like Partap Singh Kairon, Swaran Singh and Gian Singh Rarewala.

- ⁸ Such as Partap Singh Kairon, Giani Kartar Singh and Swaran Singh.
- ⁹ *The Tribune*, 4 August, 1953.
- ¹⁰ J.S. Grewal, *The New Cambridge History of India*, Cambridge University Press, 1991, p. 193.
- ¹¹ Gopi Chand Bhargava to Sardar Patel, 5 April 1949, *Sardar Patel's Correspondence 1945-50*, Vol. 9, p. 124.
- ¹² Jawaharlal Nehru to Baldev Singh, 14 April, 1949, *Ibid.*, pp.126 -127.
- ¹³ C.L. Trivedi to Jawaharlal Nehru, 14 April 1949, *Ibid.*, pp.125-26.
- ¹⁴ *Ibid.*, p. 124.
- ¹⁵ Sardar Patel to Gopi Chand Bhargava 5 April, 1949, *Ibid.*
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- ¹⁷ Jawaharlal Nehru to Baldev Singh, 14 April, 1949, *Ibid.*, pp. 126-27.
- ¹⁸ Bhim Sen Sachar to Jawaharlal Nehru, 9 July, 1949, *Ibid.*, 143-144.
- ¹⁹ Jawaharlal Nehru to Sardar Patel, 19 November, 1949, *Ibid.*, pp. 168-170.
- ²⁰ Sardar Patel to Jawaharlal Nehru, 5 December, 1949, *Ibid.*, pp. 170-171.
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How Sikhism Plays a Role in Serving Society

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Abstract:

There is not denying the fact that Sikhism plays a central and active role in serving society through the core principles of *seva* (selfless service) and *sarbat da bhala* (the welfare of all). This commitment is put into practice daily through various institutions and actions aimed at promoting equality and helping those in need, without discrimination of any kind. Sikhism mandates a significant and active role in serving society as a core tenet of the faith, rooted in the principle of *seva* (selfless service). This service, performed without expectation of reward or personal gain, is considered essential for spiritual growth and is a way of connecting with God through serving humanity. This research paper shows how Sikhism plays an important role in serving the society.

Key Words: Religion, Sikhism, Sewa.

Introduction:

In Hinduism and Sikhism, *seva* is the concept of selfless service performed without expectation of reward or reward. Such service may be performed for the benefit of other human beings or society. *Seva* means “service”. The emergence of Sikhism in the Indian subcontinent unfolded against a backdrop of profound social and religious transformation. It was a time of tumultuous change, where the prevailing order of society was marked by rigid hierarchies, entrenched divisions, and spiritual disillusionment. Guru Nanak Dev Ji emerged as a beacon of light in this tumultuous era, offering a message of hope, unity, and spiritual renewal. The 15th century was characterized by a complex tapestry of socio-political dynamics in the Indian subcontinent. The region was deeply entrenched in a feudal system, where societal structures were rigidly stratified based on caste, creed, and social status. This hierarchical framework perpetuated inequality and oppression, relegating vast segments of society to the margins and denying them basic dignity and rights. Amidst this backdrop of social inequity, religious dogma, and cultural decay, Guru Nanak Dev Ji rose as a transformative figure, challenging the status quo with his revolutionary teachings.

Sikhism’s role and relevance lie in its timeless message of one God, universal equality, selfless service (*Seva*), and ethical living, offering a path to spiritual fulfillment through honest work, community, and fighting injustice, making it highly relevant today for promoting peace, social justice, and humanitarianism beyond caste, creed, or gender. It balances deep inner spirituality with active engagement in the world, challenging societal divisions and inspiring individuals to live purposeful, compassionate lives centered on truth (*Satya*) and justice.

Sewa is based on the teachings found within the Guru Sri Granth Sahib that Sikhs should strive to be less self-centred and more God-centred. They should live their lives in

the selfless service of others (*sewa*). Through *sewa*, a Sikh destroys any egoistic tendencies and develops humility and compassion for others. Sikh participation in life must be morally based, of which *sewa* is an expression. It is the inseparable link between belief and conduct. *Sewa* is an expression of the principle of no ill will against any person including adversaries. It includes the principle of working towards the common good for all. It is also an expression of devotion to God. *Sewa* recognises no barriers of religion, caste or race. *Sewa* expresses, in practical terms, the relationship between Sikh belief and practice. It expresses Sikh beliefs in the oneness of humanity which is basic to the Sikh world-view. This can only be created by selfless service to others, with honour and devotion. It represents Sikh belief that serving other people whoever they are is a way of serving God.

Sewa reflects the principle of *Sarbat da bhala* - working for the prosperity of everyone. *Sarbat da bhala* is a Sikh religious and social goal of which *sewa* is an expression. There are three different parts of *sewa*, all of which have material or practical value: physical service, e.g. working in the *langar* - mental service, e.g. studying the *Guru Granth Sahib*, material service to other people, e.g. giving money to charities. *Sewa* is the basis and expression of the Sikh belief in equality and, as such, has material value in its implications for the community.

Sewa gives Sikhism its strength in faith and community life. It is the glue that binds the Sikh community together and makes it very valuable in a material sense. *Sewa* is a vital part of a Sikh's spiritual life and leads to spiritual liberation. It is a way of showing spiritual devotion to God. *Sewa* fulfils spiritual and material needs within the Sikh community. *Sewa* is the means of eliminating ego, selfish tendencies and overcoming pride, all of which are spiritual goals for Sikhs.

The Sikh community promotes love, equality, and acceptance for all. Sikh scriptures promote the ideals of equality and freedom as a path to peace and prosperity. Sikhs also stand against injustice and inequality wherever they exist. Additionally, the ethos of Sikhism, rooted in the principles of equality, compassion, and universal brotherhood, has fostered a culture of solidarity and mutual respect between Sikh and Hindu communities. Sikh *gurdwaras* (places of worship) have historically served as sanctuaries for Hindus in times of crisis, offering shelter, sustenance, and solace to those in need, irrespective of their religious affiliation. These acts of benevolence and solidarity underscore the profound bond of camaraderie and empathy between Sikh and Hindu communities, reflecting the shared values of compassion, justice, and humanity at the heart of India's dharmic civilization.

Key ways Sikhism Serves Society:

- **Langar (Free Community Kitchen)** The institution of *langar*, found in every *Gurdwara* (Sikh place of worship), offers free, fresh vegetarian meals to anyone, regardless of their background, religion, or social status. Everyone sits together on the floor to eat, symbolizing the equality of all people and helping to break down social barriers like the caste system. Volunteers (*sewadars*) from the community prepare and serve the food as an act of faith.
- **Seva (Selfless Service)** *Seva* is a fundamental aspect of the Sikh faith, involving voluntary service without any expectation of reward. This includes physical service (like cooking and cleaning at the *Gurdwara*), mental service (offering one's skills or empathy), and material service (donating to charity). Sikhs are encouraged to perform *seva* not just in *Gurdwaras* but also in the wider community, such as helping a neighbor, volunteering at local charities, or participating in community clean-up projects.

- Promoting Equality and Justice Sikh teachings explicitly reject all social inequalities based on caste, race, gender, or social status. The Gurus challenged the oppressive systems of their time and advocated for the inherent worth and dignity of all human beings. This is reflected in the practice of giving all male Sikhs the surname “Singh” (lion) and females “Kaur” (princess) to signify that all are equally royal and noble.
- Humanitarian Aid and Disaster Relief Sikh organizations, such as Khalsa Aid and United Sikhs, provide humanitarian assistance and disaster relief efforts globally. From providing food and shelter during natural disasters (like hurricanes or earthquakes) to offering essential supplies like oxygen to victims during the COVID-19 pandemic, the community consistently acts as first responders to human suffering.
- Healthcare and Education Historically, Sikh institutions have played a significant role in social development by establishing schools to provide education and operating makeshift hospitals or medical centers, especially in times of crisis. The 8th Guru, Guru Harkishan, was known for his compassion in caring for victims of smallpox.
- Advocacy and Protection of the Oppressed The Sikh faith has a history of standing up for justice and defending the vulnerable. The 9th Guru, Guru Tegh Bahadur, was martyred for defending the religious freedom of Hindus who were being forced to convert, a powerful example of the commitment to protecting the rights of all people, even those of different faiths. Initiated Sikhs carry the *Kirpan* (a small sword) as a reminder of their duty to act compassionately and defend the honor of all beings and fight against injustice.

Sikhs believe that you should live and work honestly. Sikhism also believes that you should share your time, money, and compassion with others. By doing this and being a good person, Sikhs remember God and also remember what kind of person they should be.

Conclusion:

Gurdwaras have come to represent the religious identity of the Sikhs and are associated intimately with their spiritual and social practices. They are the very nucleus of the Sikh community and serve as a multi-purpose institution. Sikhs believe that in order to make spiritual progress, both prayer and service must go hand in hand. The Gurdwara is a place where both of these things happen and where Sikhs can come together to learn practice these things in community with each other. Gurdwaras have come to represent the religious identity of the Sikhs and are associated intimately with their spiritual and social practices.

They are the very nucleus of the Sikh community and serve as a multi-purpose institution. Sikhs believe that in order to make spiritual progress, both prayer and service must go hand in hand. The Gurdwara is a place where both of these things happen and where Sikhs can come together to learn practice these things in community with each other. In essence, for a Sikh, spiritual life and worldly responsibilities are intertwined, and an active, compassionate life of service is considered the highest form of living. It demonstrates belief in equality and the importance of all people. By serving others, Sikhs show humility. This is because serving others shows that Sikhs do not believe they are better than anyone else.

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Articulate System and Climate Crisis: A Critical Review

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Abstract

Activists and world leaders are increasingly calling for bold climate action. However, the proposals remain far from the transformational systemic changes required. While many still deny that a change to the system is necessary, others who call for a change to the system cannot articulate what that change would entail. It is essential that the climate movement identify and promote concrete strategies for change. We identify synergistic propositions linked to ecosocialism and degrowth, describing a set of policies, programs and strategies that have the potential to fairly minimize warming and that could become key demands of climate movement organizations attempting to influence governments in the Global North. Although there are stigmas associated with ecosocialism and degrowth, the strategies described can be promoted without using these terms. Formulating concrete strategies for system change is necessary to challenge the powerful actors and interests that continue to maintain the status quo and our current climate trajectory.

Keywords: Climate; policy; global warming; growing out; ecosocialism; system change

Introduction

With the IPCC (2018) Special Report on 1.5 degrees stating that “rapid and far-reaching” changes are necessary in all aspects of society, calls for system change have been increasing in 2019 and 2020. Rebellion (XR) and Fridays for Future (FFF), initiated by Greta Thunberg, calls for system change were commonly written on protest signs, notably “System Change, not Climate Change.” In 2021, the IPCC “Code Red for Humanity” report was published. Further intensified calls for systemic change. We agree that systemic change is needed to effectively address the climate crisis, but at least two significant challenges are currently holding back and limiting moving forward with the necessary changes.

First, many environmentalists still deny that system change is necessary, something we have called “ideological denial” elsewhere (Petersen et al., 2020). The environmental movement as a whole remains blind, in a state of “social denial” (Foster, 2015) – denial of the need for systemic change, as well as an inability to imagine or accept the possibility of such change.

This includes those who believe that current and future technological tools will be sufficient to meet climate goals. However, continued faith in technology remains a risky gamble given the lack of evidence that industrial and technological development can be decoupled from carbon emissions at a rate and scale sufficient to meet global targets (Hickel & Kallis, 2019).

Second, within “radical” groups calling for systemic change such as XR and FFF, there remains a wide gap between grievances and dissatisfaction with the current system and any agenda that would lead to meaningful change (Kenis & Mathijs, 2014; Stoner & Melathopoulos, 2016). As Spash (2020) explained, these “generalized complaints” about the

failures of the current system remain unspecific, and thus the agenda of climate activists remains “disconnected and incomplete.”

Regarding 30 years of failure to reduce greenhouse gas (GHG) emissions, Stoddard et al. (2021, p. 677) states:

What is strongly evident... is how redirecting the rising emission trajectory towards decarbonisation rates that are in line with Paris brings to the fore highly challenging questions for the dominant paradigm of “progress.” The almost uncritical pursuit of economic growth, incremental politics and narrow Techno-economic rationality are the basic characteristics of this paradigm. Moreover, worldviews and perspectives that offer alternatives to this very limited path of development have (so far) tended to be marginalized, undermined, or otherwise ignored.

We argue that alternatives to the dominant paradigm of “progress” will remain marginalized and ignored if these alternatives continue to be generic calls for “system change” without any articulation of what this must entail. Many of the dominant climate movement organizations have yet to articulate concrete policies, programs and strategies for system change. For example, XR demands remain “beyond politics” as they call on governments to tell the truth about climate change and act boldly to reduce emissions without endorsing any specific policies or programs. As Spash (2020) has pointed out, these general calls for change and action fail to link to any agenda or program to facilitate change, and they also critically fail to confront the very real political powers that continue to protect the status quo.

These challenges stem in part from society’s inability to understand that different socioeconomic systems exist and can be created through specific strategies. Trapped in “capitalist realism” (Fisher 2009), most people remain blinded to the reality that alternatives exist. But how can society break free from capitalist realism when alternatives are not fully articulated or understood in concrete and tangible ways? The call for ‘system change’ needs to be louder, but also much more specific. Understanding the specific structural policies and programs to create a new system remains a crucial but missing element in the climate movement.

In this article, we examine what specific policies and programs might be associated with the type of system change needed to minimize global warming. Like Frase (2011), we are interested in what futures might emerge from the current order, although we have focused on alternative near-futures that are explicitly proposed as positive pathways to addressing the climate crisis. Since it represents the course we are currently on, for comparative purposes we also include a discussion of a “techno-capitalist” system that resembles the current system with its increasing attempts to solve the climate crisis with technology and its continued pro-growth capitalist logic.

Risky Gambling: Our Current Trajectory

The most likely policies to be adopted to address climate change, given the current policy trajectory, will include further investment in renewable energy, energy efficiency and technological development to mitigate climate change while continuing to increase levels of production and consumption (per capita). However, there is a widely recognized positive correlation between rising production levels and greenhouse gas emissions. This relationship is often seen as unproblematic due to the widespread belief that technology can be successfully

used to “unbundle” this relationship. The idea of growth with reduced environmental impacts is called “green growth.” We believe that technology is an essential part of climate mitigation, but in a growing economy, mitigation through technology will remain a limited and partial solution that cannot fairly minimize warming. .

As green growth relies heavily on technological fixes to maintain economic growth, it is one manifestation of “techno-capitalism” (Kellner, 2002). Capitalism is a growth-dependent system of ever-expanding production to increase capital accumulation, a system that relies on economic growth (Wallerstein, 1979; Kallis, 2018). Kellner (2002) uses the term technocapitalism to describe capitalism’s increasing reliance on science, computers, automation, and information technology to accumulate capital, thereby enhancing growth. We add here that techno-capitalism also increasingly relies on the development and marketing of technology as a solution to the contradictions caused by its own internal dynamics. These technological solutions must fit within the constraints of the capitalist system and support, or at least not hinder, economic growth. Promoting technological solutions to problems caused by social forces is a strategy of social reproduction consistent with capitalist realism.

Proponents of technological solutions to climate change rely on the principles of green growth and decoupling, arguing that through energy inventions, efficiency gains, and other technological breakthroughs, we can mitigate climate change. First, although the prevailing view is that the growth of alternative energy sources is replacing fossil fuels and creating an energy transition, renewables only marginally replace fossil fuels and are generally used as a supplement to fossil fuels (York, 2012; York & Bell, 2019). To maximize the potential of renewables to reduce carbon emissions, fossil fuels must be phased out in a targeted manner as the renewables sector expands. Second, efficiency gains continue to be partially and in some cases largely offset by increases in energy and resource consumption. Although improvements in efficiency are often assumed to lead to a reduction in overall use, there is a link between increased efficiency and increased consumption (York & McGee, 2016). This phenomenon is often referred to as the Jevons Paradox and also as the “rebound effect”, where the benefits of increased efficiency are partially or fully offset by increased overall utilization (Santarius, 2012). As a result of these trends of increasing levels of energy and material consumption, efficiency gains in many cases fail to translate into lower overall impacts. While renewable energy and energy efficiency are key tools to mitigate climate change, rising levels of material and energy consumption are undermining the potential of these technological tools to reduce overall greenhouse gas emissions.

The viability of the case for green growth requires absolute reductions in emissions despite economic growth (absolute decoupling). While evidence of decoupling depends on what is measured and over what period of time (some trends are temporary), a recent review found that evidence of absolute decoupling of carbon emissions and GDP was identified in 32 production-based emissions countries and 23 countries consumption-based emissions and 14 countries for both production-based and consumption-based emissions – the authors concluded that “[e]ven countries that have achieved absolute decoupling are still adding emissions to the atmosphere, showing the limits of the ‘green growth’ and growth paradigm” (Hubáček et al., 2021). In addition, Haberl et al. (2020) state that while absolute decoupling of emissions based on production and consumption can be found in some cases, it does not occur globally or to the extent required:

We conclude that large rapid absolute reductions in resource use and GHG emissions cannot be achieved with observed decoupling rates, and therefore decoupling must be complemented by sufficiency strategies and rigorous enforcement of absolute reduction targets.

To summarize, “there has never been a global model of absolute decoupling of CO2 from economic growth” (Parrique et al., 2019, p. 24). If economies continue to grow, the likelihood of absolute decoupling occurring at the scale and pace necessary to meet climate goals is very low (Hickel & Kallis, 2019; cf. Anderson & Bows, 2012). It is not that transformations in energy and technology are misguided, but that technological change is unlikely to be sufficient to meet climate goals (Schor & Jorgenson, 2019). Without evidence of the necessary levels of decoupling, this path of resolution remains a high-risk approach that perpetuates current power relations and favors wealth accumulation over well-being.

Alternative Solution: Joint Change of the System

‘Policy should be made on the basis of robust empirical evidence, rather than speculative theoretical possibilities.’ Hickel and Kallis (2019, p. 15)

We now draw on both ecosocialists and degrowthers to identify a set of structural policies, programs, and key levers for systemic change that evidence suggests are likely to effectively and equitably minimize global warming. This is not intended to be a quantitative or systematic review of the literature, but a discussion of the clear overlaps and synergies that have emerged from the various strengths of scientific analysis. Our discussion draws primarily from the recent ecosocialism or degrowth literature that focuses on policies, programs and initiatives to mitigate the climate crisis in the Global North. Discussions too often remain isolated based on different disciplinary and theoretical origins, and much can be gained not only by merging ideas and strategies associated with degrowth and ecosocialism, but also by bringing these ideas into social movements that seek emancipatory transformation (Liegey et al., 2020). Here, we promote understanding and discussion of these key strategies by (1) discussing how they have been articulated in the degrowth and ecosocialist literature, and (2) translating this into concrete strategies that the climate movement might pursue. We first briefly introduce ecosocialism and degrowth, but then focus exclusively on how scholars related to each field have come up with largely complementary and synergistic strategies that could be adopted as key demands to be pursued by the climate movement.

Ecosocialism: Living Together within Ecological Limits

Although there are differences among ecosocialists such as Ted Benton, James O’Connor, Joel Kovel, John Bellamy Foster, Mary Mellor and others (e.g. see White et al., 2017; Foster & Clark, 2020: ch. 8), two common elements running through ecosocialism include (1) the argument that capitalism is inherently unsustainable and (2) the normative case that socialism would allow society to produce to meet human needs within ecological limits. As an alternative to capitalism’s structural necessity to increase energy and material permeability, ecosocialism has been defined as:

an attempt to provide a radical civilizational alternative to what Marx called the “destructive progress” of capitalism. It promotes an economic policy based on non-monetary and non-economic criteria of social needs and ecological balance. This dialectical synthesis, based on the basic arguments of the ecological movement and the Marxist critique of political economy, is at the same time a critique of “market ecology”, which does not question the

capitalist system, and “productivist socialism”, which ignores the issue of natural limits. [The goals of ecosocialism] require: (a) collective ownership of the means of production (“collective” here means public, cooperative, or community property); (b) democratic planning, which allows society to define the goals of investment and production, and (c) a new technological structure of the productive forces. (Löwy, 2007, p. 294)

In this definition, ecosocialism is a democratic socialism that recognizes natural limits and abandons the vision of socialism as an extension of capitalist productivism. Collective ownership and democratic planning open up the possibility, although they do not guarantee, of an economy based on the production of utility values that meet human needs and promote human flourishing within ecological limits (see Kovel, 2000). The guiding assumption is that democratically controlled non-profit firms will collectively and discursively decide with surrounding communities (Löwy, 2007) what should and should not be produced, better positioned to take into account environmental impacts and social well-being. In addition to democratic planning and collective ownership, ecosocialism also means shorter working hours, a ban on advertising, and a society-wide transition to renewable resources and the phasing out of fossil fuels. These dimensions are returned and expanded below.

Degrowth: Less is More

Degrowth has been gaining more and more attention in recent years. Giorgos Kallis (2017:, p. 10), one of the most vocal proponents of degrowth, defines degrowth as “an equitable reduction of production and consumption that increases human well-being and improves environmental conditions.” Degrowth refers to the reduction of material and energy permeability in the economies of the rich or excessively consuming nations to a steady state of sufficiency while helping nations in the Global South more sustainably achieve a better quality of life (Kallis, 2017). The overall goal of growth is not to reduce GDP; however, the changes required to reduce overall material and energy throughput would contract the economy and reduce GDP (Hickel, 2019). However, a decline in growth is not the same as a recession. The degrowth “hypothesis” posits that well-being and quality of life can improve when overall material and energy permeability is reduced (Kallis, 2018). The basic goal of degrowth is to equitably reduce the total consumption of resources and energy to a sustainable level that provides enough for everyone while remaining within ecological limits. Jason Hickel describes the benefits of the transition from growth in *Less is More* (2020) and argues that we can save the world from environmental crises and improve well-being and quality of life. Others describe growth similarly as a reorientation of priorities from growth to well-being (Paulson et al., 2020). As Paulson (2017) explains:

Degrowth calls us to shift value and desire away from productivist achievement and consumption-based identities toward visions of the good life that is characterized differently among people and ecosystems by health, harmony, pleasure, and vitality.

While degrowth scholars and activists have developed different interpretations of degrowth (Chertkovskaya et al., 2019; Liegey et al., 2020), much of the literature illustrates clear overlapping agendas. For example, Jarvis (2018, p. 7) states that ‘a degrowth perspective can be identified in the literature with respect to four transformations: the expansion of human relations instead of market relations; deepening democracy; defense of ecosystems; and the realization of a more equal global distribution of wealth.’

Gabriel and Bond (2019:, p. 328) identify three primary degrowth agendas:

- (1) reduce the throughput of material and energy,
- (2) emphasize social justice, well-being and inclusion and
- (3) create voluntary democratic channels to participate in decision-making.

Degrowth thrives on a diversity of perspectives and approaches, but core values include “care, cooperation, mutual aid, solidarity, hospitality, autonomy and direct democracy” (Barca, 2019, p. 4). For structural changes at the national and international level, policy proposals aimed at reducing growth have been developed (Cosme et al., 2017). Overall, degrowthers offer a way to stay within global climate goals and increase well-being.

Articulating System Change to Minimize Global Warming

Drawing from degrowth and ecosocialist scholars, we now explore overlapping and synergistic policies and programs that could serve as key levers to minimize global warming and create an alternative system with fairer and more sustainable outcomes. Any viable system alternative in overdeveloped/overconsumed countries must be based on the following assumptions:

- (1) the total permeability of energy and material must decrease,
- (2) permeability is positively correlated with economic growth and probably cannot be greened, and
- (3) capitalism has its own growth engine.

Ecosocialism and degrowth are therefore perhaps the two most suitable systemic alternatives to solving the ecological crisis. After briefly discussing the tensions and overlaps between ecosocialism and degrowth, we highlight specific, concrete policies advocated by both agendas that we argue should be adopted as key demands by groups like XR and FFF.

There has been a lively debate between ecosocialists and degrowthers for about a decade (Andreucci & Engel-Di Mauro, 2019); however, it has largely focused on differences rather than commonalities. A common criticism of degrowth from a Marxist perspective is that degrowth has not developed a coherent theory of capitalism and therefore cannot develop an adequate political response to its inherent growth engine (e.g. Foster, 2011). Some ecosocialists want to retain terms like “growth” and “development”, arguing that the meaning of these terms would be qualitatively transformed in an ecosocialist society. Kallis (2019) argues that degrowth is inherently incompatible with capitalism and any socialist alternative should seek to stifle rather than promote productivism.

Despite these debates, we agree with Andreucci and Engel-Di Mauro (2019) that there are important and fruitful overlaps between degrowth and ecosocialism. The term “degrowth” (*décroissance*) itself was coined by the proto-ecosocialist André Gorz (Kallis et al., 2015) and for Kallis (2019) degrowth is “socialism without growth” (Andreucci & Engel-Di Mauro, 2019). Further, the basic ecosocialist argument is that the unsustainability of capitalism is due to its inherent engine of growth, and thus either explicitly or implicitly agrees with the degrowth premise that total production and consumption must decline in order to meet ecological goals.

Symbioses between ecosocialism and degrowth can be seen in two specific policy proposals: Richard Smith’s (2019) ecosocialist plan to avoid catastrophic warming and James G. Speth’s (2015; Speth et al., 2018) proposals to address the ecological crisis by achieving a “new political economy. “ The proposals here are useful illustrations, as one uses the terms

“ecosocialism” and “degrowth” (Smith), while the other, which favors democratic control of the economy and reduction of aggregate throughput, avoids using both terms (Speth et al.). Smith (2019) proposes an “emergency plan” designed for the US to stay with 1.5 C warming. The plan consists of four proposals: (1) phase out fossil fuels by nationalizing the fossil fuel industry as well as “downstream” industries and those whose entire existence depends on fossil fuels (e.g. airlines), (2) a guaranteed job program for those out of work, (3) large-scale and rapid national development of renewable energy sources, and (4) phasing out environmentally destructive industrial industry (e.g. arms production, disposable plastics, industrial agriculture, etc.) . Smith sees dependence on capitalist growth as the primary obstacle to avoiding catastrophic warming, and advocates socializing massive corporations over small businesses and family farms. Speth et al. (2018, p. 2) argue, like Smith, that we need “system change” to transition from “our current system of political economy.” They advocate three strategies to begin the transition from current power structures that block climate action. of which overlap with Smith’s emergency plan: (1) buying out fossil fuel companies and phasing out fossil fuel production, (2) transferring energy utilities into public ownership and control, and (3) partnering with “anchor institutions” (public or non-profit institutions who have a long-term stake in communities such as universities and hospitals) to fortify democratically controlled energy networks.

Here we highlight five policies and programs that both degrowthers and ecosocialists support as part of the solution path: (1) economic democracy, (2) reduced working hours, (3) energy democracy/energy cooperatives, (4) advertising restrictions, and (5) nationalization and phase-out of fossil fuel companies. Below we describe each of these strategies and explain why they will be key levers and programs for effective and equitable climate mitigation. We argue that by adopting these strategies as key demands, the climate movement could articulate what “system change” entails and, through this specificity, raise awareness, support, and influence.

1. **Economic Democracy:** Economic democracy refers to “a system of corporate governance in which direct control is redistributed ... out of the hands of capitalists and into the hands of their workers” (Archer, 1995, p. 69). Democratic control of companies makes it possible to solve environmental problems: “If labor were under the control of workers, human labor would be much more likely to be environmentally friendly, because according to the ownership rules of capitalism and the imperative of growth, labor is forced to harm the environment” (Bayon, 2015, p. 191; see also Boillat et al., 2012; Johannisová & Wolf, 2012; Wolff, 2012, pp. 133–134; Gunderson, 2019).

Workplace democracy, or “economic democracy,” is essential to addressing the alien expansion of workers and raising production levels.

Models of economic democracy already exist and include worker control of privately-owned firms, worker control of publicly-owned firms, and worker control of worker-owned firms (e.g. worker-owned cooperatives). Worker decision-making power ranges from workers receiving a notification that a decision is being made to a majority representation in the forum or body that makes decisions (Archer, 1995; Schweickart, 1992; Boillat et al., 2012). In a democratic system, workers would directly participate in decision-making or have elected representatives participate in all decisions that have impacts on workers and the future of the firm. This includes schedules, work speed, allocation of work duties, technologies and tools used, hiring and firing employees, product quality and quantity, profit-distribution, and investment (Schweickart, 1992).

The structure of economic democracy does not necessitate climate mitigation. For example, one of the long-known limitations of worker cooperatives is that they must, if operating in a larger capitalist system, conform to this system's pseudo-natural laws (e.g. Marx, 1981, p. 571). However, democracy in the workplace is a prerequisite to opening up more opportunities for changes in production systems. It can create conditions favorable to new priorities that allow for the shrinking of throughput in a socially just way (e.g. Boillat et al., 2012; Johanisova & Wolf, 2012). As Bayon (2015, p. 191) argues, '[i]f work were under the control of workers, human work would be much more likely to be environmentally friendly.'

1. **Work time reduction (WTR):** WTR is associated with significant reductions in GHG emissions, ecological footprints, and resource use (e.g. Rosnick & Weisbrot, 2006; Knight et al., 2013; Fitzgerald et al., 2015). Additionally, WTR has numerous social benefits such as increased autonomy and lower structural unemployment (Gunderson, 2019). By using productivity gains to increase social and ecological wellbeing rather than increase production, WTR may help address the underlying problem of climate change: capitalism's inherent growth engine (Stoner, 2020). WTR would involve reducing annual working hours to a new standard, without decreases in pay or loss of benefits, and would likely also involve work sharing models. Work sharing allows less hours worked while avoiding unemployment (Schor, 2015). As explained by Pullinger (2014, p. 14) there are multiple avenues for WTR including limiting the number of working hours per week, increasing holidays each year, increasing time for maternity and paternity leave, increasing sick leave, and offering pre-retirement transitions. While there are numerous identified social benefits associated with WTR (Heikkurinen et al., 2019), here we focus on WTR as a climate change mitigation tool, as it is associated with reduced GHG emissions (Knight et al., 2013).

Shorter working hours involve lower rates of production and reduce pressure on resource and energy use. WTR can result in reduced total energy use, as working hours are associated with energy consumption (Fitzgerald et al., 2015). Rosnick and Weisbrot (2006) estimate that if working hours were reduced instead of using productivity gains for increased production, the US would consume 20% less energy. Rosnick (2013: 124) also posits that if we reduce working hours 0.5% annually over the next century we can 'eliminate about one-quarter to one-half, if not more, of any warming that is not already locked in.' In general, because longer working hours are associated with increased carbon emissions, ecological footprints, and energy use, WTR represents a potentially powerful climate change mitigation strategy.

It is important to recognize that WTR does not necessary guarantee reduced carbon emissions because leisure could conceivably be spent doing more environmentally harmful activities like shopping or travel (Knight et al., 2013; Gunderson, 2019). Advertising restrictions (see below) are one way to counteract this possibility and to help encourage low-impact activities. However, with economic democracy and WTR there would likely be more diverse goals, less marketing and advertising, and less pressure on individuals to consume unnecessary goods. More free-time also allows for the self-provisioning activities that are low-impact but do take more time.

2. **Energy democracy/energy cooperatives:** Energy democracy is a three-prong project centered around popular sovereignty over, participatory governance of, and civic ownership of energy systems (Szulecki, 2018). Most fundamentally, energy democracy is a movement to reformulate social structures and consciousness in ways that allow energy to be treated as a commons instead of a commodity (Martinez, 2017). A centerpiece of energy democracy is the expansion of renewable energy cooperatives or community energy projects, like those growing primarily in the EU (e.g. Kunze & Becker, 2015).

Existing energy cooperatives and related community energy projects have been shown to allow for carbon emissions reductions while meeting social needs (Kunze & Becker, 2015).

However, like economic democracy (see above) and fossil fuel nationalization (see below), the collective ownership of energy systems does not guarantee reductions in carbon emissions. As Kunze and Becker (2015) put it, '[i]n contrast to conventional private corporate ownership, public and collective ownership opens up possibilities for the social and ecological transformation that degrowth is calling for, though it does in no way automatically guarantee the implementation of such goals' (Kunze & Becker, 2015, p. 427). Like economic democracy, energy democracy, precisely because it is collectively governed, is more adaptable to goals beyond constant energy increases (Byrne et al., 2009). Energy-democratic models of ownership and decision-making provide the blueprints for how to meet energy needs justly and effectively in a future society in which fossil fuels are almost wholly absent (Gunderson et al., 2018).

3. Regulation of advertising: Restrictions on advertising are essential to reduce the carbon emissions driven by the production/consumption growth engine. Marketing not only restricts human freedom by controlling and dulling consciousness (e.g. Marcuse, 1964), but also contributes to ecological destruction by fueling capitalism's need to produce for the sake of production (e.g. Löwy, 2007, p. 303f). Galbraith (1958) long ago identified how advertising plays a key role in creating desires that consume fuel. Advertising and the media are used to create "false needs" through manipulation (Marcuse, 1964). Debord (1983) called them "pseudo-needs" created specifically to sustain a growing economy. Advertising affects the perception of individuals and their social status and makes them buy products to deal with manufactured dissatisfaction (Horkheimer & Adorno, 1969). Shopping for alternatives and "voting with your dollar" promotes the belief that negative impacts can be mitigated through different purchases, but still encourages overconsumption.
4. Regulation of advertising: Restrictions on advertising are essential to reduce the carbon emissions driven by the production/consumption growth engine. Marketing not only restricts human freedom by controlling and dulling consciousness (e.g. Marcuse, 1964), but also contributes to ecological destruction by fueling capitalism's need to produce for the sake of production (e.g. Löwy, 2007, p. 303f). Galbraith (1958) long ago identified how advertising plays a key role in creating desires that consume fuel. Advertising and the media are used to create "false needs" through manipulation (Marcuse, 1964). Debord (1983) called them "pseudo-needs" created specifically to sustain a growing economy. Advertising affects the perception of individuals and their social status and makes them buy products to deal with manufactured dissatisfaction (Horkheimer & Adorno, 1969). Shopping for alternatives and "voting with your dollar" promotes the belief that negative impacts can be mitigated through different purchases, but still encourages overconsumption.

Banning advertising of harmful or status commodities could go a long way in reducing overconsumption. Other restrictions could include banning advertising in public spaces (Hickel, 2019a) or restricting advertising to only certain formats and media sources. While advertising takes many forms (internet, television, radio, signage, and more), current restrictions on products such as cigarettes show that successfully restricting marketing is possible on a large scale. Advertising restrictions also complement the other propositions discussed above: workplace democracy would likely reduce the need to advertise, and limited advertising would help ensure that increased leisure time due to WTR did not lead to increased levels of consumption.

Advertising regulation can also be a means of challenging capitalist realism. As Serge Latouche (2015, p. 120) has argued, the “condemnation of the aggression of advertising” is the “point of departure” for stepping out of the limited imagination of late capitalist societies. Moreover, Marcuse, 2013, pp. 245–246) similarly stated that “the mere absence of all advertising and all indoctrinating media of information and entertainment would plunge the individual into a traumatic void where he would have the opportunity to think and think, to know himself... and his society .”

5. Nationalization and phasing out of fossil fuel companies: Since fossil fuel companies are unlikely to stop mining themselves, nationalization and phasing out of oil, gas and coal companies is one way to keep fossil fuels in the country (e.g. Gowan, 2018a; Aronoff, 2019). This approach also enables a fair transition of workers to new forms of employment, for example in the field of renewable energy. In addition to fossil fuel companies, nationalization may be a potential strategy for phasing out other carbon-intensive industries in a way that reduces harm to workers and more equitably transfers them to other industries (Smith, 2019). Alperovitz et al (2017) detail a policy proposal similar to the response to the 2008 financial crisis: creating new money (“quantitative easing”), but instead of bailing out banks, using the money to buy out fossil fuel companies. They argue that government buyouts are not uncommon and have occurred throughout US history, including buyouts of tobacco companies between 2004 and 2014. Gowan (2018a) also suggests nationalizing fossil fuel companies, which he states has already been proposed in the UK and is set in Norway. He explains that under US takeover laws, governments can buy fossil fuel companies at market value. Gowan (2018a) states that buying 51% of fossil fuel stocks (a majority stake) would cost about \$410 billion, and argues that this cost is small compared to the long-term costs of the climate crisis.

Conclusion

Many politicians remain tied to their own interests and thus push for capitalist realism and small reforms of a broken system. This power has yet to be meaningfully challenged as the climate movement continues to lack the necessary power. Changing the system requires taking power because politicians who aggressively defend the status quo are unlikely to implement a serious mitigation program. An important step to gaining power is formulating clearer and more concrete “first steps” through which systemic transition can occur. The climate movement increases its chances of gaining power if it identifies and promotes clear policies and programs to effectively and fairly address global warming. While certainly raising awareness, concern, and participation in activism, even the most prominent leaders of the climate movement continue to call for system change without describing how the system should change and why. For example, Bill McKibben (2019) explains, “I don’t know the end goal. While I don’t know how to change the ‘system’, the urgent nature of the climate crisis does not allow us to simply postpone action.” But what will actions requiring system change achieve if they are not coupled with at least a minimal idea of the desired destination? Not surprisingly, most of McKibben’s focus, along with most environmentalists, remains on divestment and ramping up of renewables—small tweaks and reforms to the system to increase production and consumption. In 2019, Greta Thunberg told the United Nations that “if solutions within the system are so impossible to find, then maybe we should change the system itself.” The rhetoric of system change is at the heart of the climate movement, yet there remains a wide gap between the demand that the system must change, and by identifying how specifically it must change, why and how we get there (cf. Kenis & Mathijs, 2014).

We agree with many others that significant changes need to be made to the current social and economic structures of society in order to fairly address the climate crisis – in other words, we strongly agree that system change is necessary. The Next System Project and The Great Transition Initiative are two online resources with many compelling cases for system change, as well as concrete policy proposals and structural changes to create a new system. As Speth (2015:, p. 11), one of the co-founders of The Next System Project, clearly explains: The current system is simply not programmed to ensure the well-being of people, places and the planet... . If we are to escape the crises now unfolding all around us, we must create a new system of political economy where outcomes that are truly sustainable, just and democratic are a given. This is surely one of the most important tasks that any of us can engage in at this moment in history... and changing the system is not a star, but the only practical way forward. However, Speth (2015:, p. 25) also explains that when events open up ways to address these crises, we must be ready for “system-changing initiatives” and that “this means having these initiatives well developed and supported by large and active constituencies. “When the window of opportunity for bold action opens, specific policies, strategies, and programs—such as the five described here—must already be formulated and widely supported. We do not envisage that the transition to a post-capitalist society will be without challenges or surprises, yet there are many social and environmental benefits to be gained from taking the first steps towards the transition by adopting the specific strategies outlined here. Focusing on specific strategies that lead us to system change may also prove more successful than focusing on immediate, revolutionary system change, especially without a revolutionary theme. Historically, we see many failed attempts to transition to socialism, including societies that tried to create an economic model similar to what we mean by socialism here (i.e. public ownership and democratic control of the means of production), by the Soviet Union, which crushed Czechoslovakia’s attempt to democratize the state of ‘socialism’ in 1968 when the Swedish Social Democratic Party failed to transfer ownership of firms to workers at the peak of Swedish Social Democracy (Gowan, 2018b; McCarthy, 2018). The question of how to move away from capitalism is even more complicated today. The remaining “socialist” states, despite some notable successes – such as Cuba’s innovations in sustainable agriculture (Clausen et al., 2015) and Venezuela’s exciting but contradictory experiments in reconciling direct democracy and state planning (Wilde, 2017) – are marked by systemic problems hindered by both external forces, as sympathizers point out, and internal contradictions, as critics point out. More importantly, as degrowthers have also pointed out (Liegey et al., 2020), the left in much of the world is small and disorganized, making paths uncertain for any movement seeking an emancipatory transition. However, continuing to challenge the hegemony of capitalist realism and growthism and effecting political change that moves us toward a post-capitalist future remain worthy endeavors, even if the movement’s influence remains fragmented and ephemeral. This is the sociopolitical context of our challenge to imagine alternative social futures. While we cannot fully develop this argument here, as elsewhere (see authors), we believe that the best chance to initiate the transition away from capitalism is a combination of state-installed “non-reform reforms” and pressure from massive social movements to adopt them. reforms. The five strategies outlined here (economic democracy, shorter working hours, energy democracy/energy cooperatives, advertising restrictions, and the nationalization and phasing out of fossil fuel companies) represent key “non-reform reforms” that would help usher in a just systemic transition. Based on empirical evidence, these synergistic strategies supported by both

ecosocialists and degrowthers stand out as having great potential to minimize global warming, but the climate movement has yet to formulate and promote these strategies. In this paper, we illustrate how climate movement organizations such as XR and FFF could greatly benefit from connecting policies and programs from the ecosocialist and degrowth literature.

This connection is essential to promote the most effective and fair resolution strategies. Although there are stigmas and strategic problems associated with using the terms ecosocialism and degrowth, the five strategies outlined in this paper can be pursued and supported without using these terms. What is increasingly important is to share that other strategies, paths and systems are possible.

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Economic Growth and the Exchange Rate: A Comparative Analysis

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Abstract

In this article, a comparative analysis of the possibility of correlation between economic growth and exchange rates was carried out. This represents the GDP growth factor, inflation, growth has been examined in various cases. Likewise, for exchange rates, the nominal exchange rate, the real exchange rate was analyzed on a case-by-case basis. Here we also see a machine learning approach to finding correlation in both short and long term time periods. Some empirical tests and data analyzes conducted by many economists have also been grouped here to better map the overall picture.

Keywords: Economic growth, exchange rate, inflation, gross domestic product (GDP), devaluation

Introduction

Recently, many studies have been conducted to find a strong relationship between exchange rate and gross domestic product (GDP) as an indicator of a country's economic development. There is an exciting study on this topic by Hansumann et al. (2005). In this study, they analyzed the determinants of growth episodes in the time period of the second half of the 20th century. In this study, they found that in a country, the depreciation of real exchange rates helps maintain the growth rate. According to the same study, growth regression is based on a strong assumption that suggests a single linear fit model for all countries in all states. The effects of growth on a competitive exchange rate were first noted in developing countries, and this finding is a major motivation for choosing this topic. The same literature interprets the correlation between the real exchange rate (RER) and economic growth as a sacrifice running from RER levels to growth rates, i.e. more competitive RER levels generally promote growth. It was also seen that for African countries, GDP has a significant relationship with exchange rate where there is an insignificant relationship between exchange rate and interest rate and inflation.

So now, many developing and developing countries are trying to learn the patterns associated with international trade flow and foreign exchange rates to determine the economic growth and economic stability of a given country. This knowledge of growth and strength can be useful in deciding the import and export behavior of a given country in times to come. In fact, there are possibilities that a country can extrapolate its economic growth forecasts from the exchange rate and steer trade in the right way. Here in this article, we have discussed this topic in several parts. In the literature review section, there was a small discussion on the motivation of the topic with some background information on the topic.

Literature Review

Competitive real exchange rates also known as RER have a positive impact on economic growth. The main objective of a competitive RER strategy is to increase profitability in dynamic tradable activities and stimulate the expansion of the respective country. RER is

the relative price with labor between non-tradable and tradable. So, leaving the residual factor unchanged, an increase in the RER leads to a higher rate of profit on tradable items, which encourages investment in the economy. Thus, by manipulating the nominal exchange rate, a sustained favorable relative price configuration can be achieved over a period of time. From the empirical evidence, it can be seen that there is a correlation between the real exchange rate and the nominal exchange rate, which cannot be observed in the long run.

The real exchange rate may not be permanently affected by the exchange rate policy, which is implemented for the purpose of a development strategy. A temporary deviation of the real exchange rate from the equilibrium state is sufficient to affect the economy in the long term, this case is very often seen in the case of a temporary overvaluation of the real exchange rate. There is a business model developed by Krugman that shows how a temporary appreciation of a currency leads to a permanent contraction of the tradable sector. For example, we can show deindustrialization in Britain in the 1980s after the new tight monetary policy adopted by the Thatcher government.

In 1998, Skott and Ross constructed a dual economy model that characterized the deindustrialization of Latin America in the 1990s following currency overvaluation and trade liberalization. Here in both these examples, the main factor is the increasing dynamic return of the tradable sector. From this observation, a temporary appreciation of the currency can dissipate the profitability of tradable commodities if there is a clear decline in domestic productivity during the transitional period.

When the real exchange rate returns to its long-run equilibrium position, domestic firms experience a loss of productivity, making them less competitive in the international market. This leads to a firm contraction in the tradable sector. This mechanism is also applicable to the case of temporary real depreciation, which induces a permanent expansion of the tradable sector. For this mechanism to occur, the relative price must be permanent and stable enough for firms to invest in this economy. This can be achieved by changing nominal exchange rates, which depend on the degree of pass-through to domestic prices and wages. This also largely depends on labor market conditions.

If a devaluation now occurs in a developing country with a small open economy containing all possible stylized trajectories with non-trivial unemployment or underemployment, the country's real exchange rate will position itself at a competitive level and then the nominal exchange rate will stabilize. Thus, devaluation increases profitability in the tradable sector in the short term. Here, the demand changes from the tradable sector to the non-tradable sector. So firms from the tradable sector with a policy of profit maximization will expand employment and production productivity. Due to the substitution effect and the increase in positive income, demand will also increase, and these results will also increase in the non-tradable sector. An exchange rate policy with a competitive real exchange rate target will have a positive impact on the economy of the economy in the short run.

Prices for the non-tradable sector are generally determined by domestic market conditions. If the productivity of output in the non-tradable sector is very low, the market supply condition will depend primarily on the availability of labor. For a developing country in general, the supply of goods from the non-tradable sector is relatively elastic in the initial period of the development process due to unemployment or underemployment in the country. The degree of elasticity generally changes with labor shortages. So for low-income countries like China, supply is more elastic than for middle-income countries like Chile and Argentina. This difference plays an important role in the development of the economy.

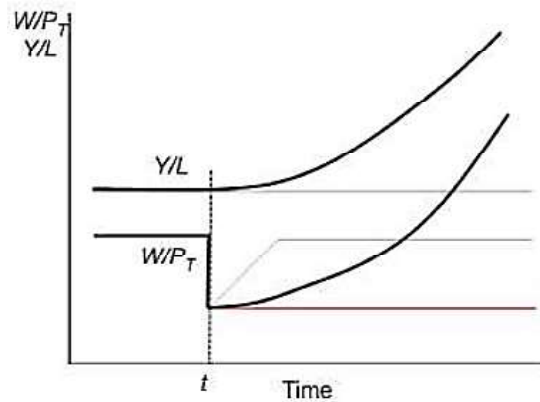


Figure: Stylized dynamics competitiveness of real exchange rates

From a Machine Learning Perspective

Machine learning has recently changed a lot of things in all areas of science and technology where data analysis is required. This problem can also be approached from the point of view of machine learning to find the correlation between economic development and exchange rate. If the relationship between them is statistically significant, then we can create an ML model that can predict GDP from exchange rate data in the coming times. Here we will take GDP to illustrate the development. There is an article where some researchers tried to build a ML model using Adaptive Neuro-Fuzzy Inference System (ANFIS).

The data they used to build the models is in the following table:

Sl no.	Country	GDP(\$)			Exchange Rate		
		min	max	average	min	max	average
1	AUS	0.696666	1.933443	1.149393	25029.03	1181218	386021.4
2	AUT	0.682675	1.889494	1.023064	28628.07	441389.3	193187.4
3	BEL	0.682675	1.471942	0.920279	37554.56	526430.5	235570.4
4	CAN	0.978033	1.569318	1.212512	98753.86	1625361	731153.6
5	CZE	17.07167	38.59842	25.91141	119535.2	367171.7	219103.6
6	DNK	5.098131	10.59639	6.68557	16625.01	280838.7	116996.3
7	FIN	0.618707	1.11751	0.792339	15647.27	238376.1	110182.1
8	FRA	0.644185	1.369789	0.83916	84497.21	2765543	1078072
9	DEU	0.682675	1.871328	1.01687	314570.1	4030399	1847972
10	GRC	0.086941	1.11751	0.459027	6847.866	341817.8	143714.7
11	HUN	74.73538	286.49	197.7077	85479.37	262041.8	162834.5
12	ISL	74.73538	286.49	197.7077	85479.37	262041.8	162834.5
13	IRL	0.322786	1.200683	0.796804	7904.671	339477.5	99860.37
14	ITA	0.301092	1.11751	0.703161	195082.4	2326305	1199300
15	JPN	79.79046	350.6777	165.9102	19521.82	5369479	2629702
16	KOR	310.5558	1401.437	849.4495	19521.82	1872132	661140.4
17	LUX	0.0125	1.471942	0.894173	1993.145	88574.89	21986.44
18	MEX	0.0125	18.66406	5.750747	88574.89	2266350	889229.5
19	NLD	0.682675	1.642684	1.003958	51936.13	860688.8	382172
20	NZL	0.715403	2.378751	1.447566	10875.06	180995.1	71662.34
21	NOR	4.939225	8.991654	6.634258	13057.83	340619.8	133275.3
22	POL	0.95	4.346075	3.009694	226248.7	1039744	552488.1
23	PRT	0.122281	1.11751	0.635435	18320.86	316027.3	148818.7
24	SVK	0.709069	1.605086	1.021069	39563.45	165424	96361.94
25	ESO	0.345023	1.11751	0.710362	94839.19	1687613	738291.1

Underestimation of Real Exchange Rate and Economic Growth in Different Countries

The following figures are graphs of how developing countries experience real undervaluation relative to that country's economic growth rate over the same time period, i.e. 1950 - 2004. So here we can see plots of seven countries: India, China, Taiwan, South Korea, Uganda, Tanzania and Mexico. Each point in the graph represents the average over a five-year period. In the first plot we can see the economic growth of China. The rapid increase in annual per capita GDP growth beginning in the second half of the 1970s is closely related to the increase in the understatement index (from 100 percent to 50 percent understatement observations) and both the understatement and the growth rate plateau in the 1990s. So, in recent years, the yuan is very undervalued, and the Chinese government does not pay enough attention to this undervaluation, which has a significant role in the country's economic growth. In the case of India, the growth picture is almost the same as that of China.

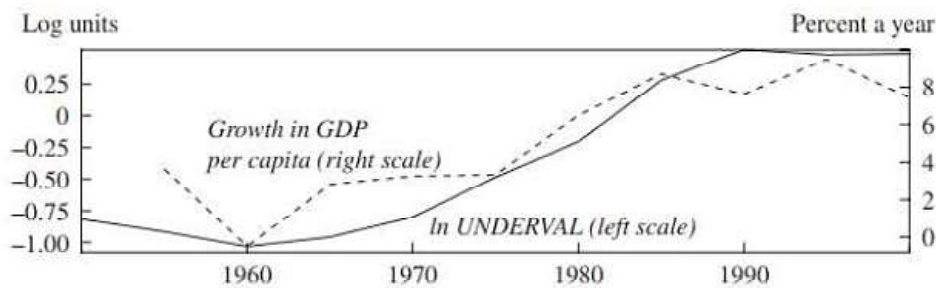


Figure: China

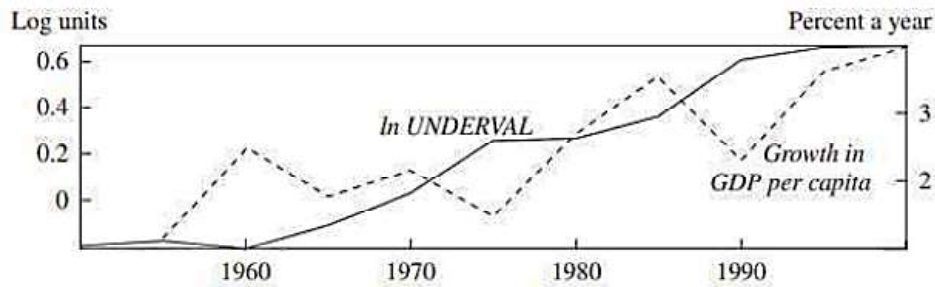


Figure: India

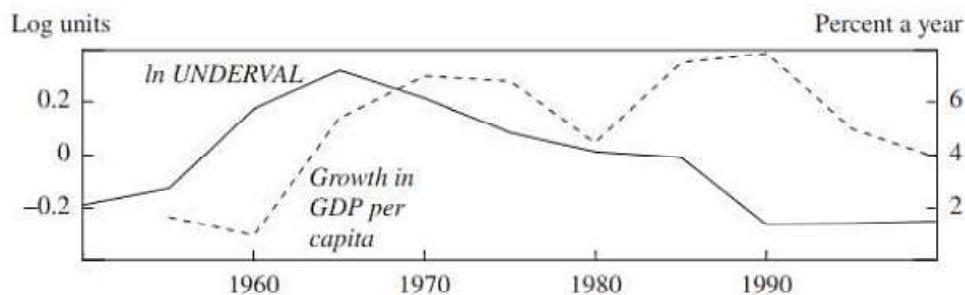


Figure: South Korea

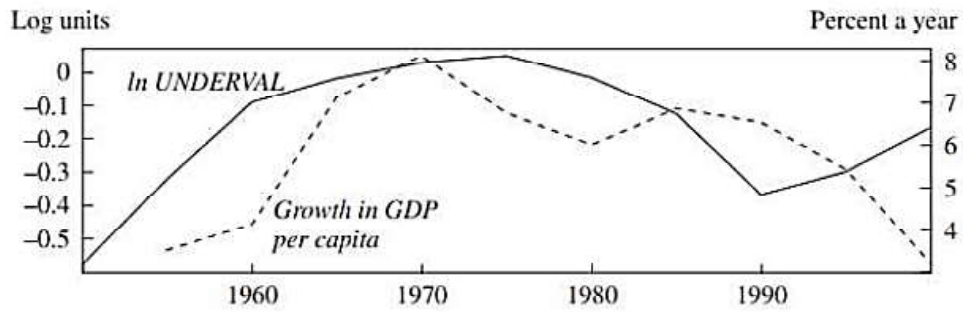


Figure: Taiwan

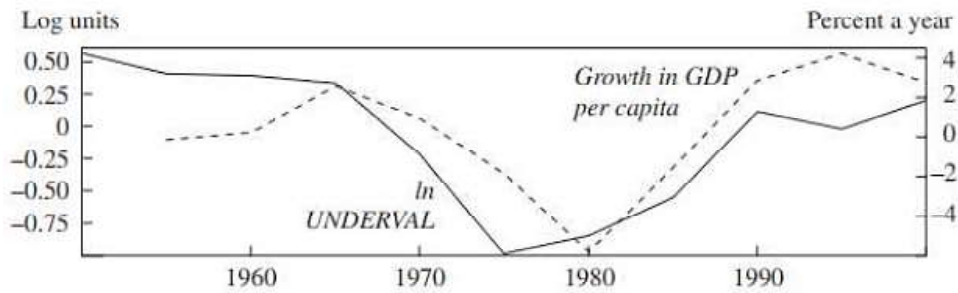


Figure: Uganda

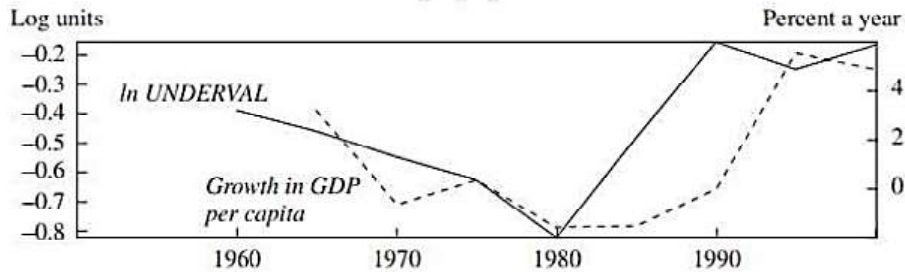


Figure: Tanzania

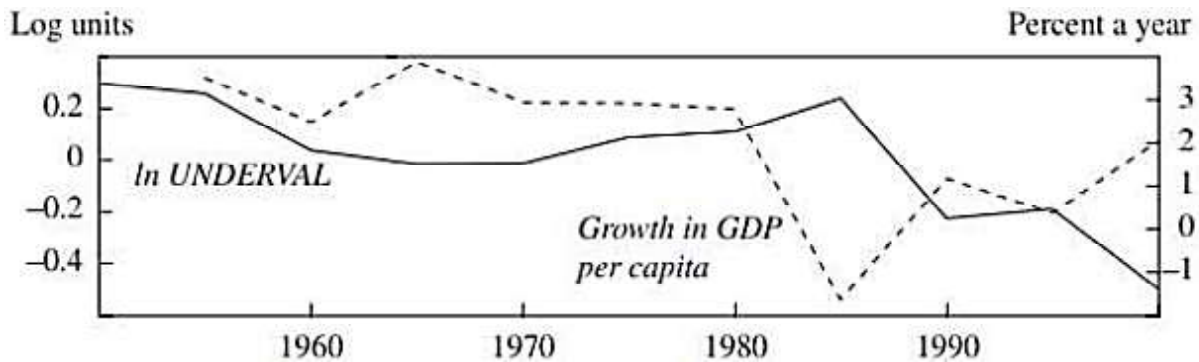


Figure: Mexico

India's per capita GDP grew steadily from a little over one percent per year in the 1950s to four percent per year in the early 2000s. India's RER moved from a slight overstatement to an understatement of nearly sixty percent. The other two charts for South Korea and Taiwan show that growth slows in the last years of the chart, and each step of that growth is accompanied by a reduced understatement or an increased overstatement. It can therefore be concluded that both undervaluation and growth exhibit an inverted U shape over time.

Although this rule is generally specific to Asian countries only. A slowdown in growth is accompanied by an increase in overvaluation, and a recovery in growth is accompanied by an increase in undervaluation. The last figure shows the correlation for Mexico. Here we can see that the two series appear somewhat out of sync, especially since 1981 when the correlation between undervaluation and growth has turned negative rather than positive. This is, in a way, a reflection of the cyclical role of capital inflows in driving growth in this country. When capital flows in the opposite direction, the economy shrinks and the currency depreciates. So there is a need for a general symmetric empirical model that can account for all these different types of individual cases.

Exchange Rate: As a Predictor of GDP

The exchange rate is one of the important factors that affect the GDP of an economy. The exchange rate and foreign exchange reserves are highly correlated, which affects GDP a lot. There is a study by Agarwal and Agarwal (2013) where they analyzed the impact of global capital flows on GDP growth rate, inflation and exchange rate on India's quarterly data from 1948 to 2010. The finding of the study suggests that GDP is statistically significant in determining capital flows. Higher GDP can increase foreign investment by increasing investor confidence. This ultimately leads to the growth of the economy. In another paper, Tahir Khan (2013) (6) worked on a cointegration test and found a long-run relationship between exchange rate and inflation, which also suggests that these can be a good indicator of upcoming GDP.

Conclusion

In conclusion, there are still not enough generalized symmetric models for the correlation between economic growth and the exchange rate, but we can see the patterns in every analysis across many countries' economies. So there is a possibility of a mutual relationship between them. If this correlation can be generalized, it will be a big opportunity for policymakers, as they can then forecast growth based on exchange rates. Big data analytics can predict GDP from the exchange rate, and in this way the government can also formulate its policies to achieve some stability of growth. Trade policy-making factors will change.

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Study of Physical Education in APS University, Rewa: Description of Research Methodology

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Abstract

The research focuses on Physical Education and Sports at APS University in Rewa, Madhya Pradesh, examining how education policies and facilities affect student participation in health-related activities. It emphasizes the importance of Physical Education for health, mental well-being, and academic success, arguing it should be a key element of education.

The curriculum aims to promote overall health and active lifestyles, nurturing essential skills. It includes five interconnected components related to health policy: facilities, administration, programs, instruction, and personnel. Data will be collected from 80 first-year students, 80 second-year students, and 40 physical education teachers using various methods to evaluate the effectiveness of the program.

Key Word- Research, Physical Education, APS University Rewa, Education system.

Introduction

The research focuses on the state of Physical Education and Sports at APS University in Rewa, Madhya Pradesh, analyzing how education policies and infrastructure affect student engagement in health-related activities. It emphasizes the importance of Physical Education for improving overall health, mental well-being, academic performance, and fostering positive habits. Physical Education should be an integral part of a holistic education system.

The curriculum for Physical Education aims to support students' mental, physical, intellectual, and social health, promoting a healthy lifestyle and strong relationships. It strives to equip students with the knowledge and skills necessary to incorporate physical activity into their daily lives while encouraging critical thinking. University education should not only involve participation in sports but should also focus on developing transferable skills that contribute to personal growth and well-being over a lifetime.

Physical Education can help reduce health risks like obesity and diabetes. Universities play an essential role in promoting active lifestyles by providing varied opportunities for exercise. The curriculum aligns with global health guidelines that recommend young people engage in significant physical activity to maintain good health.

Despite its benefits, many educational systems undervalue Physical Education, leading to its decline in schools and colleges. This is concerning given the rise in childhood obesity and health issues due to physical inactivity. In the U.S., many young people do not meet exercise recommendations, worsening health trends. Colleges are addressing this challenge by enhancing physical activity offerings.

The research highlights the importance of effective planning, implementation, and assessment of P.E. programs to maximize benefits for students. A well-structured curriculum should prioritize outdoor games and sports, equip teachers with proper training, and address key questions regarding effective content and assessment methods.

There is a need to view students as whole individuals, focusing on the connection between physical and mental learning. Engaging students through interests like play can improve overall education outcomes. However, P.E. teachers often do not receive the recognition they deserve.

In India, the growing concern about youth inactivity due to technology and environmental issues underscores the need to encourage active lifestyles. Education policies aim to foster positive attitudes towards physical activity and well-being. The research ultimately seeks to assess the effectiveness of P.E. and Sports at APS University, particularly how current infrastructure and policies influence student participation in health-related activities, as supported by initiatives like NEP 2020, Khelo India, and the Fit India Movement.

Research Design

The research focuses on five components related to health policy: facilities, administration, programs, instruction, and personnel. These components are interconnected, allowing for easier assessment of the program by evaluating the other four. The study will utilize observation to assess health facts based on these components. Data will be collected from various groups at APS University Rewa, with reliability ensured through pilot studies and expert advice from literature on education policy.

Target Population

All members or entities in a study form the target population. This study includes Awadhesh Pratap Singh University, a public university in Rewa, Madhya Pradesh. The university is named after Captain Awadhesh Pratap Singh, a notable politician, freedom fighter, and social worker from Madhya Pradesh. He was part of the Indian National Congress and served in the Indian Constituent Assembly, Provisional Parliament, and Rajya Sabha from 1952 to 1960. The university, located in an urban area with a population of 250,000-300,000, is recognized by the University Grants Commission of India and offers various bachelor's and master's degrees along with several facilities.

Study Area

Rewa is an important city in northeastern Madhya Pradesh, India, near Uttar Pradesh. It is the main administrative area for Rewa district and division, located around 420 kilometers from Bhopal, the capital. The Rewa district is about 125 kilometers wide and 96 kilometers long, surrounded by the Vindhya mountain ranges and Kaimur hills. The local dialect is Bagheli.

As of 2011, Rewa's population is around 235,654, with 124,012 males and 111,642 females. The average literacy rate is 86.31%, with 91.67% for males and 80.40% for females; 10.76% of the population is under 6 years old.

The APS University spans 246.20 acres, about 5 km from the city, featuring various departments, hostels, and facilities like a canteen, gym, and temple. It has eco-friendly surroundings and is designed to be peaceful. There is a medical dispensary, bank, employment bureau, and post office on campus. Plans include building a seismic observatory, while a small meteorological observatory is already in place.

APS University Rewa Stadium

The A.P.S. University Stadium in Rewa, Madhya Pradesh, is a multi-purpose venue for athletics, football, cricket, and other sports. It notably hosted a Ranji Trophy match in 1970 between Madhya Pradesh and Uttar Pradesh, but no major events have occurred since. The stadium holds regular non-first-class matches organized by the MPCA, university, and sports department.

The Sample and Sampling Procedures

The study conducted at APS University Rewa utilized simple random sampling to gather a diverse sample of P.E. students, sports lover students, physical education teachers, parents and general teachers of university and its affiliates colleges.

This approach aligns with the notion that a smaller, well-selected sample can effectively represent a larger population (Best & Khan, 2010; Best & Kaln, 2006).

The sample target population included students, teachers, parents, and physical education students from a variety of faculties across both undergraduate and postgraduate programs. A total of 300 respondents were included in the sampling. Physical education teachers and other teachers included in this sample had at least four or more than six years of teaching experience.

Data collected for research purposes

A researcher developed a resource checklist guide to assess the accessibility and suitability of the Physical Education and Sports program at APS University Rewa. This checklist aims to adopt new features for implementing the program effectively.

The researcher also created a document analysis guide to evaluate the physical education program's relevance, efficiency, and effectiveness. This involved reviewing official documents such as timetables, lesson plans, and class records to check teachers' readiness and lesson attendance.

An observation guide was adapted for Physical Education lessons, based on the PSPE Scope and Sequence. It focused on teaching preparation, including instructional methods, content mastery, student engagement, skills acquisition, classroom management, and teacher qualities. An assessment tool evaluated university students' sports skills while examining the current status of the physical education program, including health interests, sports facilities, and the focus on sports versus other subjects.

Additionally, a questionnaire was developed for APS University teachers featuring five-scale Likert, close-ended questions to evaluate the curriculum's relevance, efficiency, effectiveness, sustainability, and impact. It included demographic information and examined teaching policies, resources, and challenges in executing the curriculum.

Analysis of Data

This research produced two kinds of data: quantitative and qualitative. Teachers were assigned codes, with physical education and sports teachers marked as PET. Quantitative data were gathered through questionnaires that were coded from strong agreement to strong

disagreement. Descriptive and non-parametric statistics, such as the chi-square test, were calculated using 0.05 significance in SPSS.

Qualitative data were analyzed through content analysis from open-ended questions, lesson observations, interviews, and the sports performance of postgraduate and graduate students. The analysis involved identifying, coding, and categorizing information patterns based on research goals. Interviews were transcribed and patterns were noted through thorough reading.

The study linked topics to goals through key interactions, presenting findings narratively. Some coded categories received numerical values, allowing the creation of frequency tables and descriptive statistics that complemented qualitative insights from interviews and observations.

Conclusion

The research examines the state of Physical Education and Sports at APS University in Rewa, Madhya Pradesh, looking at how education policies and infrastructure impact student involvement in health-related activities. It highlights that Physical Education is essential for improving health, mental well-being, and academic success, and should be a core part of a complete education system.

The curriculum is designed to enhance students' overall health and support a healthy lifestyle while teaching essential skills. It aims to prepare students for active lives and encourage critical thinking. Universities are crucial in promoting active lifestyles through diverse exercise opportunities, aligning with global health guidelines. However, Physical Education is often undervalued in many educational systems, leading to increased health risks like childhood obesity.

The study incorporates five components related to health policy: facilities, administration, programs, instruction, and personnel, which are interconnected for easier assessment. Data will be collected from various groups at APS University. The sample includes 80 first-year and 80 second-year students, alongside 40 physical education teachers.

Data collection involves various methods, including checklists, document analysis, observations, and questionnaires to assess the Physical Education program. The analysis will yield both quantitative and qualitative data, using statistical and content analysis techniques to evaluate the curriculum's effectiveness, relevance, and impact on student health and participation in sports activities.

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Digital Governance and Youth Participation in the Era of Digital India: A Comparative Sociological Analysis of Urban and Rural Youth in Western Uttar Pradesh

Shivam Rana and Dr. Amit Malik

Abstract

Digital governance has reshaped the relationship between citizens and the state through the increased use of digital platforms in public administration and service delivery. The present paper analyses the impact of digital governance initiatives under the Digital India Programme on youth participation in urban and rural areas of Western Uttar Pradesh. The study examines awareness, accessibility, and usage of digital governance platforms among youth and explores how the youth's participation is affected by their socio-economic and spatial inequalities. The study highlights the important differences between urban and rural youth in relation to digital literacy, access to e-governance services, and their trust in digital systems. The findings suggest that while digital governance has enhanced access to information and services, the continuation of unequal digital infrastructure and limited awareness continues to hinder meaningful participation among rural youth. The paper claims that digital governance must be understood within the broader context of social inequality and degree of difference in access to digital resources.

Keywords: Digital Governance, Digital India, Youth Participation, E-Governance, Digital Citizenship, Rural-Urban Divide

Introduction

The increasing use of digital technologies in governance has transformed the contemporary relationship between citizens and the state. Governments across the world are adopting digital platforms to improve accuracy, efficiency, transparency, and service delivery. In India, the Digital India Programme is a major initiative aimed at expanding digital governance and promoting electronic access to public services.

Digital governance includes online delivery of various government services like banking, education, documentation from various govt. departments, etc., digital identity systems like PAN card, Adhaar Card, etc., electronic payment systems (UPI), and online grievance mechanisms. These initiatives are intended to improve accessibility, efficient administration, improved transparency, citizen-centric governance, accountability, public participation, social inclusion and data-based policy making. These transformations in the governance system, in turn, modernise state institutions, strengthen state-citizen interaction, promote inclusive

development and integrate technology with social change. However, sociological studies suggest that digital governance may also reproduce inequalities and lead to a digital divide, privacy concerns, cybersecurity issues, and access to digital technologies and digital literacy remain uneven.

Youth represent an important social category in the context of digital governance because they are often expected to engage more with digital platforms for education, employment, documentation, and welfare-related services. This paper examines the ways in which urban and rural youth engage with digital governance systems and how digital inequality influences their participation. It aims to understand the differences in access, digital literacy, infrastructural availability, and patterns of usage among youth belonging to different socio-economic and geographical backgrounds. The study also explores how factors such as internet connectivity, educational level, economic status, gender, and technological awareness influence the ability of young people to benefit from digital governance initiatives.

Conceptual Framework

The paper draws upon sociological perspectives on governance, digital citizenship, and governmentality. Michel Foucault's concept of governmentality helps explain how digital systems enable administrative regulation through data and digital identification mechanisms.

The study also draws upon sociological discussions of digital citizenship, which emphasise participation in governance through digital platforms. The framework highlights that digital citizenship depends upon access, literacy, and institutional support.

Research Methodology

The present study adopts a convergent mixed-methods research design combining both quantitative and qualitative approaches to examine the participation of urban and rural youth in digital governance systems and the impact of socio-economic inequality on their digital engagement. This research design enables a comprehensive analysis of both statistical trends and individual experiences related to access, usage, and awareness of digital governance platforms.

The study was conducted in selected urban and rural areas of western Uttar Pradesh. A purposive sampling method was used for the selection of respondents in order to ensure the inclusion of youth from diverse socio-economic, educational, and geographical backgrounds. The study included a total of 800 youth respondents, comprising both male and female participants from urban and rural settings.

Data was collected through both primary and secondary sources. Primary data were collected using structured questionnaires, semi-structured interview schedules, and observation methods. The structured questionnaire was used to gather quantitative information regarding digital literacy, internet accessibility, awareness and usage of digital governance services, frequency of online engagement, and challenges faced by respondents. Semi-structured interviews allowed respondents to express their experiences, perceptions, and difficulties related to digital governance in greater detail, while observation helped in understanding actual patterns of technology usage and infrastructural conditions in the field area.

Secondary data were collected from government reports, policy documents, research articles, books, journals, census reports, and official digital governance portals related to the Digital India Programme and youth development.

The collected quantitative data were systematically classified, tabulated, and analyzed using statistical techniques such as percentages, frequency distribution, and comparative analysis between urban and rural respondents. Qualitative data obtained through interviews and observations were analysed through thematic interpretation to identify recurring patterns, perceptions, and socio-cultural dimensions associated with digital governance participation. The integration of both forms of data helped provide a detailed sociological understanding of digital inequality and youth engagement in governance processes.

Digital Governance and Youth

Digital governance systems have expanded significantly in India through online documentation services, digital payments, online applications, and welfare-related platforms. The study found that urban youth were generally more familiar with digital governance systems due to greater exposure to digital technologies and higher digital literacy. Findings reveal that 65.8 percent of respondents were aware of the Digital India Programme. Social media emerged as the most important source of awareness regarding digital initiatives among respondents.

Urban respondents reported frequent use of online platforms for documentation, educational applications, digital payments, and employment-related services. The study found that 61 percent of respondents used digital payment services and other online government-related services. However, rural respondents often depended on intermediaries such as Common Service Centres for accessing digital services. Rural respondents, however, often depended on intermediaries such as Common Service Centres for accessing digital services.

The findings suggest that digital governance has increased accessibility for some groups while simultaneously creating dependency among others who lack digital skills.

Barriers to Digital Participation

Several barriers affecting digital participation were identified during the study. Poor internet connectivity was reported by 29.5 percent of respondents, while 21 percent identified lack of digital skills as a major challenge. High internet costs and limited awareness were also identified as important barriers. Rural youth reported poor internet connectivity, limited access to digital devices, and lack of technical knowledge as major challenges.

Economic inequality also influenced participation in digital governance systems. Respondents from lower-income households faced difficulties in maintaining internet access and digital devices. Educational background further affected awareness and usage of online services.

Language barriers and fear of making mistakes while using digital platforms were also reported by several respondents.

Digital Citizenship and Social Inequality

The study indicates that digital citizenship is shaped by broader social inequalities. Youth with higher educational attainment and stable digital access demonstrated greater confidence in using online governance systems.

In contrast, respondents from disadvantaged backgrounds often relied on intermediaries to complete digital processes. This dependence reduced independent participation in digital governance.

The findings support sociological arguments that digital governance cannot be understood separately from social stratification and infrastructural inequality.

Role of Intermediaries in Digital Governance

The study observed that intermediaries play an important role in facilitating access to digital governance systems, particularly in rural areas. Many rural respondents depended upon Common Service Centres (CSCs), cyber cafés, and local digital service providers for completing online applications, documentation processes, and accessing welfare-related information.

While these intermediaries helped bridge gaps in digital access, dependence on external assistance also reflected limited independent digital literacy among respondents. Several respondents reported that they lacked confidence in handling online forms, digital verification systems, and official portals without support.

Urban youth, in contrast, demonstrated greater independence in accessing digital governance platforms due to better educational exposure and familiarity with online systems. This difference indicates that access to digital governance is shaped not only by infrastructure but also by digital competence and institutional familiarity.

Youth Perceptions towards Digital Governance

The study also explored youth perceptions regarding digital governance initiatives under the Digital India Programme. Many respondents viewed digital platforms as convenient because they reduced the need for repeated visits to government offices and simplified access to information.

Urban respondents generally expressed greater trust in digital systems and reported higher satisfaction with online services. Findings also showed that 42.3 percent of respondents believed that the Digital India Programme had positively improved access to services and information. Rural respondents, however, expressed concerns regarding technical errors, slow internet connectivity, and difficulties in understanding digital procedures.

Some respondents also highlighted concerns related to privacy, data security, and dependence on technology. These responses indicate that digital governance is experienced differently across social contexts and is influenced by varying levels of technological familiarity and trust.

Discussion

The findings of the study reinforce sociological arguments that digital governance operates within broader structures of inequality. Although digital governance initiatives aim to improve accessibility and administrative efficiency, their benefits remain unevenly distributed.

The rural–urban differences identified in the study reflect broader disparities in infrastructure, education, and economic resources. Urban youth benefit from stronger institutional networks, better connectivity, and greater exposure to digital systems. Rural youth, however, continue to face structural barriers that limit meaningful participation in digital governance.

The findings also support sociological perspectives that emphasise the socially embedded nature of technology. Digital systems cannot function effectively in isolation from social realities such as educational inequality, language barriers, and uneven infrastructural development.

Furthermore, the study highlights that digital citizenship is not merely a technical capacity but also a social process shaped by access to resources, institutional support, and socio-economic background.

Suggestions and Policy Implications

Based on the findings of the study, the following suggestions may help improve inclusive participation in digital governance systems:

1. Digital literacy programmes should be expanded in rural and semi-urban areas to improve independent access to digital governance services.
2. Rural digital infrastructure, particularly internet connectivity and electricity supply, should be strengthened.
3. Government portals should be made more user-friendly and available in regional languages to improve accessibility.
4. Educational institutions should promote awareness regarding e-governance services and digital citizenship.
5. Special support mechanisms should be introduced for socially and economically disadvantaged youth to reduce digital exclusion.

Conclusion

The study highlights that digital governance has transformed modes of service delivery and citizen participation under the Digital India Programme. However, unequal access to digital infrastructure and variations in digital literacy continue to shape participation among youth.

Urban youth experience greater advantages in accessing digital governance platforms, while rural youth face barriers related to infrastructure, awareness, affordability, and dependence on intermediaries. The findings indicate that digital governance systems may unintentionally reproduce existing social inequalities when digital access and literacy remain uneven.

The study therefore argues that successful digital governance requires not only technological expansion but also socially inclusive policies that strengthen digital literacy, infrastructural development, and institutional support for marginalised groups.

From a sociological perspective, digital governance should be understood as a social process embedded within wider structures of inequality, power, and access. Meaningful digital citizenship can emerge only when all sections of society possess the resources and capabilities necessary to participate effectively in digital systems.

Acknowledgement

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Mr. Shivam Rana worked as Research Assistant in the project and contributed significantly to the fieldwork and data collection process.

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The Impending Loss of Identity in Rohinton Mistry's *Such a Long Journey*

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Parsi community is counted as one of the minority communities in India. Minority is a group of people who have been thrown out of the mainstream by external forces who intrude in their world with a wish to get their central position. It is not only the numbers that turn a group of people or community into a minority; there are a lot of other factors which decide the position of a group of people as minority or majority. These factors may be economic, social, political, racial or gender based and so on. Considering all these factors, the Parsi community is grouped as one of the minority communities. Before their journey to India, the community was being expelled from the centre towards periphery. Thus bearing the pain of being outcast this diasporic community settled in India.

Rohinton Mistry being a member of Parsi diaspora is able to sense the pain of being on the margin which he perfectly portrays in his works. His novel *Such a Long Journey* deals with the Parsi world in post-colonial India. Being a small minority group in India, the Parsis are constantly being threatened by the possibility of being devoured by the dominant Hindu culture in India. Their sense of insecurity and urge for removing identity crisis are artistically presented by Rohinton Mistry. The novel presents the pain of being expelled from the centre to the margin of social, political and power sphere of post independent India. It exhibits the discontentment of the Parsi community for being obliged to remain within the limited space provided to them and their struggle to retrieve whatever they have lost. The novel also endeavours to study and analyze the questions related to identity and ethnicity.

Such a Long Journey expresses Mistry's feelings about his Parsi community. Like all other Parsi writers, he is concerned with the preservation of the ethnic identity of his community for which he finds fiction as one of the most suitable and effective media. The community may disappear in future but Rohinton Mistry's novels will certainly continue to appeal to readers in different ages to come. Mistry once mentioned in an interview to Ali Lakhani that when the endangered minority group which is now in demographic decline will have disappeared from the face of the earth, his writing will "preserve a record of how they lived to come, to some extent" (qtd. in Anderson 189). Like his other counterparts elsewhere Mistry deals with the past and present of his community. He traces the history of the Parsi community in India as it is noticed in one of the conversations between Gustad Noble and Malcolm Saldanha who try to establish historical superiority of his religion over his friend's as his Christianity came to India. He says that 1900 years ago Apostle Thomas landed on the Malabar Coast long before the Parsis came to India. But Saldanha is forced to give up by Gustad's rejoinder when he says, "this may be but our Prophet Zarathustra lived more than fifteen hundred years before your Son of God was ever born: a thousand years before the Buddha; two hundred years before Moses. And do you know how much

Zoroastrianism influenced Judaism, Christianity and Islam” (24). The novel recounts the journey of the Parsis who came to India all the way from Iran. As Nilufer Bharucha says in her essay, “On the Wings of Fire: Theorising the Parsi Diaspora”, the Zoroastrians did have ‘such a long journey’ from Iran to the Western coast of India. The journey began between 638 A.D. and 641 A.D. when the Persian Empire was attacked by the Islamic civilization. The repeated attacks and menace of the Arabs dilapidated the Persian Empire, its entire civilization, culture and the ancient monotheistic Zoroastrian religion. The Zoroastrian religion was ousted from the public spaces of Persia and Islam became the religion of Persia (24). As John R. Hinnells states in his essay, “Parsi Zoroastrians in London” in the wake of the Arab conquest of Iran, Zoroastrianism became steadily marginalized and oppression and persecution of its followers became ever more acute (qtd. in Ballard 252). In such a deteriorating situation, a small group of Zoroastrians decided to migrate and with urns containing their sacred fire, the symbol of their faith they took refuge in India and at first settled at Diu in Gujarat (Bharucha 25). The account of the Persian refugees’ exodus from Iran and their arrival in India is almost entirely based on two narrative works in Persian: the *Qisseh-i-Sanjan* or the story of Sanjan written in 1599 by the Parsi priest Behman Kaikobad Sanjana and the *Quisseh-i-Zarathustra-i-Hendustan*, written by the Parsi Shapurji Maneckji Sanjana in Navsari between 1765 and 1805 (Palestia 3). From Diu the Parsis moved to another coastal town Sanjan and got settled there only after fulfilling certain conditions of the local ruler Jadav Rana. They adopted the local language of Gujarat and gave up their own native Persian language. The women exchanged their Persian robes for Indian costumes and the men were to abandon their weapons. And they could hold their wedding ceremonies only in the dark (Bharucha 25-26). Thus with their loyalty to the ruler they protected their religion. It survived persecution, migration to distant land and the assimilation of alien customs and languages. And among all these their core beliefs have remained intact no matter where they were to settle down over the ages. With their practical beliefs the Parsis became an established community in India. During the British rule in India they enjoyed an elite status, they were the most urbanized and prosperous community. As Hinnells & Williams say, the British offered them the freedom of religion and equal justice before law. When the British shifted their centre of trade from Surat to Bombay, the Parsis also settled there. Bombay was therefore from its early days a cosmopolitan island on which Parsis flourished first as middleman in trade then as independent traders. They benefitted both from the trading and education and subsequently they became perhaps the most westernized community in all of South Asia (1).

Historically the Parsi community was one of the smallest communities in India but still Parsis extended significant influence and safeguarded and strengthened their Parsi identity in pre-partition India. As Tanya Luhramann says, the Zoroastrian people adopted the manners, dress and aspirations of their British colonizers, and their Anglophilic activities ranged from cricket to oxford to tea. And as result of this they were rewarded with high-level financial, mercantile and bureaucratic posts (5). But the independence of India ushered in the decline of the Parsi community. And in the present novel, Mistry has recounted the history of his community and country as it has been in the post-independence era. As he has constructed the story of his community in the novel, Mistry has centralized the Parsi community as a protagonist through its characters. He has manifested this in responding to the existing menaces to his community. It could also be seen as one of the ways of protecting

and preserving themselves by throwing light on the existing facts. A. K. Singh aptly puts it: “Mistry’s novels as a cluster of narratives deal with the Parsi community and its identity, with its national consciousness and then with the third dimension too, viz its identity with the world and the novel is to be studied in this context if we wish to know the Parsi community as perceived by the novelist” (qtd. in Dodiya 5).

Mistry’s depiction of history exhibits consciousness of anxieties and aspirations, perils and problems of existence of individual, communal and national issues. Mistry has in this sense successfully exploited some historical points of post-independent era and endeavoured to re-narrate them about his community and country through the various narratives woven in the novel. Various characters belonging to the Parsi community bring to the fore peculiar traits of their community. The inhabitants of Khodadad building are representatives of a cross-section of middle class Parsis expressing all the angularities of dwindling community. The life-style of the Parsis living there is a microcosm of the Parsis in India.

Gustad Noble, the protagonist of the novel and one of the residents of the Khodadad building, reveals the anxiety for the people of his community. His temptation to erase the discomfiture of life turns him towards God and he pays “orisons to Ahura Mazda.” Gustad’s fears and anxieties stem not merely from personal troubles or national politics but also from a perceived threat to the Parsi identity. When Gustad worries about his son’s future, he actually compares the increasing discrimination of minority groups in India with the situation in the United States. He says: “What kind of life was Sohrab going to look forward to? No future for minorities, with all these fascist Shiv Sena politics and Marathi language nonsense. It was going to be like the black people in America – twice as good as the white man to get half as much” (55). Mistry here focuses upon the challenges that Parsi community faces from the rise of regional chauvinism in the form of the political party the Shiv Sena. It is a party in Mumbai which broadly favours increased influence of Maharashtrians in Maharashtra. It built a strong base amongst the Marathi community in the sixties based on its ideology that Maharashtra belonged to the Marathi community and that they be given preference over migrants from other Indian states. And their ideology affected the migrant Parsis also. In the novel, we find a growing awareness of the gradual deterioration of the privileged position of Parsis through Gustad’s reminiscences of better times. Gustad’s ambition to have a better future for his children is a reflection of the Parsi community’s desire to regain their lost status in society. In the midst of historical change Gustad and his community try to safeguard identity and want to remain economically, socially and politically relevant. Gustad is at the rake of fear when Sohrab refuses to join I.I.T. which is a symbol of pride and prestige for a family. In him we can see the father with thwarted temptation of grooming his son into a respectable Parsi gentleman. Sighing over the misfortune caused by his son he muses:

Throwing away his future without reason. What have I not done for him, tell me? I even threw myself in front of a car. Kicked him aside, saved his life, and got this to suffer all my life. He slapped his hip. But that’s what a father is for. And if he cannot show respect at least, I can kick him again. Out of my house, out of my life. (52)

Gustad here acts a typical Parsi father who incapacitates himself to protect his son so that in his upcoming life he may realize his irresistible temptation to be in the high echelon of his own community. This could be an instance of self-inflicted physical disability designed to overcome anxiety of psychological insecurity which is caused by poverty and political danger.

Apart from Gustad, Dinshawji also experiences spate of fear when he feels a sense of displacement at the changing of names. According to him names play an important role in a city and a nation as a whole. The renaming of Bombay streets by the Shiv Sena leads to acute existential anxieties in Dinshawji. Hence he reveals his anguish thus, “Names are so important. I grew up on Lamington Road. But it has disappeared; in its place is Dadasaheb Bhadkamkar Marg. My school was on Carnac Road. Now suddenly it’s on Lokmanya Tilak Marg. I live at Sleater Road. Soon that will also disappear” (74). Dinshawji here echoes the sentiments of his community which are not at all taken into account by the elitists who rule the country after the exit of the British rule. Dinshawji views this particular phenomenon as a loss of social identity and personal history. As Nila Shah states: “To have a life by any other name would mean acquiescence to ‘cultural alienation’, ‘otherness’, and ‘marginalization’” (qtd. in Dodiya 72).

In another instance of Parsi community’s insecurity we notice Dilnavaz saying to Dinshawji that Nehru never liked Feroze Gandhi from the beginning. Dinshawji who also agrees to her remarks says: “That was tragic. Even today people say Feroze’s heart attack was not really a heart attack.” Thus the characters like Dilnavaz and Dinshawji suspect the so-called natural death of Feroze Gandhi, a member of their community and express their feeling of insecurity. On the other side we find Darius too getting conscious of the community difference. He refuses to take copies of *Jam-E-Jamshed* when each student of their school is asked to bring five old copies of newspapers from home. He prefers to take five *Times of India*’s because his friends would make fun of the Parsi *bawaji* newspaper.

As a community the Parsi community has not only lived peacefully amidst the vast Indian culture but has also accepted the land and contributed to its development in its own way. But the nationalization of banks in 1969 destroyed their hegemony on banking system as Dinshawji ruminates: “What days those were, yaar. What fun we used to have.....Parsis were the kings of banking in those days. Such respect we used to get. Now the whole atmosphere only has been spoiled. Ever since that Indira nationalized the banks” (38). Gustad too adds: “Nowhere in the world has nationalization worked. What can you say to idiots?” (38) Dinshawji explains the process of nationalization of banks as ‘vote-getting tactics.’ Like Gustad, other members of his community are scared of politicians like Mrs. Gandhi whom they consider responsible for encouraging the demand for separate Maharashtra and thus let loose communal violence. “How much bloodshed, how much rioting she caused” (39). Gustad and Dinshawji’s remembrance of the horrifying days at the Flora Fountain reveals that the Parsis as the minority community have to bear the dominant forces in order to gain some security. Dinshawji remembers how those ‘goondas’ broke the windows and shouted, “Parsi crow-eaters, we’ll show you who is the boss” (39). This is not just a record of facts, but the strong sentiments of the Parsi community, humiliated and belittled at the hands of a corrupt government. As a minority community the Parsis have their fears and anxieties. Dinshawji says to Gustad: “Wait till the Marathas take over, then we will have real Gandoo Raj” (73). All they know is to have rallies at Shivaji Park, shout slogans, make threats and change old names. Dinshawji accuses Indira Gandhi of supporting the racist buggers. He calls Shiv Sena ‘bloody Shiv Sena’ who he believes wants to make the rest of Indians into second-class citizens. Dinshawji says that all these agitating tactics of the Marathas will upset the social harmony in Mumbai and there will be chaos all around them. Thus the growing fundamentalism in Mumbai intensifies the insecurity of the Parsis.

The black stone wall surrounding the Khodadad building, a Parsi enclave also exhibits Parsi community's insecurity. It is a recurrent symbol in the novel. It shields the denizens of Khodadad building from the noise and the prying eyes of the outer threatening world. As Deepika Bahri puts it:

It stands as a potent symbol of the sundering of the individual experience from a total view of reality. It also points to the loss of interest in the individual in a world organized by reification and its reorganization of human relationships. Functioning alternately as symbol, metonymic sign and pregnant metaphor, the wall is the site of projection, of limit, of boundaries that invite convergence with cognitive and psychological parallels while also discouraging literal parallelism. The limit space of the wall functions as a central device in the novel with multiple significations, among them are the symbolic limits of representation in the national and minority narrative, a visual symbol of the internal religious and social divisions within the nation, a metonymic pointer to the threatening excess that lies beyond, either side, and the wall as a freighted metaphor that unfolds in various ways. (132)

For Gustad the wall is very vital; he repeatedly returns to meditate on it. It signifies the collective and personal trauma of Gustad and his community. Though the wall in itself is a big source of undesirable urinal stink, still the Parsi denizens believe that this wall is their protection and it holds the stink of the unsavoury realities of the world at bay. The wall offers a retreat from the outer world. The six feet high compound wall becomes the symbol of its insularity, protecting and sheltering it from the eyes of the majority community, and thus rendering that space sacred where they can practice their faith unhindered. On the other hand, from the inception itself the wall is under attack of the municipality's project. Gustad feels that the burgeoning administration seeks to reorganize the space of the city in the name of development. The inhabitants of the Parsi enclave feel that the contradictory project of modernity is actually robbing them of their protection.

Thus, we have seen that *Such a Long Journey* centralizes the Parsi community as do Firdaus Kanga's *Trying to Grow*, Farrukh Dhondy's *Bombay Duck* and Bapsi Sidhwa's *The Crow Eaters*. All these works display their authors' consciousness of their community through the protagonists who belong to the community. In *Such a Long Journey*, the Parsi enclave 'Khodadad building' emerges as the background and all the residents of the building are Parsis whose presence beneath the narrative structure of the novel is strongly felt. Their way of life, distinct from majority, their anguish at the changing pattern of communal relationship and their nostalgia for the good old days are exhibited in such a way that they emerge as Parsis on personal level and as human beings of emotions and sentiments on a broader level.

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