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# DIALOGUE

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# **DIALOGUE**

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# Contents

Editorial Perspective	7
A few words from the Editorial Desk	
1. A Perspective on the Maharashtra's Manodhairya Scheme <i>Pooja Kumari</i>	9
2. Gandhian Ethics: Localizing ICT in Education <i>Neha Mehra, Aditti Bhadwal, Dr. Jyoti Narayan Baliya</i>	14
3. Sustainable Development and Jhumias Rehabilitated in Tripura's Small Tea Growers <i>Vanlalrema Kuki</i>	30
4. Women and Sustainable Development: Exploring Their Symbiotic Relationship <i>Dr. Samir Kumar Mohapatra</i>	38
5. Revisiting the Economic Implication of the Dumping of Chinese Goods in Indian Market Ningthoujam Koiremba Singh and <i>Tayenjam Priyokumar Singh</i>	50
6. Contribution towards Christian missionaries intelligentsia's on women's education in colonial Assam <i>Gaurab Saikia</i>	73
7. Role of Wome in Ecotourism projects: A study of 'Satakosia Sand Resort' in Nayagarh district of Odisha <i>Dr. Jayaram Singh Samal and Ms. Mausumi Mishra</i>	81
8. Indian Soft Power: In the Context of Buddhism <i>Dr. Karmveer Singh</i>	97
DIALOGUE, Volume-25 No. 1-2-3-4	5

9. The Impact of Climate Change: Strengthening Adaptation and Resilience in the Indian Agriculture <i>Simran</i>	109
10. A Comparative Study of Solar Energy Policy in China and India <i>Ritvik Mishra &amp; Shubhangi Baranwal</i>	116
GUIDELINES FOR SUBMISSION	132

# Editorial Perspective

## A few for our readers

I am happy to present the combined issue of 'Dialogue' to our readers. In a modest way, these curated pieces represent the complexity of challenges that our nation faces.

The articles in this issue cover a diverse range of topics. Several focus on women's issues, such as an exploration of the *Scheme of Maharashtra*, the role of e-development, and the intersection of women and sustainable development. Another paper examines the contribution of Christian missionaries towards women education in colonial Assam in pre independens era,

Other subjects in this issue include Gandhi ji's ethics in the context of Localising ICT in Education; Sustainable Development also figures in the context of small scale Tea growers in Tripura; Role of Ecotourism came to fore in another paper on Satakosia Sand Resort in Orissa. Concerns about climate change are highlighted in papers on the impact of climate change on Indian agriculture, and a comparison of the solar energy policies of China and India. Geopolitical issues are also addressed, with a paper on Buddhism as India's soft power and another on recent international deals.

Thank you for your continued support.

**P C Haldar**

President

Astha Bharti





# **A Perspective on the Maharashtra's Manodhairya Scheme**

**Pooja Kumari\***

## **Introduction**

### **What is Manodhairya Scheme and how does it function?**

The 'Manodhairya scheme' was launched by the WCD department of Maharashtra Government in 2013 following the ghastly gangrape in Mumbai's Shakti Mills in August 2013. Implemented since October 2013, the scheme covers victims of Sexual Offences and Acid Attack (Women and Children) by providing them financial assistance and support for those suffering from the psychological shock. The scheme also provides based on their requirements, rehabilitation to by way of shelter, Financial Assistance, Medical & Legal Aid and Counselling Services to the victims and support for normal and vocational education. The Scheme also provides Financial Assistance of Rs.1 Lakh and in special cases up to Rs. 10 Lakhs<sup>1</sup>.

Considering the seriousness of the crime and the suffering caused to the victims, the government provides appropriate compensation to the victims. This is given jointly by the central and state governments who can also use the funds for compensation under any other eligible schemes. This includes schemes like Nirbhaya Fund established by the Center and state schemes. The purpose of this article is to find out how many victims of the state have been able to receive the help under the scheme in the last five years.

For this purpose, RTI queries were made and responses received in the form of data for five years (2017-2022 FY) under the

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Manodhairya Scheme from the Maharashtra Legal Services Authority. Based on this, a comparison has been attempted which may be seen below.

Table.1

<b>Compensation received by Rape victims - F.Y. 2017- 2022</b>		
	<b>Interim*</b>	<b>Final**</b>
	510	546
<b>Total</b>	1056	
*(30,000/- fixed amount as a primary help within 7 days under the scheme)		
** Depends on case to case and there is no data available regarding amount related to every single victim.		

Table. 2

<b>Compensation received by Acid Attack victims- F.Y. 2017- 2022</b>		
	<b>Interim*</b>	<b>Final**</b>
	7	7
<b>Total</b>	14	
*(30,000/- fixed amount as a primary help within 7 days under the scheme)		
** Depends on case to case and there is no data available regarding the amount related to every single victim.		

As per the fixed term under the scheme, the above data shows (Table 1&2) that the average amount of the interim compensation for each victim is Rs. 30,000/- only. And there is no clear picture on final compensation which may refer contradictory for the sentence used by authority itself that they take decisions based on psychological shock that suffer by the victims and if necessary to provide them Shelter, Financial Assistance, Medical and Legal Aid and Counselling Services.

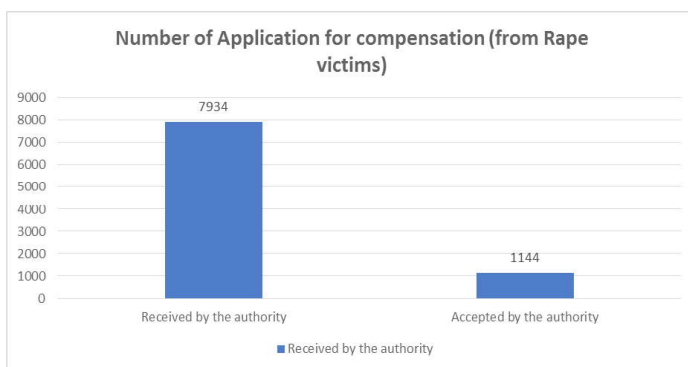
**Number of applications for compensation-** Despite the beneficiaries of the compensation there is another contradiction between applications for the same. This may be seen below from 2017-2022 F.Y.

**Table.3**

<b>Number of Application for compensation (from Rape victims)</b>	
Received by the authority	Accepted by the authority
7,934	1,144

**Table.4**

<b>Application for compensation (from Acid Attack victims)</b>	
Received by the authority	Accepted by the authority
54	10



Source- RTI data.

The data above shows pictures on the applications applied by the victims and accepted by the authority. ***Out of 7,934 applications of rape victims, there are only 1144 have been accepted by the authority for compensation. It is very sad to see that, not even 50% of the applications are considered by the authority.***

It is worth noting that recently the NCRB, released the report ‘Crime in India 2022’ in December 2023. Where **Maharashtra ranked fourth in (2,904 incidents) rape cases** after Rajasthan (5,399) was at the top position, Uttar Pradesh (3,690) ranked second and Madhya Pradesh third (3,029).

As per some experts who are working on ground for women and child, there is some confusion within courts itself and several times

they are not granting compensation due to conflict of schemes. Judges believe that the victims are getting compensation under this Manohari scheme and therefore, provisions under the interim compensation and the final compensation are not being utilized. In the absence of a support person and a lawyer, the women and children end up getting no compensation. Though the upper limit is Rs 10 lakh, only 1-2 severe cases where they got that amount of money. Otherwise, they end up getting Rs 30,000. And it comes after months and months. Sometimes, after a year and a half and two years even. This shows that there is a clear gap between stakeholders, court and DLSA.

There are several other on ground problems as well like some of the victim's don't have bank accounts which are needed, or documents like Aadhaar card etc. Under the Manodhairya scheme, the people who have seen only 4-5 cases have got compensation of Rs. 30,000, which is the first interim amount given in such cases.

## **Conclusion and way forward**

Giving compensation alone to any rape or acid attack victim cannot make the trauma go away nor can the grief be measured with money alone. It is our understanding that these compensations are gestures by the governments acknowledging its responsibility and also an effort by the government to alleviate their suffering reduced a little. Therefore, making proper arrangements for compensation in such cases is an important responsibility of the government.

The amount currently being given to the victims does not appear to be sufficient when seen against the nature of the crime and the trauma suffered by the victims. It is therefore, necessary to consider increasing the amount being disbursed. The data shared above reveals that the interim compensation was received very few victims. Since, this aspect is looked after by the DLSA unit it may be necessary for the authority to ensure that the DLSA work for the best interest for the victims.

Transparency is another requirement. Availability of data regarding compensation in the public domain provides enhanced clarity and help create awareness both amongst the victims, well-wishers and those who help them. This will help received assistance specially for victims who come from poor backgrounds.

There is another matter of concern for the society and the governments that relates to the rising rates of serious crimes against

women and children not only in the state of Maharashtra alone but also almost in all the states. Looking at the problem only as one of giving compensation may not help. The existing measures to deal with this kind of crime has succeeded only partially. There is a need to create space for stakeholders also to join the process of curbing these crimes as co-opting the stakeholders in the process will help remove the existing opacity.

## **REFERENCE:**

Manodhairya Scheme for Rape victims, Children who are victims of Sexual Offences and Acid Attack Victims (Women and Children)

[womenchild.maharashtra.gov.in/content/schemes/manodhairya-scheme-for-rape-victims—children-who-are-victims-of-sexual-offences-and-acid-attack-victims-women-and-children.php](http://womenchild.maharashtra.gov.in/content/schemes/manodhairya-scheme-for-rape-victims—children-who-are-victims-of-sexual-offences-and-acid-attack-victims-women-and-children.php)

RTI data

## **(Footnotes)**

- <sup>1</sup> [womenchild.maharashtra.gov.in/content/schemes/manodhairya-scheme-for-rape-victims—children-who-are-victims-of-sexual-offences-and-acid-attack-victims-women-and-children.php](http://womenchild.maharashtra.gov.in/content/schemes/manodhairya-scheme-for-rape-victims—children-who-are-victims-of-sexual-offences-and-acid-attack-victims-women-and-children.php)

# **Gandhian Ethics: Localizing ICT in Education**

**Neha Mehra, Aditti Bhadwal\*,  
Dr. Jyoti Narayan Baliya\*\***

## **Introduction**

Swadeshi is that spirit in us which promotes the use and service of our immediate surroundings to the exclusion of the more remote . . . In the domain of politics, I should make use of the indigenous institutions and serve them by curing them of their proved defects. In that of economics, I should use only things that are produced by my immediate neighbours and serve those industries by making them efficient and complete where they might be found wanting.” (M.K. Gandhi, *Collected Works of Mahatma Gandhi* (Delhi: Government of India, 1964, vol. XIII, p.216.)

“Even Swadeshi like any other good thing can be ridden to death if it is made a fetish.” (M.K. Gandhi, 1969: Vol. VI, p. 338.)

In the evolving landscape of education, integrating information and communication technology (ICT) has become crucial for teaching and learning (Hussain, Suleman, & Shafique, 2017). During the Industrial Revolution, education adapted significantly to meet the needs of the emerging economy, emphasizing traits like cleanliness, punctuality, and obedience to cater to industrial sector requirements (Moll, 1998). As educators leverage digital tools to enhance education, addressing the ethical issues these advancements raise is critical. Despite material progress, moral values often deteriorate, highlighting the relevance of Mahatma Gandhi’s virtues of self-control in a world

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driven by the pursuit of achievement and acquisition. Governments and educational institutions must actively instill Gandhi's moral qualities.

ICT in education raises various ethical concerns, including digital equity, privacy, academic integrity, and responsible technology use. With the increasing prevalence of online platforms, educators face complex moral dilemmas that require a deep understanding of how their decisions impact students and the broader educational community (Mouta, Pinto-Llorente & Torrecilla-Sánchez, 2023). The concept of "Digital Swadeshi" merges local self-reliance with modern ICT in education, guided by Gandhian ethics. This approach aims to implement ICT solutions that align with local cultural, linguistic, and economic contexts while adhering to Gandhian principles of simplicity, self-sufficiency, and inclusivity. By promoting ethical considerations in digital innovation and consumption, Digital Swadeshi offers a transformative framework that challenges conventional technological expansionism, paving the way for inclusive and equitable digital futures. The National Education Policy (NEP) 2020 emphasizes incorporating technology into classrooms to provide equitable access and high-quality education for all. This aligns with the "Digital Swadeshi" concept, which advocates using locally available resources and technology to empower local communities.

This approach not only addresses ethical concerns but also fosters a sense of local ownership and relevance in the digital age.

## **Background**

Following India's independence in 1947, the country inherited an education system primarily designed to produce administrative clerks for the British administration, which discouraged critical thinking (Chitnis, 1993). The national government took control of education policy to develop skills and foster a cohesive national identity. However, rapid growth led to significant challenges and sparked numerous debates. Students often find themselves somewhat isolated from broader societal discussions, focusing mainly on personal development. During the day, they attend university classes to acquire general IT knowledge, and in the evenings, they participate in vocational institutes offering specialized skills relevant to the IT job market (Mathur, 1976).

This education comes at a significant cost, typically accessible only to middle-class and upper-class students. Families make



substantial sacrifices—sometimes selling ancestral land—to support their children’s attendance at prestigious institutions. Consequently, there is immense pressure on students to secure good jobs after graduation and repay their family debts. Unfortunately, this emphasis on personal development and individual job prospects often overshadows the need for broader national development, especially for the economically disadvantaged. In India, students often work harder than their American counterparts, and the success of the American information revolution owes, in part, to the widespread presence of Indian software engineers. Students are instilled with the belief that they play a crucial role in the Indian system, and that information technology (IT) serves not only their personal development but also contributes to India’s progress. Indian culture is robust and doesn’t require protection, and Indians are leading information technology in America, so there is no need for concern (Ezer, 2005).

The prevalent beliefs that are reinforced by ICT education in India are not in line with Gandhian philosophy. These beliefs include a strong respect for science and technology, a preference for personal growth over the well-being of the underprivileged, and an overt aim to establish India as a major global force (Tharoor, 2013). Given the wide cultural diversity of India, the idea of appropriateness is very important there. The diversity of information and communication technology (ICT) and its local applications, however, don’t seem to be receiving much attention. Most of the attention is directed towards technology from a Western perspective, which might not adequately take into account India’s particular circumstances. In addition, the perspectives that are promoted by ICT-related education frequently conflict with the paradigms of modern growth. These obstacles impede the creation of indigenous knowledge systems and make it more difficult to identify contextually relevant ICT applications. They also prevent a true sense of local ownership from emerging (Bhatnagar, 2000). In light of this, the researcher explores the following objectives

### **Objectives of the Study**

The current study has following Objectives:

1. To develop a theoretical framework for localizing ICT in education based on Gandhian ethics.
2. To identify key strategies for localizing ICT in educational settings.

3. To recommend practical steps for implementing Digital Swadeshi ICT in education.

### **Theoretical Framework**

*Gandhian Ethics and Education* : Mahatma Gandhi's educational philosophy represents a harmonious blend of major philosophical schools, including Idealism, Naturalism, Pragmatism, and Humanism. His ideas were deeply influenced by ancient Indian texts such as the Vedas, Upanishads, Gita, Jain scriptures, and Buddhist teachings. Gandhi emphasized harmony within individuals and among fellow human beings. He advocated an educational system rooted in essential Indian cultural values and civilization. Mahatma Gandhi's visionary philosophy of education, which transcends mere literacy and delves into holistic development. Gandhi's approach, known as '**Nai Talim**', was not just an educational system but a socio-political statement aimed at liberating individuals and society (Phukan, 2021).

### **Gandhi's Vision of Education: Nai Talim**

1. Work-Centred Education: Gandhi believed in 'learning by doing'. He emphasized that manual labour should be an integral part of education, fostering dignity and respect for all forms of work.
2. Self-Sufficiency: The curriculum under 'Nai Talim' aimed to make students self-reliant. Skills like agriculture, weaving, carpentry, and metalwork were emphasized, enabling students to sustain themselves and contribute to their communities.
3. Moral and Spiritual Development: Gandhi insisted that education should cultivate moral virtues and spiritual understanding. Truth, non-violence, and self-discipline were as essential as academic subjects.
4. Social Harmony: 'Nai Talim' aimed to break down caste barriers, promoting social harmony. Students from diverse backgrounds would learn and work together, reflecting the fabric of society (Gandhi, 1997).

### **Gandhian Ethics and ICT**

While Mahatma Gandhi did not directly engage with modern information and communication technology (ICT), his principles and insights remain relevant. As a practical idealist, mass communicator,

and leader, he expressed opinions on contemporary issues, including media, press, journalism, and newspapers. His alert mind allowed him to address societal challenges, even without the digital tools we have today. Gandhi's approach to communication involved traveling extensively by train and undertaking marches on foot, which had a profound impact comparable to modern communication tools, if not greater. As a journalist, he also utilized his own publications and various newspapers to disseminate his messages. His writings and speeches at prayer meetings effectively engaged his audience, creating a deep, personal connection that is often missing in contemporary ICT practices.

Effective communication involves more than just delivering a message—it requires that the message be easily understood and impactful. It's not enough to simply gather information; the quality, speed, and intent of the communication are crucial. In today's globalized world dominated by information technology, Gandhi's methods, such as the Dandi March and his other movements, still share a common goal with modern communication tools: to meaningfully reach and influence millions of people (Gangal, 2020).

### **Gandhian ethics emphasize several key principles following ICT:**

1. *Self-Reliance (Swadeshi)*: Gandhi advocated for self-reliance (swadeshi) and simplicity as ethical imperatives. He believed that individuals and nations should strive for self-sufficiency and live simply to foster ethical living and personal integrity by encouraging the use of local resources and promoting self-sufficiency (Zachariah,2011).
2. *Truth (Satya)*: Gandhi emphasized truthfulness. In the context of ICT, this translates to transparent and honest communication, avoiding misinformation or manipulation.
3. *Non-Violence (Ahimsa)*: Ahimsa extends beyond physical violence. In the digital realm, it means promoting respectful dialogue, avoiding cyberbullying, and resolving conflicts peacefully.
4. *Simplicity (Sarvodaya)*: Advocating for simple, meaningful, and purposeful living. Gandhi lived a simple life, advocating for minimalism and frugality. He believed that material possessions should not define a person's worth. ICT solutions

should be accessible, user-friendly, and empower individuals rather than creating dependency.

5. *Non-Exploitation*: Gandhi advocated against exploitation. In ICT, this aligns with ethical data practices, ensuring user privacy, and avoiding misuse of technology for personal gain.
6. *Inclusivity and Equality (Samanyaya)*: Ensuring access to education for all, irrespective of social or economic status. Gandhi fought against discrimination based on caste, religion, or gender. He envisioned a society where everyone was treated equally. He worked to uplift marginalized communities and promote a more equitable society.
7. *Community Focus*: Strengthening local communities and respecting cultural traditions. Gandhi's focus on community welfare applies to ICT. Solutions should benefit society at large, bridging gaps and promoting inclusivity.

The erosion of our culture, heritage, and indigenous knowledge represents a significant loss to humanity. It's crucial to take practical steps to generate, organize, and share local content that reflects the values and experiences of our communities. Culture manifests in various forms across different groups and societies. Just as biodiversity is vital, cultural diversity is equally important, benefiting both present and future generations (Offenhäuser, 2010)

## **Localisation and ICT**

Information and Communication Technologies (ICTs) are vital for sharing locally relevant messages and information. They should provide platforms for local communities to engage, share their ideas, knowledge, and culture in their native languages. By converting analogue materials like videos, audio recordings, and oral histories into digital formats, ICTs facilitate simultaneous, unlimited, and remote access (Ballantyne, 2002). By digitizing and uploading our local content and heritage resources to the Internet, every country can actively participate as creators of local information. This transition from being passive consumers of foreign content to active contributors enhances our presence on the Global Information Network (GIN). It also boosts tourism, facilitates knowledge sharing, and fosters the coexistence of diverse cultural values. Leveraging technologies like digital cameras, films, audio tapes, and computers, we can capture, preserve, and disseminate local content beyond the physical confines

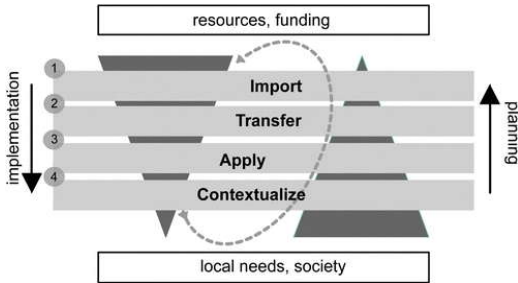
of libraries. When shared electronically, this content becomes what we might call e-content. For sustainable development, it is essential to have access to pertinent information. Information availability is crucial for the advancement of society in the globalised world of today. The abundance of information on the Internet emphasises this fact (Agarwal & Panda, 2018). The necessity for individuals to use ICTs successfully to create their own local digital content has recently come to light in order for an information system to be successful (Surman & Reilly, 2003).

### **Localizing ICT in Education**

Theories proposed by Cheng (2004) offer guidance on how educational systems can integrate localization. The Tree Theory, as described by Shekari and Mazdaie (2009), suggests that knowledge should be grounded in local values and traditions. Crystal Theory, detailed by Haji Tabar Firouzjaie and Mir Arab Razi (2017), advocates for aligning national and local curricula with global knowledge (Cheng, 2005). According to Mutula (2008), “absence of local content can lead to capital flight in terms of goods and services purchased from abroad”. Raven (2005) underlined the value of local content, pointing out that it fosters equitable access and community involvement by creating outreach programs and communication plans that are specifically designed to solve the most pressing problems in developing nations. Using indigenous content promotes pride in and respect for regional languages, indigenous customs, and cultural history. Community Information Centres (CICs) must become true information hubs by creating ICT-based material that is both current and accessible to a wider audience. A large portion of content from Africa is still difficult to access and exists in conventional formats. Creative ICT-based content should combine the most recent developments in computer applications with conventional communication techniques.

The CATI model is built upon context-based planning, emphasizing the intersection between educational initiatives and local communities. Specifically designed to highlight the benefits of applying ICT (Information and Communication Technology) and ICT skills within a local society, the CATI model recognizes the importance of addressing locally specific needs, problems, and deficiencies during planning and implementation. When these contextualized needs emerge, valuable opportunities arise for creating sustainable conditions that directly benefit the local community. The CATI approach underscores ongoing

flexibility and adaptation throughout the lifespan of any project or initiative. By following this approach, initiatives are more likely to achieve long-term sustainability (Vesisenaho, & Dillon, 2013).



**Fig.** Vesisenaho, M., Kempainen, J., Sedano, C.I., Tedre, M., & Sutinen, E. (2006). Contextualizing ICT in Africa: The Development of the CATI model in Tanzanian Higher Education. *Afr. J. Inf. Commun. Technol.*, 2.

**Import:** Importing refers to situations where ICT and knowledge are introduced without a thorough analysis of the specific needs and local conditions. Although it might be straightforward to make ICT physically available, failure to consider local circumstances can render it foreign, confusing, and ineffective for the intended users.

**Transferred ICT:** It involves making innovations, knowledge, and skills accessible to users, which might hold some promise for application in a local setting, even if the local needs analysis was lacking or incomplete.

**Application:** It occurs when the potential of transferred ICT and knowledge is realized, meaning that local users have managed to make the technology and skills useful and relevant in their specific context.

**Contextualizing:** It involves adapting ICT to fit the needs, conditions, and concerns of local communities. This process ensures that local conditions and innovations shape the effective use of ICT in practice.

**Key Strategies of Localising ICT in Education:** Based on above model, there are several ways for localising ICT are given below:

### 1. Developing Local Content:

Globally, there’s a growing emphasis on local content generation. However, in practice, developing countries often lack comprehensive

records of their cultural values, indigenous knowledge, and heritage materials. Unlike developed nations, which contribute significantly to global content on the Internet, local content from developing countries remains relatively invisible.

Africa only makes up 0.4% of the world's content output; when South Africa is taken out of the equation, this percentage drops to just 0.02% (Ozioko, Igwesi & Eke, 2011). The collective culture, values, history, and indigenous knowledge of a particular community are referred to as local content. It is the expression and dissemination of locally created, owned, and contextualised information and experiences within a community. For a country to thrive sustainably, local content creation is essential (Mansuri & Rao, 2012). It serves as a potent instrument to close the digital gap by facilitating worldwide connections and communication. Furthermore, there is a strong correlation between local content and community empowerment as well as human growth. It may consist of locally created, produced, adapted, or published content.

### ***Digital Content in Local Languages:***

India, with its rich linguistic diversity, relies on languages as essential vehicles for carrying culture and tradition into the future. In the northeastern states, which are home to numerous local and tribal languages, effective utilization of Information and Communication Technologies (ICTs) can drive development. To achieve this, attention must be given to localizing ICTs. Many local languages, particularly minority ones in the northeastern region, are on the brink of extinction, and some have already disappeared (Rana & Singh, 2012). In the current ICT landscape, India's linguistic diversity necessitates that educational ICT tools are localized into multiple languages and dialects. This includes not only translating text but also adapting educational content to reflect local linguistic preferences and educational standards to ensure inclusivity and better understanding. This includes textbooks, online courses, and multimedia content.

Demand for Regional Language Content: Approximately 50-60% of consumers engage with video content in Hindi, 35-43% in other regional languages, and only 5-7% in English. This highlights the substantial demand for regional language internet content. Tier 2 cities and rural areas in India show potential for increased demand for digital content in local languages( [Need for Digital Content in Regional Languages | iDream Education](#)).

Cultural Relevance: Educational ICT tools must be aligned with the regional curricula and educational practices prevalent in various parts of India. This ensures that content is relevant to students' learning environments and supports their educational development according to local standards. Incorporate local history, traditions, and examples into educational content to make learning more relatable and meaningful for students(Pattnaik, 2013).

## **2. Promoting Local Technologies:**

How the expansion of computers in education in India since the 1980s has been marked by a significant digital divide. This divide arises not just from uneven distribution of technology between federal and state levels but also from local resistance influenced by political factors (Kalyan Shankar, Sahni, & Roy, 2024). By focusing on West Bengal, we can explore how both political dynamics and historical patterns impact technological decisions within institutions. The history of educational technologies reveals global-local interdependencies (Good, & Hof,2024). (Songan, Harris, Bala & Khoo,2000). Localization means tailoring educational content to fit local languages, customs, and cultural norms. This approach improves students' comprehension, engagement, and retention, making education more inclusive and effective, no matter their geographical location or cultural background. Utilizing advanced technologies, such as AI-driven translation platforms and adaptive learning systems, simplifies the localization process and ensures consistency across different educational materials(The Role of Localization in Education: Bridging Cultural and Linguistic Gaps | Dynamic Language).

*Affordable Solutions:* Support the development and use of cost-effective technology solutions that are accessible to local communities. This could involve adapting existing technologies to meet local needs.

*Open-Source Software:* Encourage the use of open-source software to reduce costs and allow customization to suit local educational requirements.

Promoting local technologies goes beyond language. It involves enhancing digital literacy, ensuring that learners can effectively use technology tools. In summary, promoting local technologies in education empowers learners, preserves cultural heritage, and contributes to a more inclusive and equitable learning environment



### **3. Building Local Infrastructure:**

Education infrastructure is undoubtedly critical, especially in the digital age. Prioritizing. Just as we invest in safe, healthy physical infrastructure for schools, it's essential to allocate resources toward creating a digital infrastructure that is equally secure, accessible, resilient, sustainable, and future-proof(Building Technology Infrastructure for Learning - Office of Educational Technology). Building local infrastructure that supports Information and Communication Technologies (ICT) in education is crucial for creating effective learning environments. Some key considerations are:

- a) *High-Speed internet connectivity:* Reliable and high-speed internet access is fundamental for digital learning. It enables seamless communication, access to online resources, and collaboration. Educational Institutes can connect through the district to research and education networks, commercial internet service providers (ISPs), or directly to ISPs. Mobile devices and hotspots are also viable options. E-Rate funding can help schools afford internet connectivity, especially in rural areas.
- b) *Infrastructure Within Educational Institutions:* Educational Institutions should ensure that classrooms, libraries, and administrative areas have reliable Wi-Fi coverage. Efforts should focus on bridging the digital divide, ensuring all students have equal access to technology. Infrastructure planning should consider scalability and adaptability to emerging technologies.

### **4. Encouraging Ethical Use of Technology:**

*Privacy and Security:* Emphasize the importance of data privacy and security in the use of ICT tools. Integrate digital literacy programs into the curriculum. Teach students about online safety, privacy, and responsible use of technology. Discuss topics like cyberbullying, plagiarism, and copyright infringement. Encourage critical thinking and ethical decision-making.

*Model Ethical Behaviour:* Educators should lead by example. Demonstrate respectful and ethical online conduct. Show students how to cite sources, respect intellectual property, and engage in constructive online discussions. Promote ethical behaviour online and educate students about responsible use of technology.

## **5. Integrating Gandhian Values:**

Gandhi thought that some principles need to never change. Though he was well-known for criticising contemporary technology, he understood its benefits. Gandhi argues that no other element inside a system can take the place of a person's fundamental responsibility in society. His goal was to create a society devoid of states and free from the government's oppressive power. Gandhi made a compromise by arguing for a parliamentary democracy that is mostly nonviolent, even though his vision was not entirely realised. This system prioritised decentralisation in issues of politics, economy, and defence while incorporating trusteeship for the welfare of the oppressed. ICT is still required inside this Gandhian framework, in spite of its shortcomings (Kool & Agrawal, 2020). By infusing Gandhian values, we can create technology that fosters unity, empathy, and sustainable development.

*Sustainable Practices:* Implement digital solutions that minimize environmental impact, such as using energy-efficient technologies and promoting recycling.

*Community Involvement:* Engage local communities in the development and implementation of ICT solutions, ensuring that they align with community values and needs.

## **6. Community-Based Networks:**

Even while ICT offers a great deal of promise to improve community development and well-being, compared to commercial uses, there are very few long-lasting community networks centred around ICT. Even in industrialized nations where technology has been around for up to 20 years, this is still true. Provide local networks and infrastructure, such as community centres with internet connection and materials for digital learning, to facilitate digital learning.

## **7. Fostering Collaboration and Support:**

Ostering collaboration and support for ICT localization in education is essential for meaningful integration (Marshall&Taylor,2005)..

*Partnerships:* Establish partnerships between local educational institutions, government bodies, and technology providers to support and sustain ICT initiatives.

*Resource Sharing:* Create platforms for sharing resources and best practices among local schools and educational organizations.

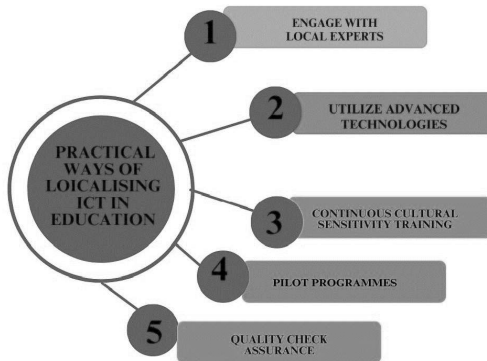
Collaboration among educators, students, and policymakers is key to successful ICT localization in education.

## 8. Local Training:

According to the baseline survey, 99% of the people in the village community had no prior knowledge of the Internet. These findings highlight the need for tailored training programs in IT for social development, as well as the importance of community telecentres and knowledge portals. Provide training for local educators and students to effectively use ICT tools, focusing on practical skills and applications (Songan., Harris, Bala, & Khoo, 2000).

### Practical Steps for Implementation of Digital Swadeshi ICT in Education

In light of above discussions, Implementing ICT localization in education involves thoughtful planning and execution. Here are some practical steps recommended by researcher are as:



1. *Engage with Local Experts:* Work along with educators, community members who are native to the target location, and linguists. The localization process will be guided by their understanding of educational choices and cultural subtle differences. Use their knowledge to your advantage to make sure that information that has been localized meets the needs of the local audience and follows local educational guidelines.

2. *Utilize Advanced Technologies:* Leverage pioneering tools, such as AI-driven translation platforms and adaptive learning systems, to streamline localization. These technologies help maintain consistency across various types of educational content, ensuring high-quality localization.
3. *Continuous Cultural Sensitivity Training:* Stay updated on cultural contexts as they evolve. Regular training ensures that localized content remains relevant and respectful. Sensitivity to cultural differences enhances the effectiveness of localized educational materials.
4. *Pilot Programs:* Start with pilot projects in a few schools or communities to test and refine the approach before broader implementation
5. *Feedback Mechanisms:* Establish mechanisms for continuous feedback from users to adapt and improve ICT solutions over time.
6. *Resource Allocation:* Allocate resources for the development of local content, training programs, and infrastructure to support the initiative.
7. *Evaluation and Scaling:* Regularly evaluate the impact of the Digital Swadeshi approach on educational outcomes and scale successful practices to other regions.

Successful ICT localization in education requires a holistic approach that considers both linguistic adaptation and cultural relevance aligned with Gandhian Values.

## **Conclusion**

By localizing ICT in education through Gandhian ethics, we can create a system that not only leverages modern technology but also respects and integrates local culture, values, and needs. This approach aims to make education more relevant, inclusive, and sustainable, fostering a learning environment that empowers students while honouring their heritage. The concept of “Digital Swadeshi” represents a fusion of local self-reliance and modern Information and Communication Technology (ICT) in the educational sphere, guided by Gandhian ethics (Bakker,1990). This approach seeks to adapt and implement ICT solutions that resonate with local cultural, linguistic, and economic contexts while adhering to Gandhian principles of simplicity, self-sufficiency, and inclusivity.

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# Sustainable Development and Jhumias Rehabilitated in Tripura's Small Tea Growers

Vanlalrema Kuki\*

## Introduction

The practice of shifting cultivation was a popular form of earning a livelihood among the indigenous tribes of Tripura. With the demographic changes due to immigration from East Pakistan and neighbouring states, the land-man ratio declined, resulting in a land crisis and reducing the availability of forest land for pursuing jhum cultivation on the hill slopes. As a result, the state government initiated the Jhumias rehabilitation process in the 1950s, adopting various models. Tea-based rehabilitation was one of the models used for rehabilitating erstwhile jhumias in their habitations. The aim was to encourage permanent settlement with a sustainable livelihood opportunity. The total number of tea beneficiaries of the rehabilitation scheme given by the Tribal Welfare Department was 140 households across the three districts (West, North, and Dhalai) of Tripura (Kuki, 2022), which aimed to improve the economic condition of the tribals by bringing them under tea plantation cultivation to wean them away from further pursuing jhum cultivation (TWD, 2000). Tripura is India's fifth-largest tea-producing state after Assam, West Bengal, Tamil Nadu, and Kerala. The state is a traditional tea-growing region, with 4350 small growers producing more than 8.9 million kg (Choudhury, 2017).

At inception, the cultivators faced various difficulties in forest clearance and skilled workers for plantation crop cultivation; the

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processes of tea cultivation, like hoeing, weeding, and pruning, remained labour-intensive. However, the local tribals were not interested in the plantation work because of the low wages and non-familiar occupations. Many groups disliked the nature of the work, and hence, it failed to promote itself among the local gardeners; as a result, many workers came from other Indian states to pluck tea leaves during the agricultural off-season. It should also be noted that participation among the local tribes was minimal because the crop required skilled labourers for both production and processing work. Moreover, the local people were engaged in shifting cultivation; available jhum land provided sufficient jhum yields, and there was no necessity to switch over to tea cultivation (Bhattacharjee & Singh, 1995). Despite the importance of the tea sector's contribution to the regional economy, emerging challenges such as production stagnation and climate change threaten the long-term sustainability of tea cultivation in the state (Choudhury, 2017).

### **Beneficiary selection process adopted by the government**

The indigenous tribes of Tripura are eligible to receive rehabilitation schemes for those practising shifting cultivation partly or wholly to earn a livelihood. The beneficiaries were selected by the "Sub-Divisional level Jhumia Rehabilitation Committee" in collaboration with the "Block Advisory Committee" among the partly or hardcore STs jhumia families. The implementation period was five years, and the total unit cost of the scheme was Rs 96354 per acre (Kuki, 2017). The medium of prayer included both formal and informal approaches. Some beneficiaries formally applied for the scheme by petitioning; however, the Department sometimes selected the beneficiary.

Interestingly, there were also some instances where the beneficiary verbally requested the Department to provide rehabilitation support on field visits or beneficiary visits to the Department. Most beneficiaries were selected based on land document possession, while a few were selected based on landlessness. The agencies providing the scheme were the Tea Board, the Autonomous District Council (ADC), the Panchayat, and the Block Development Office under the Plantation scheme. Moreover, Jhumia households also received saplings from two sources, the ADC and the Tea Board, sanctioned by different implementing agencies.



## **Beneficiary socio-economic characteristics**

The rehabilitated jhumia households belong to the patriarchal system, where the male heads the family. The family head was literate but had low educational qualifications. Their primary source of livelihood is working as a cultivator, labourers, and wood sellers. At the same time, most households possessed BPL and Antyodaya ration cards, indicating less economic development. The holding of NREGS job cards among the beneficiaries was significantly high, which helped them avail themselves of employment under the government work programme. The tea beneficiary's housing patterns were kutchha (made of mud), bamboo houses, semi-pucca, and a few having concrete. In the case of concrete owners, rehabilitated family members held regular jobs in the government or private sectors. Respondent households' primary sources of domestic water use were water supply, well, tube-well, and hand-pump. Whereas the primary fuel was firewood, a few could enjoy LPG facilities. The pit-latrines type of sanitary system was familiar to almost all rehabilitated households, and only a few used the septic tank type of sanitary. An electricity facility was also nearly available to all the tea beneficiaries.

The rearing of livestock such as cows, hens, goats, and pigs was common to all because of the money values they possessed, and families used to sell them in times of financial emergency to meet the crisis. Moreover, fishery farming also provides financial support to families. This simple practice of animal rearing substantiates the households' need for money. At the same time, it is also a measure of the risk that might arise from tea plantations owing to market failures. Hence, the approach is sustainable for the small grower of tea beneficiaries to run the tea farm.

## **Challenges for Jhumia Tea Beneficiaries**

Tribal jhumias solely depended on government interventions to cultivate tea plantations among the rehabilitated beneficiaries. On average, the cultivated tea garden was less than one acre; this is an uneconomical holding of farm size to sustain rehabilitated households' livelihoods. The tea crop entirely depends on the arrival of monsoon rainfall. The lack of irrigation facilities within the garden caused the plantations to die during a long spell of dry weather. Tea growers do not have a kisan credit card or crop insurance, so replanting in the old garden

was almost impossible. The growers also agreed that the farm size was too small to support their households; at the same time, the low quality of the saplings was another concern for the tea planters. Due to financial constraints, they also failed to deliver fertiliser and pesticides on time.

It is also important to remember that many tea planters required much-needed physical training in plantation cultivation and farm management. However, some beneficiaries received training on planting, leaf plucking, cutting, pest and insect control mechanisms, measurement of leaf maturity, fertiliser mixing ratio, plant protection tools, rainwater harvesting, use of machinery tools, and preparation of green tea. They trained within the state and outside; such outreach programmes positively impacted attaining sustainable development goals by yielding higher production and increasing grower's family income.

Moreover, there were infrastructure and institutional challenges faced by the rehabilitated tea growers, namely the labour crisis, irrigation and associated inputs, lack of storage and packaging materials, high price of packing materials, absence of the agro-processing industry, inadequate post-harvest facilities, poor quality of tools, lack of power at the farm, inferior quality of seedlings, and lack of proper dissemination of information on the scheme components and market issues. In addition, financial constraints were also hampering tea growers' economic activities. Such problems were mortgage issues, inadequate amounts of support or credit, high-interest charges for the loans, difficulties in availing of subsidies, time lag between spending and receipt of subsidies, subsidy paid after spending, excessive documentation, tedious procedures for subsidies, and not being aware of eligibility criteria for subsidies. It is also worth mentioning the marketing problems they face. The major problems were poor condition of rural roads, lack of transport vehicles, high transport costs, lack of market information, high commission, broker problems, high marketing costs, payment delays, price takers, lower prices, lack of minimum support prices, absence of competitive prices, lack of transparency in market transactions, lack of an online trading facility, and no standardisation process for quality checks. All these led to slow progress while hindering the growth of plantation expansion. Thus, the essential need was to remove most of their difficulties at the earliest so that they would be interested in investing in expanding plantation areas to become a reliable source of income.

## **Roles of rehabilitated small tea growers and resource management approaches**

Rehabilitated tea growers followed local, convenient approaches to address various threats experienced in plantation development. The approaches, though traditional, were very cost-effective and sustainable for the growers in pursuing their livelihood. The marketing strategies include selling to the factory, at the farm, and at the nearest local market to avail better prices; besides, waiting for a stable or better price means keeping the product without a sale. The conservation strategy includes using family labour days at their maximum to avoid hiring labour and using bicycles for transportation, which could help the growers avoid transportation costs. The production strategy of the tea growers was to stop production when tea leaf prices were low to minimise the cost of production, while some growers believed that proper maintenance increases yields. Since revenue results from output and price, tea growers' financial strategy is to find alternative vocations to diversify income sources to withstand crop and market failures.

Apart from their direct response mechanism, some beneficiaries also avail themselves of social support systems to fight their threats and problems. Involvement in various social and civil associations and organisations is often a way out of economic and other crises. The most prominent groups joined by the tea growers were the Gram Panchayat, the Self-Help Group (SHG), the farmer society, and other NGOs. Social networking helps them receive and disseminate information on various social issues and recent government policies helpful in achieving sustainable development goals.

### **Labour usage**

Tea plantation cultivation is a labour-intensive type of agribusiness. Under the rehabilitation model, the tea farms were kept functional using family and hired labour. They hired labour to supplement family labour, which was more used than family labour, particularly for plucking leaves and cutting the plants. These hired labourers came from outside the state because the rehabilitated beneficiary could not measure the maturity of the green tea leaf. However, with the sizeable use of family labour, it appears that tea cropping is family-based farming, thereby significantly impacting on sustaining families' livelihoods. Family labour is a one-way cost-reduction method for

small tea growers. In the case of hired labour, the inclination for female labour is more than male labour because of the differential in daily wages. However, in the case of family labour participation, male labour is more preferred than female labour. This simple social know-how and the traditional knowledge of using labour were vital to boost beneficiaries' livelihoods.

The daily wage rate of the hired female labour was Rs 225 per day, while the male labour was Rs 300 per day for the same work. Meanwhile, the daily wage rate of the labourers also differs from place to place. The price of tea production does not determine the wage rate; instead, it is determined by the prevalence of the local wage rate. The hired labourers were not entitled to any additional benefits in case of accidents within the garden since the employment pattern is informal. Another prominent problem faced by the beneficiaries was that the garden had to be managed by the tea growers in the post-rehabilitation period. In contrast, tea crop cultivation is a highly scientific and technical business (Saha & Kerketta, 2023), which they need to improve.

### **Economics issues**

Sustainable development on tea farms depends on the market assurance the growers can enjoy, which determines the economic returns. The conventional way of marketing tea products for small tea growers is to sell their leaves to the nearest tea processing factory, at the farm, and in the local market. The main buyers were local traders and market brokers; some preferred to sell at the Central Tea Factory Corporation (CTFC), and a few were also selling to cooperative societies. Besides, farm economic feasibility is always measured by farm business turnover. Here, the average cost of production for tea farms was Rs 117574 per hectare. At the same time, the income return was surprisingly negative for tea farms, which was Rs (-) 12350 per hectare under the Jhumias rehabilitation model. As expected, the benefit-cost ratio (BCR) for tea is 0.89. The negative business income and the unfavourable benefit-cost ratio at the tea farms can be understood from the fact that the imputed cost of labour input for tea is Rs 63597 per hectare. Thus, the government rehabilitation programme for a tea model emerged as economically non-viable, and hence, the growth of tea gardens among the jhumias rehabilitated is almost impossible. It was also observed during the survey that many farms

stopped operation due to low prices of tea products, while maintenance costs were more significant than the income received.

Bad marketing is the main challenge faced by beneficiary households. In addition, poor management, termites, water problems, and soil infertility in tea farms were the primary reasons for plant loss. Also, the price of tea products ranged from a minimum of Rs 8 per kg to a maximum of Rs 15.5 per kg. The Central Tea Factory Corporation (CTFC) purchased at higher prices than the market brokers. The market condition was that the tea leaf sellers had to consider selling the product at the buyers' price; the sellers did not have bargaining power since green tea leaves were non-durable goods.

### **The threats of climate change and the SDGs**

Climate change has become an essential threat to the agriculture and tea sectors in recent years. The erratic climatic conditions result in various damages to the tea plantation, causing product fluctuation, loss of plants, emerging new types of diseases, hampering product quality, and an unnecessary increase in the cost of production and management. Climate change does affect Jhumia beneficiaries' small tea growers' alternative occupation of practising wetland agriculture cultivation. They observed that the paddy cropping intensity has declined over the years, from three times to only a single crop in a year. Indeed, livelihood security, even in rural areas, remained at high risk due to the changes in climate factors. Besides, the availability of forest resources for livelihood strategies has been declining across Tripura, and rural areas were no exception. Most tea growers opine that the availability of trees and bamboo, these two premium forest resources, was becoming difficult. It is a common tragedy led by the expansion of plantations, like a rubber plantation. At the same time, the tea planters also believed that rainfall had declined over the years.

The tea growers also believed that the temperature was on the rise. It is expected to increase more due to the disappearance of natural forests, replaced by artificial forests. Many growers also believe that uncultivated paddy lands have increased over the years because of the decreasing running water in the river canals. Similarly, most tea cultivators believed in a decreased incidence regarding the visibility and habitability of birds and animals. Henceforth, an immediate solution is required to protect and preserve natural forests and secure the livelihood sources of the beneficiaries.

## Conclusion

With years of experience in shifting cultivation, the jhumias rehabilitated small tea growers face that making their livelihoods becomes more challenging than observed. Though tea is a labour-intensive plant that can generate employment without scientific knowledge and skills, it only pushes up the cost of management and production. Despite this, tea growers' response mechanisms are well coordinated and executed locally to manage the resources available to them to achieve sustainable development goals. The threats of climate change are undeniable, and the problems will arise more in the future; therefore, finding a solution to them at the earliest is the most crucial issue in the context of a sustainable development framework. Promoting crop diversification among the beneficiaries may be an excellent strategy to decrease environmental devastation while increasing growers' income and ensuring sustainable livelihood.

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# Women and Sustainable Development: Exploring Their Symbiotic Relationship

**Dr. Samir Kumar Mohapatra\***

## **Introduction**

The contemporary/modern era has presented myriad problems before humanity. It reminds us that the model of development we adopted and continue to adopt is fraught with risk, danger and unsustainability. Environmental unsustainability is the most dangerous outcome of the model of development we follow. This makes it imperative that we must and should pay attention to the issue of sustainability of our environment. And it is here that women can play a pivotal role. Men by their policies and technologies have ensured growth and prosperity for human civilization but, in the process, have destroyed the environment beyond redemption. Urgent corrective and restorative measures are needed; otherwise humanity will stare at its own extinction. Women are therefore called upon to contribute to make the development process sustainable as women and environment are believed to have a symbiotic relationship. It is in this context, the subsequent discussion will not only highlight the problems associated with the present model of development but also underscore the importance of women's role to render the development process sustainable.

## **Objective**

This paper makes a humble attempt to explore the pivotal role women play and can play in engendering sustainable development. Extreme industrialization and the quest for growth in economy and infrastructure

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have created an ambience of environmental sickness as we have been witnessing the consequences of this in recent time.

Women have a symbiotic relationship with nature because of their inherent caring personality. This paper explores and makes a case for enhancing the role of women in preservation of environment.

## **Method & Approach**

This paper is an analytical paper and is based on published/secondary sources like books, journals and e-resources. In this paper it is argued that women's contribution to protecting the nature/environment has to be located in the categories of Self and Other.

However, the environmental degradation and subsequent unsustainability is also to be located in these two categories. The self-referring to the male ego is a dominant self which has been dominating over the other referring to the nature/environment for centuries. Because of their domination and exploitation, civilization has progressed, but this progress has come with a price: environmental problems. The male self does not care for the other: it only controls and exploits. Even Karl Marx talked about the nature-man contradiction and how in order to survive men had to establish control over nature with the help of technology, but he forgot to see the future that this control and mindless exploitation over the nature one day would raise the issue of survival for which the control started in the first place. So, men have created a "risk society" (Ulrich Beck, 1992) in the process rather than a caring society: a society that cares for the nature while controlling and exploiting it for its betterment. As Low and Gleeson argue, "If we live only for the moment, knowing neither past nor future, knowing only our internal material needs of the moment, then greed is simply a legitimate expression of the self" (Low & Gleeson, 2002: 135). Then there is no need for mutual care. Environment and development are considered to be different and are never considered interlinked. This is the way the present model of development, designed by men, has been undertaken. On the other hand, the female self, which has been a victim of domination by male self, is not a dominating and controlling self rather it is a caring self: it cares for the other (in this case the nature). Women are believed to be closer to nature and they are characterized, according to cultural feminism, by greater humanism, pacifism, nurturance, and spiritual development (see Braidotti et al., 1994: 68). Griffin, in *Reclaim the*



*Earth* (1983) maintains that women, being less severely alienated than are most men, must and will liberate the earth (cited in *Ibid.*). Hence, while men have created a risk society, women's participation is called for to engender a caring society that will ensure that the present model of development changes its course and adopt sustainable practices so that the future generations are not deprived of development opportunities. The relationship with nature/environment has gone beyond being instrumental; it has become a moral one. The protection of environment is not only an existential necessity but also a moral imperative and women's contribution is very important in this regard.

### **Development: Understanding the Problem**

Broadly, development refers to a process of socio-economic change – a change that is desired, intended and planned for improving the quality of life. It is argued that two models of development emerged after the World War II: modernization theory and dependency theory. Both the models linked development to economic growth with the help of western science and technology; the only difference is that dependency theory arose as a reaction against modernization theory by highlighting that rich economies progressed by exploiting the poor economies and making them falsely believe that their integration to the rich economies was beneficial to them. So the linking of development to economic growth through industrialization, exploitation of natural resources, building of infrastructure, deforestation, discharge of industrial effluents into aquatic world, release of chemical gases through factories and vehicles into the air, manufacturing and use of chemical and nuclear weapons, careless disposal of radioactive and other toxic products, etc. created the condition that was inimical to environmental health. This idea of development continued till 1970s and even continues now in most parts of the world. So, the problem with this model of development is that it never considered environment and development to be complementary to each other or at least till the late 1970s when the ideas of conservation and preservation of environment came into focus.

### **Sustainable Development: Exploring the Meaning and Need for It**

By the late 1970s and 1980s, the present model of development started paying attention for the first time to environmental concerns. As S.

Singh points out, “The late 1970s and early 1980s was a landmark era in the history of development theory, when for the first time *conservation* and *preservation* of ecosystem and *habitat planning* were introduced under the banner of *ecodevelopment* by UNEP. The term “ecodevelopment” was coined in 1972 at the first International United Nations Conference on Human Environment in Stockholm. This conference emphasized that socioeconomic development could be achieved only by environmentally sound development (ecodevelopment). Additionally, it was realized that the poor in the society suffer the most from environmental degradation; therefore, persuasive approach of harmonic coexistence with nature would be the best option, which could be accomplished by developing resources to satisfy basic needs and satisfactory socioeconomic system for a long-term development” (Singh, 2014: 25). Thus, in the early 1980s and mid-1980s, the idea of sustainable development started gaining ground. According to Singh, “... widespread adverse effects of anthropogenic activities on the environment led to the concept of sustainable development, but the primary intent was conservation of nonrenewable natural resources and prudent use of renewable resources to attain overall development for human beings” (Ibid.). Brundtland Commission, through its report titled *Our Common Future* (1987) has given the meaning of sustainable development. It defines sustainable development as “development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs emphasizing on principle of equity contemplating two types of equity as intergenerational equity: justice to current and future generations in relation to resource and intragenerational equity: fairness in sharing of resources to the competing interests of contemporary time” (Ibid.). More or less similar definitions of the concept are formulated by World Bank (World Development Report 1992) and Rio Declaration on Environment and Development – 1992. The theme of sustainable development was brought to the fore and made a part of common consciousness by the environmental movements.

Pearce (1993) stated that the cost of society’s development should not be placed on the future generations (Ibid.: 27). Therefore, saving and protecting the environment became not only an existential necessity but also a moral imperative. Sustainable development arose from such a felt need.

# **Women and Sustainable Development: Understanding Their Symbiotic Relationship**

## **Historical Sketch**

The theme of WED (*Women, Environment and Development*) originated in the context of economic development of the countries of the South, that is, discussions on Women in Development (WID) and Environment and Development as well as from within social movements in the South, such as the Chipko and Greenbelt movements (Braidotti et al. 1994: 77; italics in bracket added). The Chipko (Hug the Tree) Movement took place in India and the Greenbelt Movement took place in Kenya at almost the same time – in the 1970s. However, according to Braidotti et al., “In the North, women and environment as a theme evolved within the women’s movements in the mid-1970s with the emergence of ecofeminism, mainly in the US. Implicitly, the relation of women to environment also emerged as an issue for many women who took part in the peace and anti-nuclear movements at the time (Ibid.). In 1972 the UN Conference on the Human Environment and a parallel NGO conference were held in Stockholm in which the success story of the Chipko Movement became an important issue of discussion. As Braidotti et al. argue, “The success of the Chipko women’s activities later inspired other local initiatives in the South, and also those wishing to stimulate bottom-up, people-oriented development work” (Ibid.:85). Subsequent to the Stockholm Conference, the United Nations Environment Programme (UNEP) and the Environmental Liaison Centre International (ELCI) were set up in Nairobi, and according to Braidotti et al., both agencies became active in the field of WED around the mid-1980s (Ibid.: 86). They further point out that in 1984, UNEP initiated a programme to enhance women’s participation in environmental management and consequently established the Senior Women’s Advisory Group on Sustainable Development (SWAGSD) (Ibid.: 86). This group was responsible for highlighting the issue of women and environment in the 1985 UN Conference on Women and Development. At the Nairobi Forum 1985, held parallel to the UN Women and Development Conference, ELCI organized a workshop on ‘Women and the Environmental Crisis’ in which women were presented as environmental managers whose involvement was crucial to the achievement of sustainable development (for further details, see Ibid.) In 1986 the UN Secretariat for the

Advancement of Women appointed UNEP as the leading agency on women and environment (Ibid.: 87).

Braidotti et al. argue that in the evolution of the debates on WED since the mid-1980s, women who were seen as victims started being seen as efficient environmental managers within the development process in the South. The argument for the increased participation of women in environmental management has been derived from their privileged knowledge and experience of working closely with the environment. A somewhat different line of argument has been advanced by Vandana Shiva and Irene Dankelman, who stress the 'feminine principle' based on the assumption of women's special empathetic and nurturing capacities in relation to nature. The net result of both positions is that women are seen by many people involved in the WED debate as privileged environmental managers, or the source for solutions to the environmental crisis (Ibid.: 2). They further argue that a global movement, in which some women from Eastern Europe and the former Soviet Union also joined in, emerged within the preparatory process leading up to the Earth Summit, the United Nations Conference on Environment and Development in 1992. In this process, in 1991 at an international women's meeting in Miami entitled 'World Women's Congress for a Healthy Planet', women from all over the world, representatives from different NGOs, NGDOs, government agencies, academia, business organizations, from their respective positions came up with a common position critical of the dominant development model (Ibid.: 3). This meeting resulted in a document called the Women's Action Agenda 21 that highlighted the possible course of action necessary to make this planet a healthy one. In Miami, women presented the global scenario in the following way: "The global developmental and environmental problems were summarized as wasteful overconsumption in the developed world, inappropriate development leading to debt and structural adjustment in the South, increased poverty and continued land and forest degradation, environmental damage, pollution, and toxic wastes, population growth, creation of ecological refugees and last but not the least, excessive war and military spending associated with environmental damage" (Ibid.: 102). For this reason women saw an important role for them to find a solution to this looming environmental crisis. As Bina Agarwal (1991) argues, "Women are both victims of this crisis in gender-specific ways as well as important actors in resolving it" (cited in Ibid.: 100).

Hence, as Braidotti et al. highlights, “In Miami women demanded the right to bring their perspectives, values, skills and experiences into policy-making on all levels and to be on an equal footing with men in UNCED and beyond. They called for a ‘Healthy Planet’ in which participatory democracy, open access to information, accountability, ethical action, justice and full participation of women are realized (Ibid.: 102). In the year 1995, the Fourth World Conference on Women took place in Beijing and produced the Beijing Declaration and Platform for Action, considered to be one of the historic documents on women. One of the most important areas of concern was women and the environment in which, *inter alia*, the demand was made to involve women actively in environmental decision-making at all levels and integrate gender concerns and perspectives in policies and programmes for sustainable development.

### **The Contemporary Dimension**

Post-2000 period represents the contemporary era for the purpose of the paper for no other reason except that it is the beginning of a new era, a new Century. Let us throw some light on the developments in the post-2000 era with regard to the place of women in the environmental issue. Interestingly, even an issue like climate change which is an outcome of the adverse human interference in environment and for which global concern has emerged did not include women as agents who could make a difference. With persistent efforts, women were able to include gender aspects in the United Nations Framework Convention on Climate Change (UNFCCC) in the year 2008 at the 14<sup>th</sup> Conference of the Parties (COP) in Poznan, Poland. It recognized that the adverse impacts of climate change would affect men and women differently, and it also recognized women as important actors and agents of change in coping and adaptation. The Intergovernmental Panel on Climate Change (IPCC) also started taking note of gender aspects in climate change in the year 2007. In 2012, two decades after the Earth Summit in Rio, Rio+20 Summit on Sustainable Development took place again in Rio and Women’s groups made sincere attempt to put women on the agenda of sustainability. It ended with an outcome document named “The Future We Want.” The Summit declared its commitment to implementing the Beijing Declaration and Platform for Action and recognized the vital role of women and the need for their full and equal participation and leadership in all

areas of sustainable development. However, women's groups were not very happy with the outcome because there were concerted attempts to undermine gender issues. Similarly, in 2015, after two decades, Beijing+20 took place to review the commitments made in 1995 and highlight the "Progress, challenges and lessons learnt for the realization of gender equality, the empowerment of women, and the human rights of women and girls in the post-2015 context..." (UN Women, 2015: 2). This is a conference that is solely dedicated to women's issues. However, this review conference has set 2030 as the deadline for realizing gender equality.

### **Women associated with Sustainable Development**

Let us have a look at some of the prominent names associated with environmental sustainability that is an important component of sustainable development.

**Vandana Shiva:** Born in India, she is associated with ecofeminism and has written extensively on sustainable environmental issues. She is well known for her work promoting biodiversity and sustainable agricultural practices. She is a votary of organic farming, seed sovereignty, etc. She is highly influenced by the Chipko Movement. She began a movement called Navdanya in 1991 ([britannica.com](http://britannica.com)).

**Mei Ng Fong Siu-mei:** Born in Hong Kong, she has been working tirelessly to spread environmental awareness throughout China since 1992. She emphasizes on sustainability and ecofriendliness. She strives to mobilize women to defend environment and to bring environmental education to all parts of China. She emphasizes on adaptive environmentalism where local people work on local solutions to local problems (Tong, 2011).

**Wangari Muta Maathai:** Born in Kenya, she had an avid interest in environmental conservation and hence she founded the Greenbelt Movement. She received the Nobel Peace Prize in 2004 and she was first African woman to win this prize. Her contribution to sustainable development or environmental sustainability is very significant, notably in tree planting, climate action and also for her advocacy for the role of women in environmental protection and conservation and, for such activism, she won the Nobel Peace Prize ([nobelprize.org](http://nobelprize.org)).

**Isatou Cessay:** She is a well-known environmental activist in Gambia, popularly known as the "Queen of Recycling". She initiated the recycling movement, known as "One Plastic Bag" in Gambia in

1997 that encouraged the recycling of plastic waste in the country. Her initiative raised awareness about the harmful effects of plastic pollution in Africa and led to sustainable alternatives to single-use plastics (wikipedia.org).

**Tuenjai Deetes:** She co-founded the Hill Area Development Foundation in Thailand in 1986, which has initiated sustainable agriculture and reforestation projects with northern Thailand Hill tribes. As a result of her leadership, many of the hill tribes have developed into self-reliant communities. Her projects now serve as national models in resource conservation (golgmanprize.org).

**Sylvia Earle:** She is an American oceanographer and explorer known for her contribution in raising awareness of the threats of overfishing and pollution to the world's oceans. She is a strong advocate of the protection of marine ecosystems and biodiversity. She is the founder of "Mission Blue" and emphasizes on developing a global network of "Hope Spots" (marine protected areas) dedicated to protecting the biodiversity due to the increased threat of climate change (missionblue.org).

**Gro Harlem Brundtland:** She is well-known for chairing the World Commission on Environment and Development (WCED) which coined the term "sustainable development" in the 1987 report "Our Common Future." She is the former Prime Minister of Norway and former Director-General of the World Health Organization. She played a significant role in bringing sustainable development to global focus (AI Overview).

## **Women's Involvement in Environmental Protection/ Conservation/ Sustainability: Some Historical & Contemporary Examples**

There may be many examples of environmental movements and case studies around the world. However, a few of them have been cited here to highlight the contribution of women to environmental sustainability.

### **Environmental Movements**

#### **Chipko Movement**

The Chipko Movement (Hug the Tree Movement) took place in the hilly areas of Uttarakhand in the 1970s in which hundreds of women

hugged the trees to save them from being felled by local contractors under the leadership of Gaura Devi. Later on Sundarlal Bahuguna became its leader. This movement has inspired many environmental initiatives, including the one launched to save the Western Ghat ([sugiproject.com](http://sugiproject.com)).

### **Green Belt Movement**

The Greenbelt Movement, founded by Wangari Maathai, was launched in 1977 in Kenya. The goal of the movement was to “establish public green belts and fuel wood plots by local people, especially women, in the spirit of self-reliance. The objectives of environmental recovery go hand in hand with local women’s empowerment as they actively engage in improving their own as well as environmental conditions in their area” (Braidotti et al. 1994: 105; note 4). The Movement’s work has spread to other countries through Pan-African Green Network.

### **Navdanya Movement**

Launched by Vandana Shiva in the 1980s, the Navdanya Movement, also known as the ‘Nine Seeds Movement’, seeks to empower local Indian farmers to move away from growing any genetically modified crops on their land and return to organic, chemical free practices. This movement also fights against the commercialization of indigenous knowledge, also known as biopiracy ([navdanyainternational.org](http://navdanyainternational.org)).

### **A Few Case Studies**

#### **Gender and Forest Conservation in Nepal**

According to Agarwal (2009), community forestry programmes in Nepal have led to the empowerment of women by making them a partner in forest management. Women’s groups have been successful in conserving forests, improving biodiversity and community livelihoods.

#### **Microfinance and Women’s Empowerment in Bangladesh**

According to Yunus (2007), the microfinance model of Bangladesh’s Grameen Bank has played a significant role in ensuring women’s role in sustainable agriculture. It not only led to increased economic independence of women but also allowed them to invest in eco-friendly practices.



## **Women in Renewable Energy in India**

According to Iqbal (2018), Shaikh (2024), a college named “Barefoot College,” set up in 1972 in a place called Tilonia (Jaipur, Rajasthan), teaches rural women (many of them illiterate) solar engineering. It contributes to sustainable energy access and environmental sustainability.

### **Conclusion**

To conclude it may be said that women constitute almost fifty per cent of world population. So how long they may remain docile, passive and victims of environmental degradation? The risk society in which we find ourselves today is an outcome of our own making – the making of a patriarchal society in which women have been denied any role to play. For this reason, women have taken upon themselves to change the extant situation. In their efforts, the special qualities that women have, probably naturally, the nurturant, caring, and empathetic qualities help them in a significant way to be better environmental managers or protectors. Of course, there are critics who argue that to equate women with nature reinforces women’s continued subordination to men (Braidotti et al. 1994: 98), but women are different than men and the difference probably derives itself from such qualities. From local initiatives to the concerted efforts at the international levels, women have demonstrated that they can make better and transformative contributions to making this planet a better place. Nature/environment and women have a symbiotic relationship, and this relationship will contribute to making the development sustainable so that the future generations are not deprived of the kind of nature that will be indispensable for their survival.

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# Revisiting the Economic Implication of the Dumping of Chinese Goods in Indian Market

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## Introduction

The dumping of Chinese goods in the Indian markets has sparked a complex web of economic implications that impact various sectors of the Indian economy. One of the most immediate effects is on domestic industries. The influx of cheap Chinese goods has led to fierce competition for Indian businesses, often resulting in reduced profitability and even closure for those unable to withstand the pressure (Washington, 2018). Furthermore, the dumping of Chinese goods can also disrupt the trade balance between India and China. With a surge in imports from China, India's trade deficit may widen, putting additional strain on the country's economy. This, in turn, can impact the value of the Indian rupee and create challenges for the country's policymakers in maintaining a stable economy.

Moreover, there are social implications to consider. The negative impact on domestic industries can lead to job losses and increased unemployment, which can further strain the economy and contribute to social unrest. In addition to these economic and social implications, there are also geopolitical considerations. The influx of Chinese goods may not only affect India's economy but also its strategic interests.

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This situation could potentially impact diplomatic relations between the two countries and have far-reaching geopolitical consequences. It is a complicated and multifaceted issue that necessitates a thorough grasp of its economic, social, and geopolitical consequences.

In safeguarding their respective economies, many countries impose duties on products perceived to be dumped in their domestic markets, as such products possess the potential to undercut local businesses and economies (Neufeld, 2001). The WTO (World Trade Organisation), an international body governing trade rules among nations, administers internal regulations on anti-dumping measures.

The WTO is only concerned with defining how governments may respond to dumping techniques; it does not cover the actions of firms that engage in this type of activity. Both the countries are major players in the global trade arena and are also the members of Geneva-based WTO. While China serves as a pivotal trading partner for India, the increasing influx of imports from China has taken a toll on India's manufacturing sector (The India Forum, 2020). Many of these imports amount to dumping goods being sold in foreign markets at prices below domestic selling prices (Tharakan, 2000). The deluge of Chinese imports in the Indian market poses a grave threat to domestic industries, warranting serious concern. It is imperative to underscore that these measures are not instituted solely to ensure economic protection for domestic industries, mitigating the adverse impacts stemming from unfair dumping or subsidization practices.

## **Types of Economic Dumping in International Trade**

**Predatory Dumping:** Within the framework of predatory market behaviour, exporters strategically eliminate competition in the international arena by offering goods at discounted rates. Subsequent to the elimination of competitors, the firm is empowered to elevate the pricing of its products, thereby augmenting revenue streams. This practice often elicits scepticism and caution from importing nations, as it has the potential to usher in a foreign monopoly that exerts control over the local market. Predatory dumping, as opposed to sporadic dumping, which is occasional, involves a prolonged effort marked by the selling of goods in foreign markets at prices lower than those seen in the home market (Alani, 2024). Predatory dumping is executed to penetrate foreign markets and eradicate competition, thereby fostering the emergence of a monopolistic environment. This

strategy involves deliberately selling products at a loss for a specified duration to undercut competitors, thereby facilitating their exit from the market. Subsequently, the perpetrating company can adjust prices upwards to recoup losses and potentially establish market dominance. Tactics employed in predatory dumping may encompass pricing strategies that undercut production costs, leveraging governmental subsidies, or employing aggressive marketing techniques (CFI team, 2024). The overarching aim is market control, with the perpetrating entity seeking to attain dominance through the eradication of competitors via price manipulation. Upon achieving dominance, the entity can exploit its position to elevate prices and realize substantial profits. When such market-distorting practices are consciously adopted to undermine competition, it constitutes predatory dumping, leading to the forced closure of competitors. Predatory dumping within the realm of international trade, particularly within the manufacturing sector, precipitates diminished investment levels. International trade agreements endeavour to mitigate dumping by enforcing regulations that mandate fair pricing or imposing penalties. Predation manifests when foreign entities deliberately depress the prices of their products in foreign markets, often selling at a loss to gain entry. The primary objective is to render local competition untenable (Khalid Zafer & Associates, 2024). Predatory dumping entails an initial phase of pricing designed to expel competitors, followed by subsequent price escalation by the monopolistic firm. While relatively enduring compared to sporadic dumping, it is less entrenched than persistent dumping.

**Sporadic dumping:** Sporadic dumping denotes the occasional practice of selling products at reduced prices, typically undertaken to alleviate excess inventory levels. This strategy is characterized by its transitory nature, as businesses do not habitually engage in such price reductions. Its primary aim is to prevent price conflicts within the domestic market and safeguard the competitive standing of the company (Alani, 2024). Excess inventory may be disposed of through destruction or exportation to foreign markets where demand for the products is higher. Unlike persistent dumping, sporadic dumping does not entail a sustained commitment to maintaining consistently low prices; rather, it serves to intermittently disrupt the market dynamics. Companies may employ intermittent dumping as a means to introduce market instability. By periodically undercutting prices, they introduce unpredictability into pricing trends, complicating competitors' strategic

planning efforts (CFI team, 2024). The resultant uncertainty and volatility in the market landscape may impede competitors' ability to devise effective pricing strategies or engage in long-term planning, potentially eroding their competitive position over time. Instances of sporadic dumping typically arise when companies grapple with significant unsold inventory volumes. This phenomenon occurs when products are sold in foreign markets at prices sufficient to cover variable costs and a portion of fixed costs. Factors contributing to the proliferation of sporadic dumping may include insufficient experience in pricing new products or unconscious pricing behaviours within economies characterized by distorted internal pricing mechanisms (Ortiz, 2022). Additionally, unpredictable market conditions may exacerbate sporadic dumping tendencies, making it challenging for companies to regulate their pricing practices effectively. Consequently, sporadic dumping strategies are often employed when companies face surplus inventory and seek to liquidate excess stock.

**Persistent dumping:** Persistent dumping represents a prevalent form of international trade practice characterized by sustained offerings of products at reduced prices in foreign markets, reflecting a continuous demand for the goods or services in question (CFI team, 2024). This enduring strategy serves as a means for exporting entities to cultivate a formidable presence and secure substantial market share in overseas territories. Because of the constant demand for the commodities abroad, persistent dumping happens when a country regularly sells its products at prices lower than those that are prevailing in the domestic market. Unlike predatory dumping, which primarily aims at competition elimination, persistent dumping endeavours to uphold market dominance over an extended duration (Ortiz, 2022). Companies employing persistent dumping strategies aspire to fortify their market position by consistently undercutting prices, thereby dissuading potential competitors and maintaining a considerable market share. This sustained approach to pricing exerts enduring effects on market dynamics, erecting barriers to entry for new contenders and impeding the ability of existing competitors to compete effectively. Consequently, persistent dumping can engender market stagnation and curtail consumer choice. The persistence of dumping practices is evidenced by the continuous sale of surplus inventory in foreign markets at reduced prices, with exporters capitalizing on the inelastic nature of domestic pricing to maximize profits through heightened

foreign production (Khalid Zafer & Associates, 2024). The legislative response to persistent dumping culminated in the formulation of antidumping measures, attesting to its significance as a catalyst for regulatory intervention. Unlike its predatory and sporadic counterparts, persistent dumping manifests as a relatively enduring phenomenon, characterized by monopolistic entities consistently offering products at substantially lower prices in foreign markets compared to domestic counterparts. This strategy serves to establish a foothold in new markets and consolidate market presence, albeit at the expense of fair competition and the potential detriment of domestic industries. The feasibility of persistent dumping hinges on the relative elasticity of demand, with successful execution contingent upon a less elastic domestic demand juxtaposed with a highly elastic foreign demand for the commodity in question.

**Reverse dumping:** Reverse dumping represents a distinctive form of market distortion wherein products are priced at a lower rate within the domestic market while commanding higher prices in foreign markets, exploiting the relative inelasticity of demand in the latter (Yarrow, 1987). This phenomenon arises when demand for the product abroad exhibits a lesser degree of responsiveness to price fluctuations, allowing companies to impose higher prices without significant impact on demand. Consequently, the company can maintain disparate pricing strategies, charging lower prices domestically and higher prices internationally. Reverse dumping constitutes an inversion of traditional dumping practices, wherein goods are sold at markedly lower prices domestically while fetching significantly higher prices in foreign markets. This strategy is deployed in markets characterized by less elastic demand, enabling exporters to maximize profits by capitalizing on differential pricing mechanisms. Notably, reverse dumping deviates from conventional dumping practices and is specifically tailored to markets where demand elasticity favours higher pricing strategies (Yarrow, 1987). By employing this tactic, foreign companies seek to eliminate local competition and establish monopolistic control over the domestic market. Subsequently, the monopolistic entity can adjust prices to align with international levels, thereby maximizing profitability. The manifestation of reverse dumping occurs when export prices surpass those prevailing in the home market, reflecting a deliberate exploitation of market dynamics to maximize returns.

## **Implications of Dumping on Domestic Markets**

In cases where dumping is either predatory or a result of intense price competition among foreign producers vying for a specific market, it significantly influences the prevailing price levels in the importing country, at least temporarily, making them lower than they would be without dumping. While these types of dumping may initially benefit consumers in the dumped-on country, the long-term consequences could lead to higher prices, as successful dumping enables foreign producers to eventually demand elevated prices. The dumper may achieve monopoly control through dumping and, once established, may impose prices that more than offset the initial advantage of low dumping prices (Viner, 1966).

According to Viner, the implications of dumping on domestic producers depend on various factors. If the dumped commodity is not produced domestically and is a consumer good, the importing country stands to gain, provided it does not lead to a monopoly with the ability to impose higher prices or hinder the establishment of a new industry suitable for the importing country under normal international competition conditions (Viner, 1966). However, the harm to domestic producers must be balanced against the advantage to consumers when the dumped commodity competes with a domestic product (Aggarwal, 2002). The gain for consumers translates into a gain for the entire country, and the import of cheap goods is advantageous as long as it does not cause more harm to domestic industries than the benefit it provides to consumers.

A strong economic argument against dumping from the standpoint of the importing nation as a whole only exists when there is a plausible anticipation that it would cause more harm to home industry than benefit to consumers (Aggarwal, 2002). The key concern is the uncertainty surrounding the duration of dumping. The negative impact of dumping on the importing country lies in its unpredictable continuation. The only scenario where it seems safe for individuals in the importing country to plan for the future based on ongoing dumping is when it results from a well-entrenched system of official export bounties in national policy. In such cases, while dumping may pose challenges to domestic producers' profits, it is unlikely to affect their production volume or business continuity significantly.



## **Anti-dumping Duty**

The World Trade Organization (WTO) allows member countries to impose anti-subsidy, anti-dumping, and safeguard measures on imported items in order to protect their local businesses from harm (Mahajan, Chand & Pasumarthi, 2021). India is subject to the rules stated in the “Article VI of the General Agreement on Tariffs and Trade (GATT),” which deals with anti-dumping duties and countervailing charges, as a signatory to the WTO. As per the “Article VI of the GATT,” dumping is defined as the introduction of goods at a price below their standard value from one country into the commerce of another (Maiti, 2012). GATT signatories reject this practice if it materially impedes the development of domestic industry within the contracting party’s territory or results in or threatens to materially harm an established industry there (Ngobeni, 2021). “Dumping means exporting goods by one country/territory to the market of another country/territory at a price lower than the normal value,” according to the “Article VI (2b) of the GATT” (Maiti, 2012). Stated differently, dumping occurs when a commodity’s export price falls short of its anticipated value (Mahajan, Chand & Pasumarthi, 2021). According to the same clause, the average value represents the cost of comparable goods in the exporting nation’s domestic market (Tharakan, 2000). Stated otherwise, the price at which the items in question are typically offered in the exporting country’s domestic market during regular business operations is the comparable pricing (Maiti, 2012). “The dumping margin is the difference between the normal value and the export price of the goods under scrutiny, typically expressed as a percentage of the export price,” states “Article 2(b) of Article VI of the GATT” (Maiti, 2012).

Within the parameters outlined by the “Anti-Dumping Agreement and Article VI of the GATT of 1994”, WTO members have the authority to enforce anti-dumping measures if, following the Agreement’s implementation of a thorough investigation (Bossche & Zdouc, 2013). Establishing a causal link between dumped imports and the material harm inflicted on Indian companies and factories is crucial (Mahajan, Chand & Pasumarthi, 2021). According to Maiti (2012), the Agreement requires the importing Member state’s investigating authorities to make a definitive conclusion of injury before imposing anti-dumping actions. According to the Directorate General of Trade Remedies (DGTR), an anti-dumping inquiry must meet two requirements:

1) There is evidence that-

- a) The domestic industry has been harmed (Mahajan, Chand, & Pasumarthi, 2021).
- b) There is a causal connection between the harm and the dumping, indicating that the purported injury was brought on by the dumping of goods (Mahajan, Chand, & Pasumarthi, 2021).

2) More than 25 percent of the domestic goods must be produced by domestic manufacturers who formally support the anti-dumping case (Maiti, 2012).

The Indian government has been implementing a methodical and all-encompassing liberalisation program since the 1990s. The nation launched its first anti-dumping probe shortly after (Aggarwal, 2010). From an average of 128 percent in 1991 to 71 percent in 1993 and then to 35 percent by 1997, tariffs were lowered (Topolova, 2004). The “Customs Tariff (Identification, Assessment, and Collection of Anti-dumping Duty on Dumped Articles and for Determination of Injury) Rules of 1985” marked the inception of anti-dumping law in India (Ministry of Finance, 2018). However, no concrete anti-dumping actions were undertaken until 1992. This might be because of India’s relatively stringent trade policies before 1991. During this period, the Indian industrial sector operated within a framework characterised by restrictive trade practices, underscored by robust import controls and elevated tariff rates. The domestic industry was afforded substantial protectionism to foster self-sufficiency through the aforementioned import restrictions and tariff escalation. However, the pivotal policy shift that is the introduction of Liberalization, Privatisation and Globalisation (LPG) was marked by a series of measures to dismantle trade barriers and foster a more open economic environment. The reduction of tariffs after the liberalisation underscored India’s commitment to embracing a more open and competitive global economic landscape, marking a significant departure from its erstwhile protectionist stance (Topolova, 2004). Following this liberalization drive, India began its inaugural anti-dumping investigation shortly.

Since 2001, India has levied Anti-Dumping Duties (ADDs) on 155 items in numerous sectors against China in an effort to protect its own industry (Mahajan, Chand, & Pasumarthi, 2021). Many indigenous industries have declined and closed as a result of Chinese

goods being dumped into Indian marketplaces (Mahajan, Chand, & Pasumarthi, 2021). It has been necessary to impose ADDs as a precautionary measure in such cases. In accordance with WTO regulations, the impacted nation must prove that these imports have materially harmed its own sector (Mahajan, Chand, & Pasumarthi, 2021). In the year 2023, 32 anti-dumping investigation initiations were initiated. Of 38 initiations, China emerged as the predominant target country, with 31 investigations focused on imports from China (Sharma, Ram and Chauhan, 2024). This dominance of China as a subject of anti-dumping investigations reflects an ongoing trend. From January, 2024 to till date, 11 investigations have been exclusively directed at China, while an additional seven investigations have involved China and other nations (DGTR, 2024). The prevalence of anti-dumping investigations against Chinese imports underscores a sustained pattern in trade scrutiny and regulatory actions. The implementation of anti-dumping duties has been witnessed in a variety of product categories. According to Anderson and Thuresson (2008), these include consumer goods, steel, other metal products, glass and glassware, chemicals and petrochemicals, and pharmaceuticals. Such diversification in the scope of anti-dumping measures emphasises the varied character of trade disputes and regulatory actions within the global marketplace (DGTR, 2024).

Trade remedy laws continue to be a vital component in defending home businesses from the flood of unfair imports. Trade remedy measures remain important as a tool to maintain or balance the domestic producers' interests with those of consumers and importers, especially in light of the growing focus of the government on the "Made in India" initiative and booming the Indian economy (Sharma, Ram and Chauhan, 2024). When there is price difference or discrimination between the domestic and foreign markets, there is usually a domestic market distortion present. These distortions can include import barriers, monopolies or cartels, or a combination of these that allow home producers to maintain home prices higher than export prices (National Research Council, 1997).

By dumping, a cartelised and initially less efficient industry may be able to displace a more efficient competitor without the advantage of a protected home market (Noonan, 2009). Dumping-related frictions can become more severe when they damage or destroy enterprises that are thought to be essential to both national security and economic

prosperity. This is a phenomenon that has been observed on multiple occasions this century (National Research Council, 1997).

As long as there are workable legal restrictions on the practice, dumping will continue to be a concern in international trade (Anderson & Thuresson, 2008). The factors that separate the two markets—usually their geographic barrier or separation surrounding the market where a higher price is charged—along with the limitations on competition in the latter market are often the cause of dumpers' ability to maintain a price differential (Anderson and Thuresson, 2008). Dumping predominantly transpires with the injurious motive of eradicating competition from the domestic industry selling products in the importing markets, thereby engendering a monopoly and dictating the product's price, availability, and standards to the exporting country's preference. India's market and industry are being impacted by China's product dumping into India (Ramesh, 2019). Furthermore, these Chinese imports are a major contributor to unfair trade disruption and unemployment in addition to having an effect on home markets (Ramesh, 2019). Anti-dumping duties are levied in an effort to mitigate the market distortions caused by over-dumping. Nonetheless, these duties are used by some nations to stifle competition and protect their own markets (Bulchandani and Swamy, 2022). It is important to understand that these measures promote market entry following the payment of anti-dumping duty; they do not forbid or restrict product entry into the market of the importing country (Ramesh, 2019).

### **Chinese Practice of Dumping**

Scholars have noted that China's participation in anti-dumping disputes has increased, with the alleged undervalued Chinese currency contributing to rising disputes (Ghori, 2013). The Chinese practice of dumping has garnered attention in the export markets, as China is known for selling its products at prices lower than the domestic market, leading to adverse effects on other countries' producers. Many causes, such as production economies of scale, increased productivity, excess capacity, and government subsidies, are blamed for this price disparity (Banik, 2021). Many international corporations have formed joint ventures with Chinese businesses since China joined the WTO in 2001, allowing technology transfer and boosting productivity (Banik, 2021). China's pricing is competitive in part because it can obtain material inputs at a reduced cost from Africa and the Greater Mekong Sub-Region.

## India and China: Bilateral Trade

The growth in bilateral trade has not yet to match the increase in optimum trading volumes between the two countries. Despite both nations becoming prominent investment destinations globally, mutual investment flows have yet to keep pace. Furthermore, there is a significant difference in the amount of investment made in the two nations. As per the Ministry of Commerce of China (2024), Chinese investments in India in 2021 were US\$ 63.18 million, down 68.3 percent from the previous year. China has invested USD 5.403 billion in India overall in 2021 (Ministry of Commerce of China, 2024). However, from the Indian side to China in 2021 was US\$ 6.32 million, a decrease of 47.4 percent year over year. In 2021, India had invested a total of US\$ 943.96 million in China (MCC, 2024).

### Indo-China Bilateral Trade

Year	India's Export to China	Change (%)	India's Import from China	Change	Trade Deficit	Total Trade	Change (%)
2015	13.4	-18.39	58.26	7.42	44.86	71.66	1.42
2016	11.75	-12.29	59.43	2.01	47.68	71.18	-0.67
2017	16.34	39.11	68.1	14.59	51.76	84.44	18.63
2018	18.83	15.21	76.87	12.89	58.04	95.7	13.34
2019	17.97	-4.55	74.92	-2.54	56.95	92.9	-2.93
2020	20.87	16.15	66.78	-10.87	45.91	87.65	-5.64
2021	28.03	34.28	97.59	46.14	69.56	125.62	43.32
2022	17.49	-37.59	118.77	21.70	101.28	136.26	8.47

Source: General Administration of Customs, China

Figure: US\$ Billion

### India and China: Current Overview

Since 2008, China has ranked as India's top commercial partner. The bilateral trade between India and China increased by 90.14 percent between 2015 and 2022 (Mishra & Sheel, 2023). This was a significant growth. This corresponds to a 12.87 percent average yearly growth rate. The entire amount of trade with China increased by 8.47 percent in 2022 compared to the previous year, totalling USD 136.26 billion

(Pal and Ray, 2023). According to Pal and Ray (2023), this was the second year in a row that the trade exceeded the USD 100 billion level. However, India experienced a trade imbalance of USD 101.28 billion throughout this period. A major factor in the trade imbalance was the increase in India's imports from China, which increased by 118.77 percent to USD 118.77 billion (Mishra & Sheel, 2023). In the meantime, India's net exports to China fell to US\$ 17.49 billion in 2024 from US\$ 28.03 billion in 2023, a decrease of 37.59 percent year over year (Indian Embassy, Beijing, 2024). About 10.8 percent of India's imports in the 2007–08 fiscal year came from China. After rising gradually, this percentage came to 16.4 percent in 2017–18. the proportion of China with respect to the imports of India touched with a record of 16.53 percent and 15.43 percent, respectively, in the two years after the Covid-19 pandemic, 2020–21 and 2021–22, despite remaining relatively stable at 13.7 percent for the ensuing years of 2018–19 and 2019–20 (Pal and Ray, 2023). India's imports from China were US\$70 billion in 2018–19 and \$76 billion in 2017–18 prior to the Covid-19 epidemic. But in 2020–21 and 2021–22, the post-Covid numbers changed to \$65 billion and \$94.5 billion, respectively. This suggests that, in comparison to pre-Covid import levels, India's imports from China increased significantly in 2021–2022 (Pal and Ray, 2023). This shows that China's commerce with India has not been impacted by the post-Covid downturn.

### **India and China: Trade Deficit**

According to the Embassy of India, Beijing, our concerns regarding the trade deficit are twofold. Firstly, there is an actual magnitude of the deficit. Secondly, the ongoing issue is the consistent widening of this imbalance every after year, reaching USD 58.04 billion in 2018. The trade imbalance decreased by 1.88 percent in 2019, which was the first decrease since 2005, and now stands at USD 56.95 billion (Embassy of India, Beijing, 2024). The COVID-19 pandemic's effects also led to a reduction in 2020 of 19.39 percent, bringing the deficit down to USD 45.91 billion (Indian Embassy, Beijing, 2024). But since then, the trade deficit has risen sharply, with a significant increase of 51.51% to reach US\$ 69.56 billion in 2021. The deficit grew even further in 2022, rising by 45.60 percent year over year to reach USD 101.28 billion (Embassy of India, Beijing, 2024).

The embassy attributes the expanding trade deficit between India and China to two primary factors. Firstly, the limited diversity in

India's exported commodities, predominantly raw materials like copper, iron ore, cotton, and aluminium and so on, has hindered the overall value addition in exports (Deuskar, 2022). This reliance on a narrow basket makes India susceptible to global market fluctuations and exposes the trade relationship to potential volatility. Petroleum products (US\$ 1.21 billion), marine goods (US\$ 1.44 billion), iron ore (US\$ 1.39 billion), spices (US\$ 739 million), and organic chemicals (US\$ 692 million) are the top exports from India to China in the 2023 fiscal year (Deuskar, 2022). In FY23, computer hardware and peripherals (US\$ 7.25 billion), telecom instruments (US\$ 6.81 billion), organic chemicals (US\$ 6.44 billion), dairy machinery (US\$ 6.27 billion), and electronic components (US\$ 8.19 billion) are among the top imports from China (IBEF, 2024).

Secondly, market access impediments pose a significant challenge, particularly in sectors where India possesses a competitive advantage, such as pharmaceuticals, ITs. These barriers by Beijing hinder the realization of India's export potential in high-value sectors, contributing to the trade deficit. For example, the 2013 MoU on the export of 'deboned and deglanded frozen buffalo meat' requires it to meet the Chinese regulations along with the Indian and WTO regulations (Article 1) and the storing and packaging conditions has to be in accordance with the agreement by both the sides (Article 3). It also provides for inspection by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ) once the Indian buffalo meat reaches the port of entry in China (Deep Singh, 2013). Similarly, the MoU on the export of Fishery products from India to China signed in 2013 also subjects Indian exports to a health certificate in accordance with the Chinese standards, and any modification, addition of exporters of seafood from both sides will have to go through a prior consultation (Article 2, Memorandum of Understanding on Cooperation Related to Import and Export Trade of Fishery Products, 2013). Though this MoU applies equal conditions on both sides, it is clear that these conditions will be more of an impediment for Indian export trade than China's as marine products are the main exported items by India to China, whereas China's main exported items to India are technology-based products.

There has been a noticeable change in the makeup of Chinese exports to India over time. China has been concentrating more on exporting goods with higher added values, such as fertilisers, telecom equipment, machinery, organic chemicals, and power-related equipment (Wester, 2023). This change reflects China's deliberate transition towards advanced and technology-driven industrial sectors. India largely brings in electric and electronic appliances, chemical materials including pharmaceuticals, and lot of plastic items from China (Wester, 2023). Altogether, amount more than 70 percent of the overall import to India from China (Wester, 2023). Notably, India's imports of these goods from China have increased throughout the post-Covid period. It is important to note that one of India's main export markets is China. China has routinely been among the top countries during the last many years. India's exports to China have significantly increased in the wake of the hurdles created by the Covid epidemic. India still has a lot of catching up to go as the trade gap with China continues to grow despite the increase. According to Kumar (2019), the long-term growth rates of both India and China are significantly impacted by their bilateral trade connections, with China benefiting more than India. He justifies it by saying that although Indian imports from China are primarily finished items intended for consumers, Chinese imports from India are primarily raw materials and intermediate goods for the industrial sector.

The export base of India to China is dependent on the primary sector, whereas the Chinese export base is the manufacturing sector. Indian exports are subjected to quality control measures whereas the manufacturing sector products exported by China don't have to face similar measures by India until 2023 due to WTO rules. However, there has been a shift in India's stance since the COVID-19 pandemic breakdown and the Galwan Valley skirmish between the security forces of the two countries. India has issued two new Quality Control Orders (QCOs) on plastic water bottles and flame-producing lighters, which are now required to meet Indian Standards set by the "Bureau of Indian Standards (BIS) Act, 2016" (PIB, 2023). QCOs were notified in another notification that 24 footwear goods have to comply with BIS standards (PIB, 2023). By the second quarter of 2024, the Department for Promotion of Industry and Internal Trade hopes to issue additional QCOs (Singh, 2023). India has issued 115 QCOs thus far, and orders for up to 675 items are being considered by 14 ministries (Singh, 2023).



## Examples of Chinese Goods Dumping in India

Many small-scale sectors, such as the pharmaceutical, photovoltaic, textile, firecracker, and bicycle industries, have suffered from the flood of Chinese imports. The textile industry is one of the most affected by Chinese imports; the flood of low-tech, low-cost textile machines from China has put domestic manufacturers in grave danger. Similarly, manufacturers of diesel engine pumps have faced intensified competition from cheaper Chinese alternatives, leading to declining profit margins and operational challenges. Furthermore, the electronic component industry has suffered due to the deluge of cheap Chinese imports, exacerbated by duty-free imports of electronic components under various trade agreements. This influx has led to the closure of many small companies engaged in electronic component manufacturing, further underscoring the adverse impact on domestic industries.

Furthermore, small and medium-sized enterprises (SMEs) across various sectors have struggled to compete with Chinese products, particularly in areas where Chinese manufacturers employ advanced machinery (Ministry of Micro, Small & Medium Enterprises, 2016). This has resulted in a gradual erosion of market share for Indian companies, as consumers increasingly opt for lower-priced Chinese alternatives across a spectrum of goods, from sports equipment to electronic components. The adverse impact of Chinese imports on indigenous industries is exemplified by several cases. For instance:

**Steel Industry:** The surge in lower-priced stainless steel imports from China has posed a serious threat to the Indian steel industry. Due to a decline in the market for regional goods, this boom has caused a fall for small and medium-sized businesses, which are now only operating at 30 percent of their potential (Yadav & Mishra, 2023). The disparity in pricing arises from subsidies in China, rendering Indian products uncompetitive. Consequently, there is a pressing need for countervailing duties on these imports to level the playing field. According to the Joint Plant Committee (JPC), India witnessed a substantial increase in finished steel imports in fiscal year 2015, primarily from China, exacerbating concerns for domestic steel companies. For example, a major manufacturer of aluminium in the private sector, Bharat Aluminium Co., abandoned its rolling factory in Chhattisgarh mostly as a result of declining metal prices and competition from Chinese imports (Mazumdar, 2015).

The onslaught of cheaper Chinese imports has hit Indian stainless-steel players hard, with around 30-35 percent of small and medium businesses in Gujarat shutting down between July and September of the previous year, as reported by the President of the Indian Stainless Steel Development Association, Rajamani Krishnamurti (Nair, 2024). While steel imports were previously subject to duty, the removal of these duties in the 2021 Union Budget has led to a downsizing of many MSMEs, with some transitioning into trading. The adverse effects of the import surge are evident across various sectors. In Ahmedabad alone, 20 out of 80 induction furnace companies have closed, along with over 100 re-rollers. Despite a 6 to 7 percent growth in stainless steel consumption in 2023, production has remained stagnant due to underutilized capacities caused by heavy imports, particularly from China (Dutt, 2023). Large players like Jindal Steel and Power Limited (JSPL) are also feeling the strain, with falling steel prices amid oversupply from China (Jauhari, 2024).

**Textiles:** The textile industry in India is grappling with significant challenges posed by the influx of machinery imports, particularly from China. With approximately 1,500 manufacturers in India specializing in a range of machinery from weaving and spinning to knitting and processing, the sector is vital for domestic production. The import of low tech cost textile machinery from the Chinese side have been increasing over the past few years as per the Textile Machinery Manufacturers Association (Preetha, 2023). These foreign machines are priced between 30 and 50 per cent cheaper than their Indian counterparts, posing a major challenge to tiny domestic manufacturers. Because of the dumping practises, textile products from China in the Indian domestic market has a substantial decrease in profits for the current fiscal year in 2018 (The Economic Times, 2018). This demonstrates how established Indian textile companies are negatively impacted by Chinese imports. Furthermore, Chinese imports of synthetic fibres like polyester, viscose, and mixes are posing a threat to India's textile sector (Preetha, 2023). This has led in the closure of around 35 percent of power looms in textile cities like Surat and Bhivandi (Preetha, 2023). The ubiquity of less expensive imports from China jeopardises the livelihoods of those engaged in the textile industry in addition to undermining the competitiveness of Indian textile makers.

**Toys:** The Indian toy industry is facing significant challenges due to the surge of Chinese toys into the Indian market has closures and struggles for survival among domestic toy manufacturers. According to ASSOCHAM, nearly 40 per cent of Indian toy companies have shut down in the last five years, and the remaining 20 per cent are facing challenges to break even (Economic Service Group National Productivity Council, 2017). Approximately 60 percent of the industrial facilities in Bhiwandi and Thane have closed as a result of the ubiquity of low-cost Chinese goods (Basu, 2020).

**Electronic Industry:** The influx of cheap Chinese imports has put significant pressure on small Indian electronic component manufacturers, leading to closures and job losses within the industry. The situation exacerbated after the World Trade Organization's Information Technology Agreement (WTO-ITA1) granted duty-free import allowances for around 217 kinds of electronic components, including capacitors, transformers, and resistors, in 2005. As a result, more than 1,000 small Indian electronic component manufacturing companies have halted their operations (Khan, 2014). Particularly in the LED industry, numerous small manufacturers have shut down, with the majority of components being imported duty-free from China (Khan, 2014). Some firms import parts and assemble them locally for the home market. The President of the LED Products Manufacturers Association, Ramana Rao expressed that about 20 to 30 businesses are estimated to have closed in the last several years (Khan, 2014). The owner of Sangeetha Enterprises in Chennai, Sumant Sharma, remembers closing his LED display manufacturing company approximately seven years ago because he could no longer compete with Chinese costs (Khan, 2014). Despite sourcing LED chips from China at prices equivalent to his selling price in India, the overall production costs, including labour and overheads, rendered his products 20 to 30 per cent more expensive than Chinese displays (Khan, 2014). The challenges extend beyond electronic components to the solar industry, where India, once a leading exporter of high-quality solar modules, now heavily relies on imports for crucial components like solar cells, modules, and inverters. This shift has resulted in significant job losses, with nearly two lakh workers affected by the dumping of Chinese solar panels.

The influx of Chinese-made mobile phones and TVs in India has also reshaped the consumer electronics market and altered the

competitive landscape. As of 2019-20, over 83 percent of mobile phone imports into India originated from China, highlighting the significant presence of Chinese-made devices in the Indian market (Banik, 2021). Similarly, in the same period, nearly 90 percent of colour TV sets imported into India were also sourced from China, underlining the country's dominance in this sector as well (Banik, 2021). It is important for policymakers and industry stakeholders to carefully assess the impact of these imports and develop strategies to balance economic growth, employment generation, and consumer interests.

## **Challenges**

The prevalence of government-controlled enterprises among major exporting companies in China, along with subsidies, has created an imbalance in both Indian and international markets (Banik, 2021). In addition to making Indian products less competitive in the home market, this circumstance has caused tangible harm and ongoing financial strain to native companies (Banik, 2021). Erroneous domestic policies in India exacerbate the difficulties in mitigating the effects of dumping by drawing attention to the fine line that must be drawn between offering reasonably priced items to customers and preserving the stability of the local market.

The practicality of the anti-dumping penalties on the Chinese goods like gypsum tiles, wheel loaders, and industrial laser machinery—reflects the financial impact that Chinese dumping has had on the Indian market (The Economic Times, 2024). Evidence of these products being shipped to India at prices below their normal worth, causing serious harm to the home sector, was discovered by the DGTR (The Economics Time, 2024). The purpose of these anti-dumping duties is to shield domestic producers from the damaging consequences of low-cost imports (The Economic Times, 2024). The introduction of these taxes highlights the difficulties the Indian market faces as a result of China's economic policies. Since both the countries China are the members of the World Trade Organisation, the action complies with international trade standards (WTO) (PTI, 2024). The actions India has taken up to maintain fair trade and level the playing field for its indigenous industry are clear indications of the economic consequences of Chinese dumping (Sharma, 2023). The imbalance in commercial ties between the two nations is highlighted by the USD

83.2 billion trade deficit in 2022–2023, underscoring the necessity of regulatory actions to alleviate the negative economic effects of dumping (Sharma, 2023).

## Conclusion

Various factors, including the impacted industry, the extent of the dumping, and the response of the Indian government and domestic businesses, can influence the economic consequences of Chinese goods being dumped into the Indian market. These consequences can be both beneficial and bad. India's trade deficit with China is going to get worse due to the growing dumping of Chinese goods. When the value of exports to China is less than the value of imports from China, this happens. A widening trade deficit can put pressure on India's foreign exchange reserves and may have long-term consequences for the country's economic stability.

Such dumping must be addressed by the Indian government with a number of governmental initiatives. To safeguard home industries, these could entail enacting tariffs, anti-dumping levies, or other trade restrictions. Although these steps can give short respite to local producers, they can also trigger retaliation from China and could turn into a trade war that would be detrimental to both countries' economy. All things considered, the dumping of Chinese goods into the Indian market presents serious obstacles for both home businesses and the national economy, even though it may provide short-term advantages in the form of reduced pricing and more customer choice. Managing the impact of dumping requires a pragmatic approach that considers both short-term competitiveness and long-term sustainability.

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# Contribution towards Christian missionaries intelligentsia's on women's education in colonial Assam

Gaurab Saikia\*

## Introduction

Before the introduction of Western education and women reforms in the 19th century colonial Assam, the question of women's education was not a necessary matter of concern for the existing Assamese society. The conventional Assamese society, deeply rooted in tradition and social norms, mainly emphasized the gendered construction of womanhood, which was defined by roles prescribed by society, particularly the roles of the 'good mother' and 'good wife'. These models of womanhood were not only central to the societal fabric but also functioned as a form of control over women's roles and behaviors. It became the central question in nineteenth-century British India, primarily because the foreign rulers, particularly the British, had focused their attention on this specific aspect of society. They were more interested in how to civilize women, according to their colonial standards, rather than addressing what women actually wanted or needed for their own empowerment and growth (Dahal, 2023, p.82). The British rule in Assam, as part of their larger imperial project, brought significant transformations to nearly every sector of the province, altering traditional ways of life and disrupting the established social order. Moreover, the civil and economic changes in colonial Assam witnessed drastic social reforms, along with educational development, primarily under the initiative of Christian missionaries and some

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progressive, educated Assamese people. As the growing demands of administrative activities increased, the British saw the need to create an English-educated class. This emerging class would be crucial to filling various official posts required to efficiently run the company's administration. With this administrative motive in mind, the first English school was established in Guwahati in 1835, a landmark event in the region's educational history. Later, this initiative was followed by the establishment of another English school in Sivasagar in 1840. The opening of English schools, alongside the establishment of Churches and hospitals, grew rapidly under the initiatives of the Christian missionaries, who sought to gain influence over the region. Their work intensified after the passing of the Charter Act of 1813, which allowed Christian missionaries to enter India with the dual purpose of spreading their religion and imparting education, as sanctioned by the British Parliament. Although the missionaries' main motive was to proselytize the people of Assam and bring them into the Christian fold, their efforts had wider repercussions. Simultaneously, they took several steps to educate the Assamese population in their native language to build trust and facilitate their broader aims. Besides education, another major initiative launched by the Christian missionaries in Assam was aimed at social reform.

Colonial Assamese society was burdened with numerous evil practices and blind beliefs, many of which were deeply entrenched in the orthodox religious practices of the time. Women, in particular, were frequently victims of these practices, suffering under the weight of oppressive traditions and rigid societal expectations. In terms of women's education and social reforms, the emerging western-educated Assamese middle class also played a vital role, providing local support to the broader reforms initiated by the missionaries. During that period, many Assamese youth traveled to Bengal for higher studies. These young Assamese students, exposed to the progressive and liberal atmosphere of Bengali society, became gradually acquainted with Western thought and the ongoing social reform movements in Bengal. Inspired by the works and activism of various social reformers in Bengal, these young Assamese intellectuals sought to bring similar changes to their homeland. Through their standard writings and activism, they began to challenge the existing social order and worked to change the perception of Assamese society, particularly concerning women's roles and education. Their efforts brought about a drastic change in how the Assamese people viewed women, challenging the

earlier notions of gender roles and paving the way for greater opportunities in education and societal participation. This paper primarily examines how far the different endeavors undertaken by Christian missionaries and the young Assamese intelligentsia contributed to the development of women's education and societal reforms during the colonial era, providing an understanding of the intersection between foreign influence and local initiative in shaping the trajectory of Assamese society.

### **Objectives:**

1. Highlight Christian missionaries' contributions to women's education in colonial Assam.
2. Explore the Assamese intelligentsia's efforts to promote women's education.
3. Compare the approaches of missionaries and local intellectuals in advancing education.
4. Identify challenges faced in promoting women's education and social reforms.

### **Methodology:**

This study employs a comprehensive literature review of books, scholarly articles, and historical records to understand the contributions of Christian missionaries and Assamese intelligentsia to women's education in colonial Assam. It includes an analysis of historical documents, such as government reports, letters, and period publications, to contextualize these efforts. Specific case studies of educational initiatives by both groups are examined to illustrate their methods and impacts. A comparative approach is used to highlight the differences and similarities in their approaches to advancing women's education and social reforms.

### **Discussion:**

The colonial regime in Assam brought about a significant transformation in the social outlook of the region, particularly following the collapse of the medieval Ahom monarchy. This transition unfolded in Assam at a slower pace compared to Bengal and other parts of British Indian provinces, yet it was no less profound in its impact. Most notably, the colonial rule introduced sweeping changes not only in the political and economic structures of Assam but also

in its society and cultural fabric. The Europeans, with their arrival, brought Western education, advanced scientific technology, and new cultural and social beliefs, which were previously foreign to the region. These influences acted as a catalyst for societal transitions, gradually paving the way for the people of Assam to broaden their horizons and establish connections with the outer world. Alongside the advancement of administrative and political frameworks, the most profound social impact in Assam was felt in the areas of education and social reforms. This transformation was significantly driven by the influence of the Bengal Renaissance, a major intellectual and cultural movement that had already begun to reshape the fabric of Bengali society. Assam, although somewhat isolated in its earlier history, was increasingly exposed to these changes due to growing interactions between the regions. Furthermore, the arrival of American Baptist missionaries played a crucial role in shaping Assam's social landscape. These missionaries were not only interested in religious proselytization but also contributed to educational reforms and social upliftment efforts in the region (Goswami, 2018, p.198). Through their combined influence, Assam began to witness shifts in traditional practices and a gradual move toward modernization in the colonial era.

### **Education in Assam during the days of Company: -**

Before the emergence of the company Assam remained isolated from the mainstream of the Indian system under the company regime. The education system in Assam during that period was only for upper caste boys and imparting knowledge in traditional educational institutions was religious in nature. Most of the population were illiterate during that time due to the lack of a high standard social living style. Before the emergence of Europeans, Assam was the unexplored place for the contemporary world. Even when the Britishers established their rule in Assam after the *Treaty of Yandaboo* (1826) they had also faced hindrance to running their administration due to the lack of English educated local persons. Since the time of *Captain Jenkins* (company's chief commissioner) the establishment of schools started in each sadar station of Guwahati, Darrang, Nowgong and Bishwanath. Gradually through the establishment of English schools it became mandatory to know the English language for getting a job under the company's office. But ironically the quality of education provided in those schools was not based on proper structure and curriculum. Even the school textbooks were also not sufficient to

provide among students. Even the low amount of salary didn't fascinate the outer teachers to do teaching jobs in Assam. The whole problem was finally solved after the official report submitted by the British collector of Guwahati James Matthie, convinced the govt. to setting up anglo-vernacular schools in Assam and he also suggested to set up primary, secondary and collegiate school in the province (**Goswami, 2018, p.199**).

### **Christian Missionaries role in women's education: -**

It is not the British authority who first took the initiative of women's education in Assam as they knew about the conservative outlook of native people. Even prior to the British the prevalence of the rudimentary education system in Assam was only exclusive to men of the professional and learned castes and not for women. It was first under the initiative of American Baptist Missionaries who started to set up schools for both boys and girls. Although the missionaries' enthusiasm for imparting education between both boys and girls is not completely inspired by educational motive but their desire for proselytization (**Mahanta, 2008, p.8**). Moreover it was not an easy task for those missionaries who were engaged in imparting education in Assam, as this place was the inhabitants of different ethnic groups and the prevalence of different local languages as well, therefore, before the establishment of schools and imparting education they learnt the regional dialects, wrote textbooks and convinced the natives to send their children to missionary schools. One of the interesting issues of missionary education was that they did not confine their teaching to the textbooks alone but also imparted informal education as well. Keeping in mind the derogatory position of women in Assam they also tried to start separate schools for girls and along with the general curriculum they added other household activities like sewing, knitting, embroidery and handicrafts in their courses. The Christian missionaries also found out the solutions of the illiteracy of the number of girls in comparison to boys in Assam and condemned the practice of child marriage. As most of the conservative Assamese families didn't want to send their girls openly to the schools, therefore the missionaries invented the concept of 'zenana' education where especially women teachers were recruited to teach girls from home to home. In this way the missionaries carried on their journey of imparting education among women in the Assamese society during its inception (**Goswami, 2018, p.200-201**). Despite such commendable

efforts carried out by the Christian missionaries they had also faced several criticisms from the local people; even the women missionaries didn't escape either. Missionary teacher Mrs. Brown states "Our old Brahmin '*pundit*' often comes along by my little school room and laughs at the idea of my spending my time teaching women to read." In the same way another woman missionary Mrs. Ruth Branson wrote in 1840 about the incident of a similar response from a local Naga chief in the hills and he deterred her from teaching Naga girls in missionary school as he was not ready to embrace this new custom introduced by missionaries regarding girls' education. Moreover the forbid of women education by a particular section of the society, in the upper caste Assamese hindu society's other social customs like child marriage and female seclusion were additional barriers to female education. Most of the time the Assamese upper caste people were suspicious about the activities of white skinned missionaries and that is why to convince the upper caste people about the genuine motives of their benevolent policy the Christian missionaries applied the strategy of establishing girls' boarding schools, where they gathered orphans, destitute or abandoned girls and educated them. For example Dr. Miles Bronson founded '*Nagaon Orphan Institution*' in the year 1843 (Mahanta, 2008, p.9). The other women Christian missionaries were Mrs. Brown, Cutter, Robinson, Barker who also set up schools for girls at Sibsagar (1840), Nowgong (1843) and Gauhati (1850) (Baruah, 2017, p.626). A significant step was taken by American Baptist missionaries regarding female education through propagating their ideas in the news journal '*Arunodai*', and also setting up separate elementary schools for girls. Despite taking several different steps the missionaries were not hundred percent successful in educating women as they wished. Mrs. Brown stated that "As heathen parents would not commit their children to the care of a Christian teacher, our pioneer missions went out into the highways and sought the orphan and the homeless." Missionary Burdette said that the people's behaviour was cordial and friendly but they remained silent when missionaries wanted to talk about girls' education (Barpujari, 2007, p.201).

### **Role of the Assamese Intelligentsia in Women's Education:**

Despite the efforts of the Christian missionaries, in the early 19th century a small section of western educated Assamese gentry also took initiative to promote women's education in Assam. Young

assamese enthusiast Anandaram Dhekial Phukan had a deep interest in girls' education. He himself taught his wife Mahindri Devi also started his daughter's education when she was five years old. He thought that it wouldn't be bad to give women freedom if they were properly educated. His wife learned perfectly both Assamese and Bengali language to read and write as well along with other household tasks. Another intellect Gunabhiram Baruah was also one step further in the case of imparting education to women. He himself sent his nine year old daughter Swarnalata Baruah to Bethune school in Calcutta. He even encouraged his own daughter and also the daughter of Dhekial Phukan's Padmavati wrote articles in his self published journal '*Assam Bandhu*.' He also published many letters in '*Arunodai*' to advocate women's education. An Assamese government official Ganga Govinda Phukan also set up two girls school in Sibsagar in 1870-71 and also sent his daughter to Calcutta for higher education and appointed an English governess for her English learning. He even allowed her to dress like other European ladies (**Mahanta, 2008, p.10-13**). Under the influence of English education and the liberal outlook of Bengali society in Calcutta, the educated male segment of Assamese society felt compelled to educate their life partners because they believed that if their wives were not educated, there would always be a communication gap and they would be deprived of an intellectual companion. That is why Gunabhiram Baruah even pointed out the religious verses from shastra that it never discouraged female education and considered the absence of female education as the major setback to the progress of the Assamese society. He also concluded that unless the women were not educated the nation could never hope to prosper ( **Goswami, 2018, p.211**). To change the outlook of Assamese conservative society's another Assamese enthusiast Haliram Dhekiyal Phukan published a number of letters in Bengali newspapers. Remarkably some Assamese govt. official's personal initiative was also praiseworthy regarding their contribution of women's education; for instance Utsabananda Goswami, deputy inspector of schools started elementary schools for girls in upper Assam and two years later the same schools also set-up in Sibsagar, Nagaon and Guwahati (**Barpujari, 2007, p.201**).

### **Conclusion:**

The company's role in Assam during the 19th century not only centres around the history of polity, administration and economy but also as



an important phase of the development of women's education under the initiatives of both Christian missionaries and Assamese intelligentsia. Christian missionaries in Assam were primarily driven by the desire to spread their faith, but they also made a substantial contribution to social reform and women's education. Furthermore, since women's status was always negatively impacted by social norms and customs, the missionaries' goal of educating women would have been nearly impossible to achieve without the support and efforts of the Assamese intelligentsia during the colonial era. On the other hand, not all Assamese elites were as keen to educate women as others were because they retained the outdated, pre-colonial attitudes and social mores in their heads. The various initiatives that both sections took were not entirely successful, but their subsequent efforts were unquestionably important in establishing a new era of objective gender education and in transforming public perceptions of the marginalised and impoverished section.

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# **Role of Women in Ecotourism projects: A study of 'Satakosia Sand Resort' in Nayagarh district of Odisha**

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**Ms. Mausumi Mishra\*\***

## **Introduction<sup>2</sup>**

Ecotourism involves responsible travel to pristine and protected areas to reduce environmental impact and promote sustainable development (Anandraj & Phil, 2015). Ecotourism is an approach to environmentally friendly tourism. It supports biodiversity conservation, economic opportunities, and sustainable development. This approach emphasizes economic, social, and ecological aspects to promote environmental awareness and sustainability (Fannell 2020). Ecotourism is a unique form of tourism that combines a nature-centric approach with providing environmental education for tourists (Lorenzo-Romero & Crespo-Jareno, 2023). The World Conservation Union's Commission on National Parks and Protected Areas defines ecotourism as environmentally responsible travel to untouched natural areas. It aims to promote conservation, minimize visitor impact, and involve local populations in socio-economic activities (Ross & Wall, 1999). According to TIES (2015), the fundamental principles of ecotourism are community and conservation, along with educating tourists on the importance of conservation efforts. Therefore, ecotourism endeavors to induce advantageous effects on both the environment and the inhabitants of these regions. More than 50% of participants in

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ecotourism activities are women. However, women may not always benefit significantly from the development of ecotourism. They may also have limited control over ecotourism projects in their local communities. Gender-sensitive planning and administration of ecotourism are essential to ensuring the active involvement and empowerment of women in these activities (Scheyvens, 1999).

## **The Evolution of Ecotourism**

The roots of ecotourism can be traced back to the activities of naturalists and explorers in the late 19th and early 20th centuries.

They documented their explorations of unknown regions during this time, laying the foundation for ecotourism. These activities motivated individuals to explore nature firsthand after learning about them. This also led to the establishment of national parks and other protected areas. Yellowstone National Park in the USA, founded in 1872, was a significant early conservation initiative. (Yui, M. 2014).

An environmentalist from Mexico named Hector Ceballos-Lascurain is credited as being the first person to use the term “ecotourism” in the late 1980s. Hector described ecotourism as responsible travel to natural areas, aiming to conserve the environment and improve the local residents’ well-being. During this period, ecotourism was recognized as a distinct sub-sector within the broader tourism industry. During that time, global awareness of environmental issues experienced a notable increase. The release of the Brundtland Report in 1987, highlighting sustainable development, fueled the growth of this awareness. (Kiper, 2013). The United Nations Conference on Environment and Development in 1992, also known as the Earth Summit, propelled ecotourism into the global spotlight and underscored its capacity to support sustainable development (Stronza et al., 2019; Xu et al., 2023). Ecotourism has gained international recognition through the establishment of various associations, accreditation schemes, industry networks, and the United Nations’ designation of 2002 as the International Year of Ecotourism (Sharpley, R. 2006). These entities have played a crucial role in promoting ecotourism on a global scale. The United Nations designated 2017 as the Year of Sustainable Tourism to promote tourism’s pivotal role in fostering economic growth, social inclusion, resource efficiency, and

peace and security. This initiative aimed to drive changes in tourism policies and experiences towards sustainable practices in alignment with the Sustainable Development Goals (SDG) (World Tourism Organization, 2017). By the early 21st century, ecotourism had firmly established itself and gained global recognition. Women during this period played a significant role in ecotourism activities, with deliberate attempts made to incorporate them in study trips, seminars, and committees. Their involvement not only empowered women economically but also contributed to the overall sustainability of ecotourism initiatives. This increased representation and participation of women in ecotourism activities helped to promote gender equality and social inclusion within the industry (Scheyvens, 1999).

### **Ecotourism and Community Participation**

Eco-tourism involves active community involvement in decision-making and tourism development, fostering empowerment and cultural pride. Strategies focusing on sustainable development and community involvement attract ecotourism to local communities. Community-based ecotourism includes engaging local communities in planning, development, and management, often involving consultations and ownership of businesses (Vincent & Thompson, 2022; Kim et al., 2019). Community stakeholders play a crucial role in decision-making for ecotourism, ensuring sustainability and success. Encouraging stakeholder participation through defined goals, combining local and scientific knowledge, holding public meetings, conducting surveys, and establishing advisory committees, fosters transparent communication, trust, and consideration of all stakeholders' interests. Institutionalizing stakeholder participation can create an environment favorable to uncertainty and negotiation, ultimately leading to more sustainable and successful ecotourism destinations (Reed, 2008). Ecotourism success relies on integrated strategy, planning, education, local benefits, and assessment. A holistic approach prioritizes environmental conservation, community development, and stakeholder engagement. Local backing is vital for sustainable tourism, engaging communities in project design, advocating for environmental conservation, and acknowledging economic advantages (Kruger, 2005; Masberg & Morales 1999). Ecotourism empowers local communities by diversifying income, reducing reliance on unsustainable practices, and contributing to long-term sustainability, environmental incentives,

biodiversity preservation, and natural habitat protection (Vincent & Thompson, 2022).

Community-based ecotourism (CBET) empowers host communities to ensure long-term social, economic, and cultural sustainability. It benefits communities by providing social justice, economic advantages, and cultural diversity. Ecotourism fosters job creation, fair salaries, and cultural enrichment while promoting environmental preservation and resource efficiency. Community involvement in decision-making ensures their voices are heard (Winkler, 2015; Wondirad et al., 2020).

Ecotourism is a sustainable tourism practice that enhances social cohesiveness, trust, and collaboration among local communities, helping them better manage their resources. However, it can also lead to disputes over earnings disparities and the breakdown of long-standing bonds. In order to cultivate leadership, organization, and trust within communities, it is essential to engage them as owners and managers. Ecotourism can generate economic opportunities for local residents through activities such as selling food, souvenirs, non-timber forest products (NTFPs), as well as offering services like campsite rentals and photography. However, ecotourism's financial advantages may not always increase household incomes, and the industry's profitability is uncertain due to factors like inadequate funding and restricted market prospects. It has the potential to create sustainable livelihoods for local communities, especially in rural and marginalized areas where economic opportunities are limited. By offering employment in tourism-related activities, such as guided tours, handicraft production, and hospitality services, ecotourism generates income streams that can lead to poverty reduction and improved economic well-being (Stronza & Gordillo, 2008; Kim et al. 2019).

Ecotourism promotes social justice through sustainable travel, ethical community involvement, and cultural preservation, leading to a deeper appreciation of diverse cultures and social issues. It can create opportunities for marginalized communities to benefit economically from their natural resources, reducing poverty and promoting equality (Wearing et al., 2012). A variety of factors, including social, economic, and ceremonial barriers have an impact on the level of women's engagement in ecotourism. For example, programs like the Kudumbashree program in Kerala have successfully empowered women through community-based tourism initiatives. By

offering education and income-generating opportunities, encouraging gender parity, and encouraging women's active involvement in ecotourism projects, community-based ecotourism initiatives can empower women in rural communities. This empowerment can lead to increased decision-making power, financial independence, and improved social status for women in these communities (Kunjuraman, 2022; Barry 2012).

Ecotourism is increasingly being advocated as a tool for socioeconomic development and generating funds to enhance conservation efforts for endangered species. Non-economic benefits include building capacity and empowering marginalized section such as tribal and women, as well as mitigating environmental and socio-cultural impacts of tourism on the local community. Women often do not experience substantial advantages from the growth of ecotourism, since women may be overlooked for job prospects and encounter prejudices in social development initiatives funded by ecotourism earnings. However, the active involvement of women in ecotourism projects is essential for the sustainable management of resources and has the potential to contribute to the success of ecotourism efforts. Nevertheless, women have been encountering a lack of authority in ecotourism enterprises and the decision-making procedures, which obstructs their capacity to get advantages from these endeavors. (Scheyvens, 1999).

### **Eco-tourism in India**

Ecotourism in India has its roots in the country's deep respect for nature and the preservation of natural resources. The formation of national parks and wildlife sanctuaries in the early 20th century marked the beginning of the formal processes leading to the development of ecotourism. India began transitioning towards ecotourism during the 1980s and 1990s, incorporating ecotourism into its comprehensive tourist and environmental policy. State tourist ministries and the Indian Ministry of Tourism have begun to focus on the development of ecotourism infrastructure, with the National Wildlife Action Plan (2002–2016) and the Ecotourism Society of India (ESOI) playing crucial roles in promoting ethical and sustainable tourism practices. The India-Eco-Development program in 1996 encouraged local community involvement in forest management, including ecotourism projects. The 2002 National Tourism Policy (NPT) advocated for

green tourism, promoting sustainable, responsible, and inclusive tourism. In 2022, the Ministry of Tourism created the National Strategy for Eco-Tourism to position India as a leading global destination for eco-friendly, sustainable, and responsible tourism. The Swadesh Darshan Scheme selected “Eco Circuit” as one of the fifteen theme circuits under the Swadesh Darshan Scheme, focusing on conserving natural resources, protecting biodiversity, and promoting sustainable tourism activities that enhance local communities’ livelihoods.

## **Methodology and Case**

The study is carried out at Satkosia Sand Resort and Nature Camp (SKSRNC) in Odisha, located in Muduligadia, renowned as the state’s first eco-village. The research aims to investigate how ecotourism influences community empowerment. The study aims to assess the level of participation of local women in ecotourism activities at Satkosia Sand Resort and Nature Camp (SKSRNC). Additionally, it seeks to analyze the perceived benefits and challenges involved. The resort is situated in Nayagarh district of Odisha in the bank of river Mahanadi. The study aims to explore how ecotourism at Satkosia Sand Resort and Nature Camp (SKSRNC) in the Satkosia George Sanctuary impacts women’s empowerment through a detailed case study. Primary data was collected using a targeted sampling method at the panchayat level to gain insights into the perspectives of local community members engaged in ecotourism activities. Initially, three villages, Muduligadia, Badamula, and Malisahi, were selected from Chammundia Gram Panchayat due to their direct and indirect connections to the nature camp. The Eco Development Committee (EDC) in Muduligadia village is responsible for overseeing and supervising the operations of the nature camp. The Eco Development Committees (EDCs) in Badamula and Malisahi villages are responsible for overseeing and supervising the boating amenities in their respective regions. In the second stage, members of the EDC from each village were selected as participants or non-participants for interviews based on their availability and willingness to participate. Interviews were conducted with the Maa Satbhauni Eco Development Committee (EDC) in Muduligadia village (27) and the EDCs in Badamula and Malisahi villages (25 and 29, respectively) due to their significant involvement

in ecotourism activities.

## Result

### Participation of Women, Satakosia Sand Resort Project

Odisha implemented a plan in 2013 to promote sustainable ecotourism activities. The policy involves the Department of Forestry and Environment, as well as communities' dependent on forests, as key stakeholders. The eco-tourism development scheme, approved in 2016, aims to involve communities in ecotourism program development and implementation. The scheme costs Rs. 56.00 crore over five years and includes developing over 40 destinations with small-scale ecotourism activities, supported by local community members. Over 600 community members received training in hospitality and service from relevant authorities to support the success and sustainability of ecotourism initiatives. This initiative has led to a significant increase in women's participation in ecotourism in Odisha. The Satakosia Sands Nature Camp is one of the developments supported by this scheme.

Village EDC	Total Member	Women Member	Percentage
Muduligadia	27	10	37%
Badamu	25	07	28%
Malisahi	27	05	19%

(Source-Field data)

The level of inclusivity for women in the Eco Development Committees (EDCs) at the Satakosia Sands Nature Camp varies across different villages, reflecting different participation rates and roles. Muduligadia EDC stands out for having the highest percentage of female members at 37%, highlighting a strong commitment to gender inclusivity and diverse representation. The significant female participation indicates that the community values diverse voices and perspectives, leading to fairer and more inclusive decision-making. The diverse perspectives within the committee may lead to fairer and more comprehensive judgments, ultimately benefiting the entire community by considering a wide range of viewpoints. Badamul EDC has a respectable level of representation, standing at 28%. However,



there is still potential for further progress in enhancing gender inclusivity and representation in Badamul EDC. The proportion of women in Malisahi EDC is low, at just 19%. This indicates a clear need for specific actions to enhance gender inclusiveness and promote greater female participation in Malisahi EDC. Increasing women's participation can lead to fairer and more comprehensive decision-making, considering the needs and viewpoints of all community members. It is essential to address these gaps in order to ensure that the needs and opinions of all community members are taken into account. A higher representation of women in EDCs ensures that diverse perspectives are included in governance and operational decisions. This inclusivity can lead to more effective and equitable community development, as decisions are more likely to address the needs and concerns of the entire population. Muduligadia's model of high women's representation serves as an example for other villages. Emulating Muduligadia's inclusivity levels can help other EDCs enhance their decision-making processes and community outcomes. Ensuring that women have a significant role in these committees can enhance the overall effectiveness and fairness of the EDCs.

Women in Muduligadia demonstrate strong empowerment by actively raising questions and disagreeing with decisions, although only 50% propose views. Women in Malisahi are notably proactive, with 60% proposing views and 80% raising questions, but they show a lower rate of dissent (20%). This indicates that women in Malisahi are more likely to actively participate and voice their opinions, but may be less likely to challenge the status quo. On the other hand, women in Muduligadia are more balanced in their approach, showing strength in both questioning decisions and proposing alternative views. Women in Badamula face significant barriers, with only 57.14% raising questions, 14.29% disagreeing with decisions, and 14.29% proposing views. The barriers at Badamula indicate challenges for female voices to be heard and respected in community decision-making processes, highlighting specific obstacles that hinder their full participation. This difference underscores the importance of specific interventions to empower women in Badamula. These results suggest that while overall empowerment levels are high in Muduligadia village, there may be disparities in empowerment between men and women, particularly in areas related to decision-making and leadership roles. This suggests a potential gender disparity in participation that should be further

explored and addressed. Ecotourism has the potential to be a powerful catalyst for gender empowerment and social justice, fostering a more equitable and inclusive tourism industry. EDC memberships are diverse, with members representing different sections of the community. The primary goal in all three EDCs is to ensure that marginalized groups' voices and needs are actively heard, respected, and integrated into the decision-making processes for a more inclusive and equitable approach.

However, the Eco-Tourism Group (ETG), which oversees the daily operations of the resort and represents the employees, has a notable imbalance and lack of female representation. Badamula has no female members, while Malisahi only has 29% of females. Muduligadia ETG has the female member accounts for 40% of the total membership. The group has established a welcoming and inclusive environment that benefits all members, fostering a sense of belonging and respect irrespective of gender. With such a strong representation of women in leadership roles within the Muduligadia ETG, they serve as an example of equity and equality. The absence of women's representation in other ETG village groups underscores the necessity for increased efforts to promote gender inclusivity and equality and empower women to assume leadership roles within those groups. By addressing the barriers that prevent women from participating fully in the ETG groups, these villages can harness the potential of all their members and work towards a more equitable and sustainable future.

However, Muduligadia EDC stands out in its representation by including almost all sections of the local community, such as women, tribal groups, and other marginalized populations. The data from different villages shows that Muduligadia has the highest percentage of women members in the EDC, with 37% of the total members being women. The fact that there are so many women in leadership roles speaks to Muduligadia EDC's inclusive philosophy. In terms of representation, women constitute 37.3% (10) of the EDC, and all of them are first time members of any group. Having women workers enhances the sense of security and freedom for female tourists. This empowerment and representation can lead to long-lasting positive change within the community. Women actively participate in EDC meetings. Recognizing women's role in tourism, eco-tourism initiatives in Satakosia provide economic opportunities and empower women in local decision-making. Women are actively engaged in guiding, interpretation, conservation efforts, and community-based enterprises,

breaking gender barriers and challenging traditional roles. Moreover, ecotourism provides training and capacity-building programs for women, equipping them with essential skills to take on leadership roles and contribute meaningfully to sustainable tourism development. Through prioritizing gender equality, ecotourism ensures equal benefits for both genders from tourism revenues, promoting a fair distribution of economic benefits. Additionally, ecotourism can raise awareness about gender issues among travelers, encouraging them to be more conscious consumers and advocates for gender empowerment and justice. By harnessing the transformative power of ecotourism, one can create a tourism industry that celebrates diversity, promotes gender equality, and contributes to a more inclusive and just world for all.

## **Conclusion**

Ecotourism initiatives in Satkosia provide economic opportunities and empower women in local decision-making, breaking gender barriers and challenging traditional roles. By prioritizing gender equality, ecotourism ensures equal benefits for both genders from tourism revenues, promoting a fair distribution of economic benefits. This inclusive approach has resulted in the successful operation and development of the Satkosia Sands Nature Camp, ensuring its continued growth and sustainability for future generations. The EDC's diverse membership, including women, tribal groups, and other marginalized populations, enhances the sense of security and freedom for female tourists.

Women in Muduligadia have voiced their concerns and priorities through the EDC, resulting in better solutions for their specific needs. The collective decision-making system fosters unity and equality among community members, with women actively participating in decision-making processes. The local community has increased its involvement in protecting wildlife and natural resources by adopting sustainable practices such as recycling, zero-waste initiatives, and transitioning from firewood to LPG gas. The Satakosia Sand Resort in Nayagarh has achieved the goal of ecotourism by bringing sustainable development, environmental awareness, and inclusivity to marginalized groups. The village serves as a model for how environmental sustainability can be achieved through community involvement and women empowerment.

The project has also empowered women in local decision-making,

breaking gender barriers and promoting a fair distribution of economic benefits. Additionally, this has led to increased participation of women in community development initiatives, resulting in more inclusive and sustainable outcomes. Overall, the project has helped to create a more equitable and empowered society. This has led to positive changes in gender participation in rural areas. Women now have a stronger voice in community affairs and are actively involved in shaping policies that affect their lives. As a result, there has been an increase in female representation in leadership positions within the community.

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# Indian Soft Power: In the Context of Buddhism

**Dr. Karmveer Singh\***

In the contemporary era of globalization, interdependence and rapidly growing communication technology, the soft power has emerged as an attractive method for nation states to achieve their objectives in international relations without completely relying on the hard power instruments. However, soft power may not be a substitute of hard power, but it is less destructive and more attractive option, therefore, much in demand today. India is one of the few countries, which has strongly favoured the use of soft power in exercising foreign policy rather than relying on the hard power tools i.e. use of military power, economic sanction and coercive diplomacy. Soft power as a concept might be developed just three decades before by the Harvard Political Scientist Joseph Nye, but it has been in existence worldwide since the time immemorial. Centuries ago, India's cultural and civilizational ethos spread to the different parts of the world especially Asia through peaceful means and gradually penetrated into the local pattern of life. The ancient institutions of high learning like Nalanda Mahavihara had attracted thousands of scholars from various parts of the world for pursuit of education and knowledge in India. Buddhism has always occupied a central position in this process of cultural transmission and exchange of knowledge. Today, it has become a way of life for a large number of populations in the countries of South and Southeast Asia. The extensive influence of the teachings of Buddha especially in the Asian continent, combined with Buddhism's universal message of non-violence, compassion and peaceful co-existence positions it

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favourably for leveraging soft power in international relations. India is the birthplace of Buddhism and home of many most sacred Buddhist sites, apart from its adherence to the core principles of Buddhism e.g. peaceful co-existence, which grant it singular historical legitimacy. By utilising its rich Buddhist heritage and the legacy of ancient Buddhist networks of knowledge, India may strengthen its relations with the Asian countries especially the Buddhist nations or those are with substantial Buddhist population, and also boost its image at international level by vigorously advocating universal message of Buddha.

This paper is a part of a research project entitled “Assessing the Role of Overseas Indian Organisations in Promoting India’s Soft Power...”, sponsored by the Indian Council of Social Science Research, New Delhi.

This paper attempts to study the historical roots of Indian soft power particularly in the context of Buddhism and its manifestation in India’s external policy especially focusing on its initial phase after independence and the contemporary era.

### **Buddhism as Indian Soft Power**

If soft power is an ability of attraction rather coercion (Nye 2004), Buddhism may be considered as a formidable source of soft power. Since its origin in India more than 2500 years ago, it has attracted millions and millions of people both the rulers and the ruled around the world to follow the teachings of Buddha and practice the path shown by the master. In this age of violence, conflict, hatred and enmity between the individuals as well the nation states when people across the globe have suffered the brunt of extremism, violence and conflicts, the core principles of Buddhism i.e. calm, compassion, non-violence, peaceful co-existence, equality, freedom from hatred, universal love, tolerance, altruism and respect to others may show the way to the world to overcome these problems. The use of hard power or military intervention may not be the only way to solve the disputes. As Nye says, soft power may not be a substitute of hard power, but the former should be prioritized. Buddhism never advocates war and violence, but prefers the way of dialogue and diplomacy to resolve the conflicts and establish the peace. Even Buddha himself intervened to prevent war and bring peace in situations of conflict by mediating among the two states. For instance, when there was war like situation

between the Sakyan clan, to which Buddha belonged, and Koliyans over the sharing of Rohini river water, Buddha stood among both the parties and was able to persuade them not to wage war (Mazza 2021). As Buddha says, ‘Never by hatred is hatred appeased, but it is appeased by kindness....One should win anger through kindness, wickedness through goodness, selfishness through charity, and falsehood through truthfulness.’ There can be no peace or happiness for man as long as he thirsts after conquering and subjugating his neighbour. In Buddha’s words, ‘The victor breeds hatred, and the defeated lies down in misery. He who renounces both victory and defeat is happy and peaceful....The only conquest that brings peace and happiness is self-conquest’ (Rahula 1959: 86).

The teachings of Buddha are not utopia, but practicable and adoptable by common men as well as people who are in governments. There were kings in the past like the Mauryan Emperor Asoka who had followed the path of Buddha. He was alone among conquerors, who relinquished the sword soon after his victory in the battle and realized that real victory could be achieved only by love and compassion, not by the sword. He applied the Buddhist ethics to the administration of his kingdom and embarked upon the policy of Dhammavijay. He believed that “by setting an example of enlightened government, he might convince his neighbours of the merits of his new policy and thus gain the moral leadership of the whole civilized world” (Basham 1954: 55). Asoka made it a mission of his life to spread the message of Dhamma not only in the territory of his empire but also to the distant parts of the world. As Bapat notes, “the efforts of Asoka were largely responsible for the popularization of the teachings of the Buddha in and outside India. It is he who paved the way for the Buddhist missionaries—occasionally helped by kings like Kaniska—to take Buddhism to Central Asia, China, Japan and Tibet in the North, and to Burma, Thailand, Cambodia and other countries in the South” (Bapat 1956: 60). H.G. Wells, who termed the reign of Asoka as “one of the brightest interludes in the troubled history of mankind”, says, “while the rest of the emperors led bloody life, Asoka alone tried to unite the world with love” (Wells 1922: 163-166).

Though, Buddhism as a religion gradually faded out from India since the pre-medieval age, its principles remain attached to the socio-cultural framework of the country. After gaining independence, India imbibed the cardinal virtues and values of Buddhism e.g. non-violence,

universal love and peace, and made them an integral part of national identity. The adaptation of *Dharma Chakra* or the Wheel of the Law (which appears on the abacus of the Sarnath Lion Capital of Asoka) at the centre of national flag and the Lion Capital of Asoka for the national emblem remind the nation of its rich Buddhist heritage and of the *Dhammavijaya* (conquest by righteousness) of Asoka. Placing the resolution on national flag at the Constituent Assembly, Jawaharlal Nehru said,

“That wheel is a symbol of India’s ancient culture, it is a symbol of the many things that India had stood for through the ages..... We have associated with this Flag of ours not only this emblem but in a sense the name of Asoka, one of the most magnificent names not only in India’s history but in world history. It is well that at this moment of strife, conflict and intolerance, our minds should go back towards what India stood for in the ancient days and what it has stood for.”

Further he argued, “the Asokan period in Indian history was essentially an international period of Indian history. It was not a narrowly national period. It was a period when India’s ambassadors went abroad to far countries and went abroad not in the way of an Empire and imperialism but as ambassadors of peace and culture and goodwill” (Constituent Assembly Debates).

A few years later, addressing a gathering of Buddhist delegates from various countries on the occasion of enshrinement of Buddhist relics in a newly built Vihara in Sanchi, Nehru acknowledged that,

“The selection of Asoka Chakra for the national flag and the adoption of Asoka Lion for the national emblem is not a mere matter of chance. The choice was deliberate because these symbols denote a sincere desire for peace and would work as a constant reminder to the people to continue making incessant effort in that direction.....The flag of India which has the Asoka Wheel on it symbolizes India’s love and friendship towards all countries of the world and reminds the people of the country’s glorious past” (Selected Works of Jawaharlal Nehru 1997: 206-7).

Not only in symbolic terms but in policy terms also India imbibed the principles of Buddhism. Since Independence, the Indian policy makers have always been cognizant of the need to not make hard power as the cornerstone of foreign policy. It shall be noted that the *Panchasila* (Five Principles) which became the basis of Indian foreign policy are in accordance with the ‘Dasa-raja dhamma’ (Ten Duties of

the King) as explained by the Buddha and applied by Asoka to the administration of his government. In fact, the expression Pancha-sila (Five Precepts or Virtues), is itself a Buddhist term (Rahula 1959: 85). In the matter of foreign affairs, Prime Minister Nehru was very much convinced that “The message of the Buddha may well solve the problems of our troubled and tormented world. ...If we follow the principles enunciated by the Buddha, we will ultimately win peace and tranquillity for the world” (Selected Works of Jawaharlal Nehru 1997: 205).

Since independence, the Government of India has been engaged in the revival and projection of its Buddhist heritage through strengthening of relations with Buddhist countries, inviting Buddhist preachers and scholars from various countries in international Buddhist councils and conferences, extending scholarship to students from Buddhist countries to pursue study in India, celebrating Buddhist events, sending the relics of the Buddha and his disciples for public veneration in the Buddhist countries, taking initiatives for preservation of Buddhist sites, developing Buddhist circuits to promote pilgrimage, and revival of ancient Nalanda University as a centre of Buddhist study and learning with the support of many East Asian countries. Even before the independence, India hosted an All-Asia Buddhist Convention at New Delhi on 31 March 1947 which was attended by Buddhist delegates and government officials from several Asian countries including Ceylon, Thailand, Burma and Tibet. The issues of establishment of an international Buddhist university in India and formation of an Asian federation were discussed in the convention (Meyer 1949: 72-73; Ober 2019: 1336-37). In November 1952, when the sacred relics of Sariputta and Mahamoggallana, after travelling to various parts of India and other Buddhist countries for public veneration between 1947 and 1952, were enshrined in a newly constructed Vihara in Sanchi, a number of events were organised by the Indian government in collaboration with the Maha Bodhi Society (Ober 2019: 1331-34). The International Buddhist Cultural Conference was one of the major events that was attended by more than three thousand Buddhist delegates including a large number of foreign participants from Asian countries. It was one of the biggest gatherings of Buddhist preachers and followers in the world at that time.

The pinnacle of India’s projection of its Buddhist heritage was the grand celebration of 2500<sup>th</sup> Buddha Jayanti, a year-long event of

ceremonies, festivals, conferences, public meetings, art exhibitions, and gathering of international dignitaries, which commenced in May 1956 and lasted for complete one year, till May 1957. More than two hundred royal dignitaries, heads of states, foreign ambassadors, Sangha leaders and scholars from across the world were invited to participate in the state-sponsored celebrations, Prime Ministers of Burma, Nepal and China, and the Fourteenth Dalai Lama of Tibet were prominent among them (Ober 2019: 1319; NAI 1956). Addressing one of such events, Nehru stressed the importance of the Buddha's teachings, "...it is essentially through the message of the Buddha that we can look at our problems in the right perspective, and draw back from conflict, and from competing with one another in the realm of conflict, violence and hatred" (Jawaharlal Nehru's Speeches 1958: 431). Moreover, a brief history of Buddhism titled *2500 Years of Buddhism* published by the Government's Publication Division was also released on this auspicious occasion (Bapat 1956).

When the world was divided in power blocks in Cold War days, India under the leadership of Nehru preferred to building an enduring and strong relationship with like-minded Asian countries on the basis of India's ancient Buddhist connections with these countries and Buddhism's universal message of peace, love and tolerance. Indian policy planners were well aware of the influence of the teachings of Buddha which are inherently universal, applicable to anyone and everyone. The place of Buddhism in India's endeavours to rebuilding relations with Asian countries was well articulated by Nehru: "India is looked upon by many neighbouring countries with feelings of affection and veneration as having been the land of birth and the scene of activities of Gautama Buddha. Buddhism more than anything else laid the foundation of Greater India and established cultural unity on an abiding value between India and many parts of Asia. A free India can worthily strengthen and revitalize those contacts" (Selected Works of Jawaharlal Nehru 1990: 101-02). Nehruvian-style Buddhism, as Ober noted, "consisted of a two-pronged approach, one concerning the uses of Buddhism in the domestic sphere- that is, for domestic consumption by citizens of the new nation- and one concerning the uses of Buddhism as an instrument of foreign policy. At the heart of these projects was the dual effort to integrate a diverse South Asian populace into a wider national consciousness and yield influence among the post-colonial order in Asia" (Ober 2019: 1312). Nehru's policy of

promotion and projection of India's Buddhist heritage and invoking universal Buddhist principles in international relations was continued under the successive regimes also.

In recent years, India has deeply been engaged in projecting its soft power. Buddhism, apart from diaspora and Yoga, has been one of the key components of Indian soft power on which Prime Minister Modi has primarily focused since he first time assumed the charge of his office in 2014 (Mazumdar 2018). Invoking historical Buddhist connections with the Asian countries especially those are Buddhist majority or have a substantial number of the followers of Buddhism and visiting Buddhist temples or viharas during the official visits to these countries, hosting international Buddhist conferences and celebrating Buddhist events, developing the places associated with the Buddha through better connectivity and the creation of facilities for the devotees, speeding the initiatives aimed at revival of ancient centres of Buddhist learning in India, projecting India as the custodian and protector of rich Buddhist heritage, and frequent evocation of Buddhism at international platforms have been major part of Modi government's diplomacy in foreign affairs (see Scott 2023; Mazumdar 2018, & Kishwar 2018). The development of Buddhist Circuit through enhancing and improving connectivity and infrastructure at prominent Buddhist sites especially Bodh Gaya, Sarnath and Kushinagar, has been one of the topmost priority of the current regime. During his visit to the Mahabodhi Temple in Bodh Gaya in September 2015, Prime Minister Modi proclaimed: "We in India would like to develop Bodh Gaya so that it can become the spiritual capital and civilisational bond between India and the Buddhist world. The government of India would like to provide all possible support that its Buddhist cousin nations need for the satisfaction of their spiritual needs from this holiest of holy places for them" (PIB 2023). Under its policy to enhance connectivity between Buddhist sites in India and the Buddhist devotees worldwide, the Indian government constructed an international airport at Kushinagar, one of the most sacred Buddhist places where Buddha delivered his last sermon and attained Mahaparinirvana. Inaugurating the Kushinagar International Airport in October 2021, Modi underscored the importance of this place. He said "India is the centre of devotion, faith and inspiration to Buddhist society around the world. Today, the inauguration of Kushinagar International Airport is in a way a tribute to their devotion. This region, which witness to the entire



journey from the enlightenment of Lord Buddha to Mahaparinirvana, is getting directly connected to the world today” (Ibid)

The present government has also attached high importance to the interaction with Buddhist community worldwide through its public diplomacy. A number of international conferences and events are being organised that facilitate interaction between members across sectarian and national boundaries. In 2015, a ‘Samvad- Global Hindu-Buddhist Initiative’ was launched by the country for boosting the Buddhist heritage across Asia. This *Samvad* initiative was enthusiastically embraced by Japanese leadership and since then it was moved forward by India in collaboration with Japan in subsequent years. In his address to “Samvad”- Global Hindu-Buddhist Initiative on Conflict Avoidance and Environment Consciousness at Sitagu International Buddhist Academy, Myanmar on 3 September 2015, Modi said:

“They say that this century is going to be an Asian Century. I am very clear that without embracing the path and ideals shown by Gautam Buddha, this century cannot be an Asian century! ..... I see Lord Buddha in the 21st Century across national borders, across faith systems, across political ideologies, playing the role of a bridge to promote understanding to counsel patience and to enlighten us with tolerance and empathy” (Ibid).

Moving ahead its endeavour for engaging the Asian countries on the ground of historical Buddhist connect, an international conference on “Shared Buddhist Heritage” was held under the Indian presidency of the Shanghai Cooperation Organization (SCO) in March 2023 with focus on civilizational links with the SCO nations. Addressing the conference, India’s Union Minister for Culture G.K. Reddy said, “Buddhism with its profound vision of eternal harmony in the world has spread far and wide and it touched the lives of inhabitants in all the SCO countries centuries ago. Today, we have all gathered here, at a first of its kind conference, because of this underlying link that binds us. The purpose of this Conference is to renew trans cultural links and shared histories between the nations gathered here” (PIB 2023a). In the same year, taking a step forward towards ‘engaging the global Buddhist community on matters of Buddhist and universal concerns’, a two-day Global Buddhist Summit was hosted at New Delhi by India’s Ministry of Culture in collaboration with the International Buddhist Confederation (IBC). It must be mentioned here that the IBC, a Buddhist umbrella body that serves as a common platform

for Buddhists worldwide, is supported by the Indian government and headquartered in the country's capital city. The Global Buddhist Summit witnessed the participation of Sangha leaders, eminent scholars and Buddhist practitioners from all over the world. China was also invited in the summit but it did not send any representative, probably due to the appearance of the Dalai Lama and Taiwanese delegates (Scott 2023). Addressing the inaugural session of the summit, Prime Minister Modi emphasised on the relevance of Buddha's teachings by saying that "all the problems of modern times lend themselves to solutions through the ancient teachings of the Lord... .... Budha preached abandoning war, defeat and victory for eternal peace." He added, "enmity can never be countered with enmity and happiness lies in unity. Similarly, Lord Buddha's teaching that one should first look at the conduct of the self before preaching to others can address the menace of imposing one's own views on others so prevalent in today's world" (PIB 2023b).

The revival of ancient Nalanda University at Rajgir in Bihar as an international institution for pursuit of intellectual, historical, spiritual and philosophical studies may prove a landmark milestone in India's policy of engagement with the Asian countries on the ground of ancient trans-national Buddhist networks and common cultural heritage. The modern Nalanda University (a Pan-Asian initiative supported by member countries of the East Asia Summit) was established by an Act of the Indian Parliament in 2010 and designated as an Institute of National Importance. It aims to understand Buddha's teachings in the contemporary context and building an international community of learning (The Gazette of India 2010). Addressing the inaugural ceremony of the newly built campus of the university, which was also attended by ambassadors/high commissioners of the partner countries, Prime Minister Modi said,

"Nalanda is not just a name. Nalanda is an identity, a respect. Nalanda is a value, a mantra, a pride, a saga. Nalanda is the declaration of this truth that even though books may burn in the flames, the flames cannot extinguish knowledge. ...Nalanda will demonstrate that nations built on strong human values know how to revive history and lay the foundation for a better future. ...Nalanda is not just a revival of Bharat's past. It is connected to the heritage of many countries in the world, especially in Asia" (PIB 2024).

The revival of India's ancient centres of Buddhist learnings like Nalanda may also give an impetus to the country's aspirations for becoming a major global centre of education and knowledge as well as a prominent platform for cultural exchange among the Asian countries. Buddhism, which was prominently positioned in the Indian diplomacy during the Nehruvian age, the trend still continues under the Modi administration, only "the medium has changed, but the political performance and message remain the same" (Ober 2019: 1350).

To conclude, India carries an image of a country which has shaped the patterns of thinking and living of a large part of the global community through its high cultural ethos and human values. The elements of Indian culture and philosophy transmitted to different parts of the world especially Asia through peaceful means and Buddhism has been in the centre of this process of cultural transmission. The teachings of Buddha, which originated in India and spread to the distant parts of Asia, have become an inseparable part of life style of a large community. This may well be India's greatest soft power diffusion and contribution to the world in establishing peace and harmony. The Buddhist principles of non-violence, peace, calm and compassion represent a true image of India at international stage. As Prime Minister Modi said, India is "a country that has given the world 'not Yuddh but 'Buddh' " (PIB 2023). Today, when soft power has emerged as an influential alternative method to achieve the national objectives in international relations without using military force, India may utilise its rich Buddhist heritage as its greatest soft power in building bridges across countries and communities for greater international understanding, peace and harmony. Invoking Buddhism in international relations may be instrumental in boosting India's global image, projecting it as a peaceful rising country among the neighbours, and bringing it closer to the Buddhist countries and communities worldwide.

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# The Impact of Climate Change: Strengthening Adaptation and Resilience in the Indian Agriculture

**Simran\***

## **1. Introduction**

Agriculture plays a crucial role in India's socio-economic landscape, providing livelihoods for millions. Yet, shifting climate patterns increasingly threaten food production and crop yields. Agriculture and climate change are deeply interconnected, with climate change exerting biophysical impacts on crop health, soil quality, and livestock productivity. India's Green Revolution achieved food self-sufficiency but introduced environmental challenges, including soil fertility loss, water scarcity, and pest issues. Climate change compounds these issues, posing a serious threat to agricultural productivity and food security in India.

## **2. Direct and Indirect Effects of Climate Change on Agriculture**

Direct and Indirect Effects of Climate Change- Climate change can affect agriculture through its direct and indirect effects on crops, soils, livestock, and pests. Increased atmospheric carbon dioxide has a fertilization effect on crops with C3 photosynthetic pathways, promoting growth and productivity. However, rising temperatures can reduce crop duration, increase crop respiration rates, alter photosynthesis processes, affect the survival and distribution of pest populations, hasten nutrient mineralization in soils, decrease fertilizer use efficiencies, and increase evapotranspiration. Climate change also

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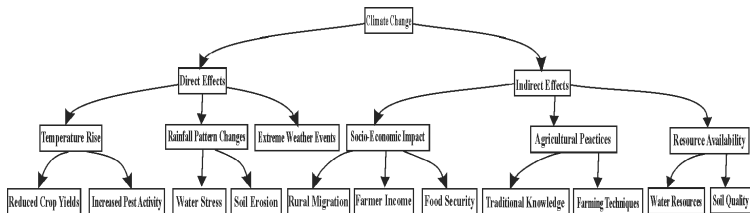
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has considerable indirect effects on agricultural land use in India due to changes in irrigation water availability, frequency and intensity of droughts and floods, soil organic matter transformations, soil erosion, shifts in pest profiles, and the submergence of coastal arable areas.

### 2.1. Changing Climate Patterns

The critical climate patterns may typically begin with changing rainfall patterns, may lead to alterations in stream flow, and increased crop water demand. Seawater intrusion, transport of salts from deeper soil layers due to aquifer overexploitation, and faulty irrigation practices. Increased frequency and intensity of extreme weather events leading to droughts, floods, and cyclones. Higher temperatures at critical stages of crop growth and unpredictable changes in pest and disease load. From soil erosion due to changes in rainfall and wind patterns to reduced quantity and quality of organic matter content, altered decomposition rates, the impact of these changing weather patterns on crops, water, livestock, fisheries, and pests and diseases are multifarious. Climate change affects feed production and nutrition, with increased lignification and reduced digestibility. Water scarcity, vector-borne diseases, heat stress, and increased resource requirements impact livestock production. Increased ambient CO<sub>2</sub> benefits photosynthesis but may lead to reduced yields due to decreased crop growth duration, increased respiration, and reduced rainfall or irrigation water supplies.

Decreased cold waves and frost events due to atmospheric temperature rise may lead to a decreased probability of yield loss associated with frost damage in northern India in crops such as mustard and vegetables. Rising sea levels may lead to salt-water ingress in coastal lands, making them less suitable for conventional agriculture. This also affects fish breeding, and migration.



### **3. Impact on Traditional Agricultural Knowledge**

An often-overlooked aspect is the disruption of traditional agricultural knowledge and practices. For generations, Indian farmers have relied on traditional weather forecasting methods and indigenous knowledge systems. Climate change has made these traditional indicators like, 'Rutukal' less reliable, forcing farmers to adapt their ancestral farming wisdom to new realities. This includes adjusting traditional crop calendars, seed selection practices, and local pest management techniques that have been passed down through generations.

#### ***3.1. Case Study: Disruption of Kerala's Traditional Agricultural Calendar (Rutukal)***

*Kerala's traditional agricultural calendar, known as "Rutukal," represents one of the most sophisticated indigenous knowledge systems in Indian agriculture. This time-tested system, developed over centuries, has faced unprecedented challenges due to climate change in recent years. Traditionally, farmers in Kerala relied on the Rutukal system to determine precise timing for various agricultural activities based on seasonal indicators and astronomical observations. However, recent climate patterns have severely disrupted this traditional wisdom. The most significant impact has been observed in the timing of the monsoon arrival, which has shifted by approximately 2-3 weeks from its traditional schedule. This shift has created a ripple effect throughout the agricultural cycle.*

*Local farmers report that traditional pest emergence patterns, which were once predictable based on seasonal changes, have become increasingly erratic. For instance, in the Wayanad district, farmers traditionally planted rice varieties based on specific environmental cues, such as the flowering of certain local trees and the arrival of migratory birds. These biological indicators no longer align with optimal planting times, forcing farmers to abandon traditional variety selection methods. The economic impact has been substantial, with an estimated 25% reduction in yield for farmers who attempted to strictly adhere to traditional calendars rather than adapting to new weather patterns.*



## **4. Socio-Economic Implications of climate change**

The changing climate patterns have significant socio-economic ramifications for farming communities. Small and marginal farmers, who make up the majority of India's agricultural workforce, are particularly vulnerable due to their limited resources and adaptive capacity.

### ***4.1. Key socio-Economic Impacts:***

- Increased rural-to-urban migration
- Rising farmer indebtedness
- Growing income inequality in rural areas
- Heightened food insecurity among vulnerable populations
- Gender-specific impacts, as women farmers often have less access to resources and technology

## **5. Technological innovation and digital agriculture**

These are emerging as essential tools in modern adaptation strategies. Advanced solutions like Artificial Intelligence (AI) and Machine Learning (ML) enable precise weather forecasting, helping farmers make informed decisions. Blockchain technology enhances supply chain transparency and traceability, allowing better management of agricultural produce from farm to market. Internet of Things (IoT) devices facilitate real-time monitoring of soil conditions, which supports efficient resource use and crop management. Additionally, mobile applications are increasingly used to deliver targeted agricultural advisories directly to farmers, while satellite imagery provides valuable insights into crop health and yield predictions. Together, these digital tools contribute to more resilient and sustainable agricultural practices. A case study from Punjab is presented below to support the same.

### ***5.1. Case Study: Digital Transformation in Punjab***

*Punjab's agricultural landscape has undergone a remarkable transformation by adopting digital agriculture technologies, offering valuable insights into the potential of technological solutions in combating climate change impacts. The state's systematic approach to implementing digital agriculture has yielded impressive results across multiple parameters. The Punjab*

*Agricultural University, in collaboration with the state government, initiated a comprehensive digital agriculture program in 2018, focusing on precision farming techniques and smart resource management.*

*The program's implementation across 1,000 farms in the Ludhiana and Amritsar districts has shown remarkable results. Through the deployment of smart irrigation systems, participating farms achieved a 30% reduction in water usage compared to traditional methods. This was accomplished through soil moisture sensors and weather-based irrigation scheduling. The precision farming approach, utilizing GPS-guided equipment and drone-based crop monitoring, led to a 25% decrease in fertilizer usage while maintaining or improving yield levels. Perhaps most significantly, farmers participating in the program reported a 20% increase in yield through better timing of agricultural operations and more precise input application.*

*The digital transformation extended beyond just farming practices. The implementation of a unified digital platform connecting farmers to markets resulted in a 15% increase in average selling prices by eliminating intermediaries and providing real-time market information. Small and marginal farmers, who initially showed resistance to adopting these technologies, reported a 40% increase in net profits after the first year of implementation, primarily due to reduced input costs and better price realization.*

## **6. Adaptation Strategies for Climate-Resilient Agriculture**

To address these challenges, climate-resilient agriculture (CRA) and climate-smart agriculture (CSA) technologies should be adopted. CRA emphasises sustainable farming practices to achieve long-term higher productivity and farm incomes under climate variability, while CSA focuses on managing farmland, livestock, and landscapes to increase productivity, improve livelihoods and ecosystem resilience, and reduce greenhouse gas emissions.

Collaboration between farmers, researchers, policymakers, and other stakeholders is crucial to developing and implementing effective strategies for adapting agriculture to climate change. This includes promoting sustainable practices, investing in research and development, and providing support and incentives for farmers to adopt climate-resilient and climate-smart technologies.

Farmers must be encouraged to adopt sustainable agricultural practices such as integrated pest management, crop rotation, mulching, and agroforestry to improve soil health, water conservation, and pest control. Efficient water management techniques, including drip irrigation, rainwater harvesting, and groundwater recharge, can help address water scarcity and improve water use efficiency. Farmers must be guided towards considering diversifying their crop choices based on changing climatic conditions. This may involve introducing drought-resistant or heat-tolerant crop varieties. Leveraging technological advancements in precision agriculture, remote sensing, and crop modelling can help farmers make informed decisions about planting, fertilisation, and irrigation. Additionally, implementing measures to improve livestock health and productivity is crucial. Selecting climate-resilient breeds and improving feed and fodder management can enhance livestock resilience. A case study from Maharashtra has been presented below to showcase the importance of adaptation strategies.

### **6.1. Case Study: Maharashtra's Climate Adaptation Policy**

*Maharashtra's comprehensive approach to climate adaptation in agriculture stands as a model for effective policy implementation at the state level. The state government initiated a holistic climate resilience program in 2019, focusing on integrated watershed development, climate-resistant crop promotion, market linkage development, and farmer capacity building. This multi-faceted approach has demonstrated significant success in addressing climate change challenges while maintaining agricultural productivity. The program's centrepiece has been the integrated watershed development initiative, implemented across 500 villages in drought-prone regions of Marathwada and Vidarbha. Through this initiative, the state has successfully restored 50,000 hectares of degraded land and created water harvesting structures with a combined capacity of 100 million cubic meters. This has resulted in a 40% increase in water availability for agriculture in participating villages. The promotion of climate-resistant crop varieties, particularly drought-resistant varieties of jowar, bajra, and pulses, has shown promising results. Participating farmers have reported yield stability even during rainfall deficit years, with yields remaining within 15% of normal years compared to 50% reduction in non-participating farms.*

*The market linkage component of the program has been equally impressive. The establishment of 50 farmer producer organizations (FPOs) has created direct market access for over 100,000 small and marginal farmers. These FPOs have successfully negotiated better prices for climate-resilient crops, resulting in an increase in farmer's income compared to traditional marketing channels.*

*The success of Maharashtra's program can be attributed to its comprehensive approach and strong institutional framework. The state established a dedicated Climate Resilient Agriculture Mission, with representation from agricultural universities, research institutions, farmer organizations, and private sector partners.*

## **7. Conclusion and Policy Recommendations**

At a time when farmers in India are protesting over the issue of minimum support price, the government and institutions should provide financial incentives, subsidies, and insurance schemes to encourage farmers to adopt climate-resilient practices. While there is MSP for wheat and rice, there is no MSP for tomatoes, onions and other fruit and vegetables. This creates uncertainties for farmers who are then reluctant to diversify beyond wheat and rice.

Strengthening extension services, promoting research and development, and facilitating knowledge transfer can also support adaptation efforts. Fostering collaboration among stakeholders, including farmers, researchers, policymakers, non-governmental organisations (NGOs), and the private sector, can facilitate the exchange of knowledge, resources, and best practices. Raising awareness about the impacts of climate change and the importance of adaptation strategies among farmers and communities is also crucial.

# A Comparative Study of Solar Energy Policy in China and India

**Ritvik Mishra & Shubhangi Baranwal\***

## **Introduction**

Energy has been a vital necessity for humankind since its creation on the planet. Expanding populace and modernization race have expanded the general energy prerequisites and per capita energy utilization, individually. Modernization and per capita energy utilization have animated impact on one another for example increment in one offer ascends to the next. Overall per capita utilization shows that a lot of energy is being utilized in every single area of the general public. Per capita energy utilization is straight forwardly relative to the monetary development of a country. The nations like China, France furthermore, USA have the most elevated energy utilization per capita, therefore these nations have quick monetary development rate.<sup>4</sup>

To enhance modern advancement, most mainstream type of energy being utilized these days is power. Present day electric force framework is an interconnected organization involving power age, transmission, dissemination and use. Force is frequently created in far off zones from where transmission network is extended to communicate the ability to stack focuses. The power is then disseminated to buyers through circulation organization. Electrical energy is a vital prerequisite of present-day culture. In this manner, it is important to feature every conceivable power creation asset. Before the finish of year 2020, worldwide force age limit was 24,668 TWh<sup>5</sup>. The biggest supporters were petroleum derivatives (67.9%) and

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different assets include: atomic (10.9%), hydro power (16.2%) and other renewable (5%). The accessible assets of petroleum derivatives on the globe are draining quickly causing emotional inclining in their costs which will be monetarily improper.

Then again, utilization of non-renewable energy sources unfavourably affects the climate on account of the discharges of the hurtful gases like CO<sub>2</sub>, SO<sub>x</sub>, and NO<sub>x</sub> typically known as ozone harming substances (GHG). China is the main country in GHG with 8205.86 Million tons (Mt) and India is at third spot with 1954.02 Mt of CO<sub>2</sub> emanations<sup>6</sup>. Amassing of these gases in the climate has set off some genuine natural issues like increased level of environmental pollution and remarkable change in the climate of the planet. According to the US Environmental Protection Agency the net GHG emission has been increased by 46% during 1990–2019 due to human activities. Electricity generation through fossil fuels is the largest contributor in GHG emission. To minimize this adverse effect on the environment, to address the economic and environmental issues associated with fossil fuels and to achieve the goal of reducing GHG emissions, Renewable Energy Sources (RES) are the best possible solutions to meet the growing energy demand. RES, although produce green energy, are not free of complications. High capital costs, intermittency, difficulties in storage and complications in grid connectivity are the major obstacles in adoption of renewable energy. Some developed countries are including renewable energy in their power systems at a greater pace but many countries are continuously adding significant amount of fossil fuel capacity, resulting in lower growth rate of renewable energy. Therefore, owing to barriers in adoption of renewable energy, global power sector still relies on fossil fuels.

This paper presents a near and far-reaching survey of India china sun oriented solar energy area and conceivable energy sharing freedoms. Abuse of these sharing chances is important for quickening of provincial financial turn of events. It will likewise contribute in worldwide harmony and thriving by satisfying the energy prerequisites of the world's 34% populace<sup>7</sup> and to investigate the energy sharing open doors in setting of local harmony and security.

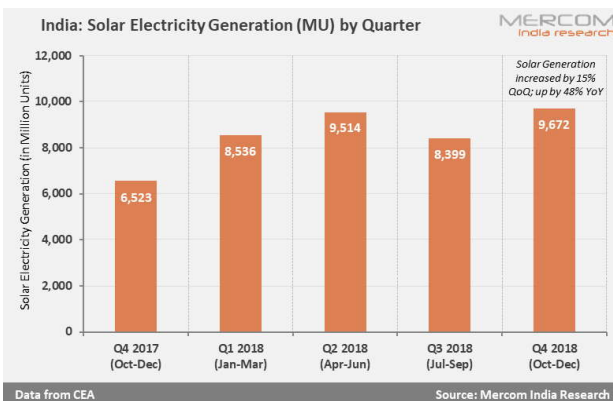
## **POLICIES AND REGULATORY ACTS DIRECTLY IMPACTING SOLAR ENERGY DEVELOPMENT IN INDIA**

In 1982, a different Department of Non-Conventional Energy Sources (DNES) was made in the Ministry of Energy to care for all the

viewpoints identifying with new and environmentally friendly power. The Department was redesigned into a different Ministry of Non-Conventional Energy Sources (MNES) in 1992 and was re-dedicated as Ministry of New and Renewable Energy (MNRE), in October 2006.<sup>8</sup>

Inside the monetary year 2019-20, India’s emanations diminished without precedent for forty years. This fall has been credited halfway to the focal point of Indian government on environmentally friendly power likewise as a result of the lockdown estimates taken considering the COVID-19 pandemic. In the current situations, in 2019, India has resolved to conclude the drawn out methodologies to bring down carbon dioxide and other ozone harming substances by 2020 under the Paris Agreement<sup>9</sup>. As of late couple of months back in 2020, India’s Union Environment Minister Prakash Javadekar plainly expressed that “India has basically accomplished its pre-2020 Climate Action targets”.

We are seeing that India has been making a sluggish yet consistent move to sustainable power assets. India right now has the biggest sun powered park on the planet situated in Bhadra, Rajasthan. The recreation centre is spread more than 14,000 sections of land in Bhadra and has a limit of more than 2,245 MW<sup>10</sup>. Likewise, the Cochin air terminal in India is the main air terminal on the planet to be run totally on sunlight-based force. Early practically in 2000s, in excess of 16,000 sun-oriented home frameworks have been financed through 2,000 bank offices, especially in rustic *territories* of South India where the power network doesn’t yet broaden.



To accomplish its decided targets, government dispatched a few guidelines and approaches concerning the sun-based energy advancement in the country. These are:-

### **Jawaharlal Nehru National Solar Mission**

Notwithstanding different missions, the Indian government has dispatched Jawaharlal Nehru National Solar Mission otherwise called National Solar Mission, under the National Action Plan on Climate Change (NAPCC). Through this mission, it intended to get 1000 MW of force by 2013 and up to 20,000 MW frameworks based Solar force, 2,000 MW of off-lattice sun-oriented force and covers twenty million sq. meters with authorities by the tip of a definitive piece of the mission in 2022<sup>12</sup>.

The Indian government modified the Solar Mission in 2011 focusing for 100 GW introduced limit of sun-based power by 2022. Accordingly, the structure is focused to accomplish Solar energy usage through these courses where there are three stages to the mission: Phase I (2010–12), II (2013–17), and III (2017–22).

#### **MISSION OVERVIEW**

<b>Application Segment</b>	<b>Target for Phase I (2010-13)</b>	<b>Cumulative Target for Phase 2 (2013-17)</b>	<b>Cumulative Target for Phase 3 (2017-22)</b>
<b>Grid solar power</b> (large plants, roof top & distribial grid plants)	1,100 MW	4,000 - 10,000 MW	20,000 MW
<b>Off-grid solar applications</b>	200 MW	1,000 MW	2,000 MW
<b>Solar Thermal Collectors</b> (SWHs, solar cooking/cooling, Industrial process heat applications etc.)	7 million sq. meters	15 million sq. meters	20 million sq meters
<b>Solar Lighting System</b>	5 million	10 million	20 million

### **Electricity Act (Amendment) Bill 2020 and Electricity Act 2003**

The demonstration gives a structure to the all-out development of the power area in India. This demonstration offers arrangements for special levy and portions for picking sustainable power. Obligatory acquisition of environmentally friendly power for dispersion licensees and help of framework network were likewise included. In any case, as of late, the Electricity Act (Amendment) Bill 2020 was moreover proposed which prescribes the Union to create and customary update a National



Renewable Energy Policy (NRE Policy) for the country. Under the correction proposed under segment 86 (1)<sup>13</sup> of the first Electricity Act of 2003<sup>14</sup> the state commissions are under order impulse to follow the rules by the NRE and endorse a base rate for buying power from sustainable and hydro power sources. Alongside this comes a guarantee with an ostensible rate as motivator for the makers, and conjointly the genuine endeavours have been made to help and create extra close to home area speculation inside the sustainable power area.<sup>15</sup>

### **Tariff Policy, 2019**

Tax Policy 2006 was propounded as the instrument of the Renewable Purchase Obligation (RPO) to fix a base portion of the obtaining of energy utilization by the states from sustainable power sources. It moreover gives an exceptional duty to sunlight-based force among elective sustainable power sources. Presently, Tariff Policy 2019's<sup>16</sup> arrangements of duty strategy are reconsidered now and again to convey forward changes obvious of dynamic changes inside the power area. The arranged levy strategy 2019 has proposed punishments for discoms neglecting to give day in and day out quality force supply. It's set an objective of March 2019 for the force dispersing enterprises to affirm all day, every day power supply to every customer. The state power controller can will pick punishment on discoms and remuneration for customers if will circulating enterprises neglect to give standard power supply administrations and furthermore if there should arise an occurrence of force cuts also. The new approach has brought inside the condition, where state administrative commission for power while choosing new levy structure will not die the misfortunes by virtue of discoms failures.<sup>17</sup>

### **National Electricity Policy, 2005**

The National Electricity Policy 2005 specifies that undeniably the portion of power from non-regular sources would be should have been expanded; such buy by dispersion firms will be through serious offering measure; considering the established truth that it'll take some time before non-ordinary advances battle, as far as worth, with commonplace sources, the commission may decide a suitable respectful in costs to push these innovations. The strategy licenses particular duties for power created from sustainable power sources.

It expected to make admittance to power to all and furthermore increment the base per capita accessibility to 1000 kWh each year by 2012<sup>18</sup>.

### **National Action Plan on Climate Change (NAPCC), 2008**

The Indian government started mission mode activity plans for maintainable development under NAPCC to manage environmental change. Its first mission was to increase sun-oriented force improvement in the country. It not exclusively set the RPO at 5% of the entire lattice's buy yet additionally a long term 1% year-on-year RPO development.

There are a couple of issues and difficulties related with sustainable power and the arrangements embraced in the country. These issues go about as an obstacle to the improvement of sustainable power. A portion of these are thus referenced beneath.<sup>19</sup>

#### Issues and challenges-

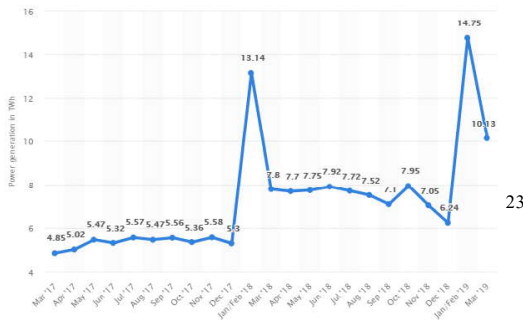
- 1) Trade obligations which are forced on imported sun-based modules have demonstrated to be counterproductive and problematic. The 2-year exchange import obligation forced by the public authority in 2018 to secure the home-grown sunlight based assembling industry. The obligation has neither decreased imports nor extensively improved the seriousness of Indian produced sun-based cells. This came about into the less sunlight-based establishments inside the country<sup>20</sup>.
- 2) The focal and state governments haven't composed well in issue with respect to environmentally friendly power. This has come about into disarray, postponements, and fumbles in sales, transmission availability, and land procurement related issues between the focal and state projects with respect to environmentally friendly power<sup>21</sup>.
- 3) Payment delay from obligation ridden state-claimed dispersion organizations is also an enormous concern.
- 4) Aggressive duty covers in closeout and review re-exchanges shows a typical issue across India. There is a worry identified with sovereign danger for unfamiliar financial backers also.
- 5) There is a sluggish expansion of transmission organizations and adjusting limit in the country.
- 6) There exist not many monetary limitations for more modest sustainable power generators.

- 7) India's abandoned or non-performing resources in the nuclear power area are affecting the funds for environmentally friendly power sources.

## POLICIES AND REGULATORY ACTS DIRECTLY IMPACTING SOLAR ENERGY DEVELOPMENT IN CHINA

In 2005, the National People's Congress has passed The Renewable Energy Law (REL). This law has denoted another phase of sustainable power improvement program in China. Since the presentation of REL, various supporting guidelines and rules have been instituted to actualize it. The law was intended to “advance the turn of events and use of environmentally friendly power, improve the energy structure, broaden energy supplies, shield energy security, ensure the climate, and understand the supportable improvement of the economy and society.”

China's underlying objective for sun-based force was set up in 2007 at an unobtrusive 1.8GW, yet this objective is currently being modified upward to maybe 20 GW. A “Brilliant Roofs” activity reported in March 2009 gives a sponsorship of \$2.93 per watt for rooftop mounted PV frameworks more than 50 kilowatts (kW) which could cover over portion of a framework's establishment cost. A feed-in levy of \$0.16 each kilowatt-hour (kWh) was likewise settled for PV power projects simultaneously. Support for bigger utility scale sun-oriented tasks was declared in July 2009 under the “Brilliant Sun”<sup>22</sup> program, which accommodates up to half of undertaking costs (counting transmission or dispersion lines to interface with the network), and up to 70% of such expenses for projects in more distant territories, (for example, the Western Region). The Golden Sun program is for undertakings of 300 MW limits or more, which are in assistance for at least 20 years.



Albeit the historical backdrop of environmentally friendly power improvement in China is short, the Chinese government has formed and executed a progression of arrangements and explicit approach measures with the end goal of environmentally friendly power advancement. These strategies include<sup>24</sup>:

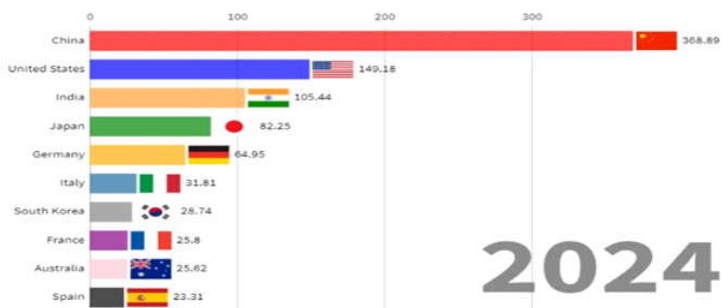
- 1) All PV electric force ought to be bought by Power Company, and which ought to give sufficient framework interface administration.
- 2) The electrovalence is set up more than regular cost to support the improvement of sun-oriented energy; the advantages of financial backer ought to be guaranteed.
- 3) The focal government gives a few stipends to the inexhaustible assets industry.
- 4) The focal government empowers the inexhaustible assets DG (appropriated age) to improve the electric force serves of no electric force supply district, and the early speculation and medium-term support are managed by focal government.
- 5) Although the end client utilizes the electric force from PV age, however the electrovalence of end client is same contrasted and the end client who utilizes the ordinary electric force as referenced over, the focal legislature of China respects the advancement of PV to improve the outlandish energy structure.

Approaches for empowering sustainable power in China are generally determined by the focal government, and established through public and common and neighbourhood government programs. China drove the world in 2009 in sustainable power venture, burning through \$34.6 billion, with the United States second in clean energy spending, contributing \$18.6 billion. Financial help for environmentally friendly power in China includes endowments, charge approaches, evaluating instruments, and a prize plan for green creation. Appropriation uphold is stretched out to overhead expenses of projects (i.e., regulatory, operational, and different costs for government sustainable power offices), sustainable power innovation innovative work, and commonplace or neighbourhood jolt projects. Assessment impetuses can emerge out of the focal or nearby governments, and can be innovation explicit. Evaluating for sustainable power isn't normalized, and is set by contracts haggled among tasks and utilities<sup>25</sup>.

## **Comparative study between India-China**

Energy creation from the economical sources is the most testing task these days everywhere on the world. Sun powered energy is the cleanest and safe fuel creation source. Henceforth, useful usage steps to use it are being taken everywhere on the world. To actualize a sun-based force plant, an achievability concentrate during the arranging stage can decide the sunlight-based energy capability of the target territory. To assess the capability of the district, satellites can give the advanced assessment models, overcast cover map, temperature, surface pressing factor, surface hesitance, stickiness and wind information.

Presently in the event of China, it has a great deal of potential in sun powered energy field having 2200 h yearly daylight in its two third parts so it is very conservative for the nation to utilize sun powered energy for power creation. The everyday normal irradiance of China is around 4 kW h/m<sup>2</sup>/day, yet it differs with the region. In southern-east piece of country, the normal irradiance is 2 kW h/m<sup>2</sup> /day nonetheless, in parts of west the irradiance is 9 kW h/m<sup>2</sup> /day. In 2009, first Asian sun-oriented task was worked by China which was introduced in Gansu Dunhuang<sup>26</sup>, Tibet Lhasa desert, the Gobi, squander lands and the other internal grounds in Mongolia. There are in excess of 400 PV organizations which produce 18% of the PV items around the world. PV cells are being introduced in the structures to cover the energy interest. Olympic Village of China is additionally founded on this idea. Some little also, huge scope sun powered plants are under establishment in China like desert sun-oriented PV and housetop PV plants. As per the National Advancement and Reform Commission (NDRC), introduced limit of sun-oriented energy is being wanted to increment up to 1.8 GW by 2020. As indicated by the public study report on PV application in China, the absolute introduce limit was 28.05 GW positioned second in the world after Germany. China has received a guide to acquire the energy from spotless, low carbon producing, secure and solid sources by 2050. For this reason, China is carefully dealing with RES to shade the use oil and coal in energy area. By 2050, sunlight based furthermore, wind energy will be the significant donor with the portion of 64% of complete energy. The normal development pace of PV market will be 35% yearly up to 2020 and will be kept 25–30% during 2020–2030. The development of the sun-based energy will be kept up and complete introduced limit will reach to 2.7 billion kW by 2050.



In the event that we contrast this and India, it was normal that atomic energy will add its commitment in Indian energy creation by the finish of 2030. Notwithstanding, because of wellbeing reasons as seen in Fukushima power plant in Japan it is difficult to depend atomic sources. Moreover, worldwide pressing factor with respect to ecological worries on the nations has constrained governments to zero in on sustainable power assets. Petroleum products are exhausting day by day, so for clean energy creation, sun-oriented energy is one of the most proper choices. The absolute sunlight based energy capability of India is roughly 5000 trillion kW h each year with a large portion of the part getting normal sunlight based irradiance of 4–7 kW h/m<sup>2</sup> /day. In 2009, India had proclaimed its National Solar Mission (NSM) for establishment of 22 GW by end of year 2022<sup>28</sup>. Besides, 1000 MW in 2013 and 3000 MW by end of 2017 has been intended to be added in the framework. Nonetheless, the current Indian Government widely upgraded the sun-based energy plans and set an objective of introducing 100 GW before the finish of 2022. In the year 2015–16, 827.22 MW was remembered for framework which expanded the aggregate introduced limit up to 4579.24 MW. Building Integrated Photovoltaic (BIPV) is the current creating idea for the reconciliation of sunlight-based boards in India. As indicated by this idea, in the new engineering of structures, rooftops are made with twofold skin veneers and ventilators in which misty and cloudy PV components are utilized.<sup>29</sup>

<b>Year</b>	<b>INDIA</b>	<b>CHINA</b>
2000	Under the ninth five-year-plan (henceforth FYP) the government recognised the importance of the involvement of the private sector for the development of the Indian solar sector. Consequently, many of the grid-transmission hurdles were tackled	
2001		China's tenth FYP made a commitment to the development and popularisation of clean energy resources, which included solar. The plan targeted a total installed capacity of 80 MW of solar PV.
2002	Under the Tenth FYP Village Energy Security was approved as part of a remote village electrification program. There were about 80,000 un-electrified villages in the country. Of these, 18,000 could not be electrified through extension of the conventional grid. Objectives to electrify more than 4000 of these villages with 5 MW of solar were planned.	The Township Electrification Program was launched. The plan targeted 688 towns with inadequate electricity access, for construction of solar PV power stations, with a total installed capacity of 20 MW
2004		Plans for renewable energy law were set in motion that identified solar as a key area.
2005	The Rural Electrification Corporation (REC) is appointed as the nodal agency by the Ministry of Power. Under schemes set-up by the REC, 90% of the capital subsidy for the overall cost of projects in rural areas is provided by the Government	

<p>2006 The MNRE formulates the NSM. The NSM is a major initiative that addresses India's energy security challenges through sustainable means.</p>	<p>The eleventh FYP contained objectives for the vigorous development of the renewable industry. A Renewable Energy Law was launched, which established national targets for renewable energy and a framework to promotion of domestic installed renewable energy.</p>
<p>2007 The Eleventh FYP detailed a National Action Plan on Climate Change (NAPCC)</p>	
<p>2008 NSM is launched under the NAPCC. The NSM is allocated a budget of US\$85 in order to establish India as a global leader in solar energy. The NSM attempts to create an enabling environment of policy conditions that diffuse solar across the country rapidly</p>	<p>Energy Performance Standards were introduced. Overcapacity of manufacturing capacity becomes a problem. To resolve this Chinese cities sign PV plant contracts. The NEA initiated utility-scale PV Projects with fixed feed-in tariffs (FiT).</p>
<p>2009 A Subsidiary of the National Thermal Power Corporation, Vidyut Vyapar Nigam Ltd (NVVN), developed guidelines for the selection of developers for commissioning grid connected solar power projects. The NVVN becomes a stakeholder of power purchase agreements (PPAs). NVVN is the only Government company in the power sector engaged in Power Trading. The NVVN signs PPAs with developers.</p>	<p>The "Golden Sun" solar stimulus plan is announced in an attempt to wean solar PV companies off dependence on overseas markets. Provincial FiT issued by Jiangsu provincial DRC. Strategy developed for PV industry deployment. The first public bidding for a small solar project is organised by the NEA under the Solar PV Concessions Program. Large-scale PV Power Station Concession Bidding Projects was formulated to encourage a large scale PV market.</p>



<p>2010 Phase one of the NSM is launched. The MNRE provides 70% subsidies on the installation cost of a solar photovoltaic power plants in North-East Indian states and 30 percentage subsidies in other regions. The Asian Development Bank commits US\$400 million to solar projects but project size is capped at 5 MW. 30 projects are allocated.</p>	<p>Chinese solar PV manufacturing capacity reaches over 8 GW, accounting for 53% of total global manufacturing capacity. FiT introduced by some provinces. CDB provides more than US \$40 billion in support of the domestic renewable manufacturer industry further increasing production capacity.</p>
<p>2011 MNRE encourages research and development to make the Indian solar industry competitive. The 5 MW cap on small solar project size is increased to 20 MW. The Solar Energy Corporation of India (SECI) is set up under the supervisory control of the MNRE, as a non-profit dedicated to the implementation and facilitation in the solar energy sector. PPAs are now directly signed with SECI. PPAs for the first batch of projects were signed for 610 MW.</p>	<p>The twelfth FYP included new policies that support the solar industry. The plan outlined a shift in focus for the solar industry from export-orientated manufacture towards domestic orientated. The CNREC is established. The CNREC assist's China's energy authorities in researching renewable energy policy, managing the industrial sector and coordinating policy, law and the grid. A national FiT scheme is launched.</p>
<p>2012 The development of the NSM becomes a major initiative Twelfth FYP. The Indian Renewable Energy Development Agency commissions thirty-four small Solar Power Projects.</p>	<p>The Chinese government sets an annual installation target of 5 GW of distributed solar power generation per year. Several PV enterprises went bankrupt or were reorganised worldwide. The USA and European anti-dumping, anti-subsidy trade investigation began.</p>
<p>2014 The NSM sanctions seventy new off-grid solar applications, seventeen of which have already been completed.</p>	<p>NEA publishes distributed solar PV policy. The comprehensive policy allows distributed projects to be developed at a faster rate. An emphasis on quality and a planned establishment of nationwide monitoring and reporting systems was also outlined.</p>

## **Conclusion**

Energy is an essential ware for any country in this globalized world. Energy security has become a pre-condition for advancement. It is additionally obvious that environmental change, as is being seen today, is a side-effect of a very long while of ignition of hydrocarbons for energy needs. Collaboration among India and China, two of the world's biggest arising economies, is genuinely necessary to address environmental change. Reports from IPCC have likewise presumed that the two nations face approaching dangers as natural corruption, food and water shortage, rural movements, wellbeing risks, and so forth Two-sided collaboration will help the two nations move towards accomplishing their environment responsibilities. In any case, the majority of the difficulties come from the execution part. An examination of the two nations' endeavours to manage environmental change and climate prompts the end that that China is noticeably making a preferred showing over India. This mirrors the accomplishment of government approaches in China, while in India an example of overcoming adversity is yet to be seen. The worry in India's vital and scholarly local area is that China will outperform Indian accomplishing its INDC objectives and proceed onward to the created nation's alliance in the environment change arrangement measure. India should act quickly in such manner. Numerous issues with respect to India-China participation in RE have not been enough investigated and executed. India what's more, China should build techniques dependent on the immense pool of involvement and information. Change arrangement measure. India should act quickly in such manner. Numerous issues with respect to India-China participation in RE have not been enough investigated and executed. India what's more, China should build techniques dependent on the immense pool of involvement and information.

A definitive target, with the essential inclusion of private players, ought to be to popularize the after-effect of participation effectively present in the MoU endorsed between India furthermore, China, and help set out business open doors and encourage a manageable market. A definitive target, with the essential inclusion of private players, ought to be to popularize the after-effect of participation effectively present in the MoU endorsed between India furthermore, China, and help set out business open doors and encourage a manageable market.

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