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I am a research scholar, product designer, strategic designer, and social innovator committed to empowering craftspeople and their sustainable development. Currently pursuing a Ph.D. at IIT Guwahati on "Pedagogic pathways to sustainable development of crafts and craftspersons," I actively collaborate with governmental and non-governmental organizations to advance the craft sector through research and innovation.

With a strong educational foundation and expertise in crafts like bamboo, ceramics, textiles, and wood, I serve as a training mentor for the Design and Entrepreneurship Training Program, at the Northeast Cane and Bamboo Development Council (NECBDC), North East Handicrafts and Handloom Development Corporation (NEHHDC)C where I guide and inspire aspiring designers, entrepreneurs, and craftspeople.

Having diverse professional experience, I mentor students and lead design training programs. I have also, served as a Teaching Assistant for NPTEL's "System Design for Sustainability" (2022, 2023, 2024).

Weaving Sustainably: Feminine Design Principles in Action

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1.30. Introduction

Antaran Artisan Connect, a pilot project initiated by Tata Trust, aims to revolutionize crafts development. The program focuses on reviving the handloom sector and empowering artisans. This initiative is being implemented across four Indian states: Assam, Nagaland, Odisha, and Telangana. Each state is divided into six clusters, with two clusters in Assam (Kamrup and Nalbari), two clusters in Odisha (Maniabandha and Gopalpur), one cluster in Nagaland (Dimapur), and one cluster in Andhra Pradesh (Venkatagiri).

Antaran's Kamrup and Nalbari cluster in Assam adopts a meticulously crafted approach to artisan development, embodying feminine design principles of care, collaboration, and holistic well-being. Unlike their clusters in Odisha and Andhra Pradesh, all beneficiaries of the Assam clusters are women. The aspirations, needs, and perception of the craft and its relationship to their life are very different as compared to what Antaran Odisha and Andhra Pradesh see. Thus, Antaran designed a locally customized comprehensive training program that not only covers the technical aspects of handloom weaving and delves into the cultural and artistic elements that define this craft but also envelops into packages suited to the needs of the women who balance their profession with their family. This case study illuminated how

nurturing the skills and creativity of artisans with care and collaboration significantly contributes to the sustainability and growth of the handloom industry while ensuring its performers a quality of life and well-being.

1.31. The Commons

Antaran begins with the selection of 500 artisans from each cluster, ensuring that they are involved in the weaving process. These artisans receive technical training in small batches, covering loom operation, technicalities of the loom, and minor repairs. This training equips them to independently maintain their tools and enhance the functionality of their work. After technical training, the organization further selects certain artisans for specialized training in design and management based on their managerial and entrepreneurial skills. These artisans are designated as artisan entrepreneurs (AEs), while the others are referred to as artisan associates (AAs), each with unique learning requirements. This differentiation enables the organization to provide targeted training programs that cater to the diverse learning needs of each group, fostering their development and output.



Figure 5 : Handloom with motif booklet of Assam

1.32. Women-Dominated Clusters vs. Male-Dominated Clusters

Antaran’s clusters offer an insightful lens through which to understand the contrasting dynamics of women-dominated clusters and male-dominated clusters. Drawing from interviews with administrative officers of Antaran clusters, stark differences emerge in their performance, aspirations, and underlying motivations—differences deeply rooted in the philosophies and values these clusters embody.

Women-dominated clusters, while excelling in sustainable practices and community-oriented approaches, often struggle to meet the financial targets set by national heads. In contrast, male-dominated clusters not only meet but frequently surpass these targets. As articulated by cluster heads, this difference reflects distinct operational models, priorities, and value systems.



Figure 6 : interviewing business trainer and artisans

1.32.1. Sustainable Practices

In women-dominated clusters, sustainability takes on a multidimensional character, moving beyond environmental considerations to focus on social sustainability and holistic well-

being. These clusters foster work-life harmony, emphasizing care, collaboration, and respect for each other's' cultural and familial commitments. Flexible work arrangements allow artisans to balance their professional responsibilities with personal lives, creating a culture where well-being and craft coexist harmoniously. The sustainable practices of craft sector are complemented by strong social practices in women-dominated clusters. Cruelty-free and chemical-free methods, combined with a community-oriented approach to production, reflect a deep commitment to preserving cultural heritage and promoting equitable growth. By contrast, male-dominated clusters prioritize production efficiency and scalability, often at the expense of these broader sustainability goals.



Figure 7: Artisan involved in making their products

1.32.2. Aspirations and Motivation

The aspirations of women artisans tend to focus on maintaining a balance between personal well-being and professional growth. Their motivation is often rooted in cultural preservation, social

cohesion, and family responsibilities. This contrasts with male artisans, who are more likely to be motivated by financial gain and career advancement. Consequently, male-dominated clusters tend to prioritize profitability and efficiency over the intangible value of their craft.

1.32.3. Value Behind Product Creation

For women artisans, creating a product transcends economic transactions—it is an act of care, cultural expression, and self-identity. Their creations embody personal stories, emotions, and aspirations while preserving and reinterpreting traditional techniques. This infusion of self-expression into their craft results in products that are deeply meaningful and resonate with a sense of authenticity and individuality.

Conversely, male-dominated clusters approach production with a more transactional lens. Products are primarily viewed as commodities, emphasizing output and income generation. While this focus can lead to higher financial gains, it often overlooks the cultural and emotional dimensions central to women-led clusters.

1.32.4. Challenges and Trade-offs

The care-oriented approach in women-dominated clusters often leads to challenges in scaling operations. Women artisans prioritize quality, well-being, and ethical practices, which can limit their ability to meet high-volume orders or strict financial targets. In contrast, male-dominated clusters are more likely to adopt a business-first mindset, enabling them to scale rapidly and meet financial goals, albeit sometimes at the expense of sustainability or artisan welfare.



Figure 8: Data collection with AES

1.32.5. Cluster Head's Observations

Cluster heads have noticed some interesting differences between male-dominated and female-dominated clusters and want to highlight that both types have their unique strengths and challenges. Male-dominated clusters often excel at reaching financial goals, but they might miss out on the depth of sustainability and cultural value found in women-dominated clusters. In contrast, women-led clusters create a more inclusive and eco-friendly environment, but they sometimes struggle to achieve high profits within traditional frameworks.

This comparison really shows us the importance of looking at performance in a more well-rounded way. We need metrics that go beyond just financial success to truly understand the positive impact that artisan clusters have. By celebrating the unique strengths of women-dominated clusters—like their commitment to

sustainability, cultural preservation, and social equity—we can change the narrative of what success means in our distributed economy. Instead of simply measuring them against traditional financial benchmarks, we should also consider their contributions to well-being, ethical practices, and community development. This approach will truly capture the amazing value they bring to sustainability!



Figure 9: Discussion with Antaran’s officials and trainers

1.33. Weavers’ Distributed Economic Model

Our research conducted in these clusters and several other women-oriented clusters in Assam consistently demonstrated that a thriving distributed economy relies on a structure supported by NGOs or governmental organizations that prioritize care, collaboration, and well-being. Women artisans in these clusters effectively balance their craft, such as weaving, tailoring, or embroidery, with their family responsibilities, necessitating adaptable and flexible work systems. These women can dedicate only a limited number of hours each day, with varying availability daily. Recognizing this, these clusters are structured into

cooperatives or groups that facilitate collective order completion. Bulk orders are deliberately avoided, as the women cannot commit to such volumes without compromising their personal well-being. This profound respect for human labor forms the cornerstone of the design philosophy of these distributed economies, fostering a strong sense of care and equity within their operations.

1.34. Teaching-Learning Challenges to be Addressed

Some of the major teaching-learning challenges that we observed were related to financial management and basic business acumen, lack of daily time commitments for training, and commitment to other time-consuming activities like household chores and religious, social, and farm activities. Festivities like Bihu can take up to a month of off time for them. The instructors tried to work around the availability of the learners and design short learning sessions. Many times, these sessions would be conducted for a small number of artisans at a time. A lot of the time of the instructor goes into counseling the artisans and encouraging them to build their self-esteem and morale. Many weavers face challenges in managing their finances, as they do not keep track of their earnings or savings. This uncertainty can make it difficult for them to decide whether they can invest in their businesses. Additionally, the lack of knowledge about using the Internet and social media leaves them without opportunities to reach a wider audience.

It's understandable that they might not be familiar with the process of taking out a loan and the potential benefits it offers. Unfortunately, this lack of awareness extends to available financial aid from government programs and other institutions, which could greatly support their endeavors.

Many weavers struggle to price their products effectively, often unaware of the competitive market rates. They typically rely on local orders and may not know how to connect with premium

customers who value their unique craftsmanship. By building these customer relationships, they could also enhance their communication skills and grow their businesses. It's clear they possess immense talent, and with the right support and resources, they could thrive even more.

1.35. Transitioning Economic Models: From Gender-Specific to Community-Wide Sustainability

While the analysis of women-dominated clusters provides valuable insights into sustainable practices and care-oriented approaches, it's crucial to examine how these principles manifest in mixed-gender weaving communities. The Sualkuchi silk weaving cluster presents an interesting comparative case study that bridges our understanding between gender-specific and community-wide approaches to sustainable craft production.

Unlike the women-dominated clusters of Antaran, where sustainability is intrinsically linked to feminine design principles and work-life integration, Sualkuchi represents a more demographically diverse model where sustainability challenges emerge from structural economic shifts rather than gender-specific practices. This transition in focus from gender-based analysis to community-wide economic structures allows us to examine how principles of distributed economics and sustainability manifest across different organizational models.

The Sualkuchi case study particularly illuminates how traditional distributed economic models, regardless of gender composition, face similar challenges in maintaining sustainability when confronted with modernization and scale pressures. This parallel draws important connections between:

- 1. The collaborative, care-oriented approaches observed in women-dominated clusters*

2. The traditional distributed economic models that historically characterized Sualkuchi's operations

3. The contemporary challenges faced by both models in maintaining sustainable practices amid economic pressures

This comparative perspective enhances our understanding of how different organizational models within the handloom sector navigate sustainability challenges while highlighting the importance of preserving distributed economic systems that support both individual well-being and community resilience.

1.36. Not Just Women-dominated Clusters: The Case of Sualkuchi Silk Weaving Cluster

Let's now look at the Sualkuchi silk weaving cluster of Assam. It is called the Manchester of Assam, and every household is a weaving household. Weaving is not a caste or gender dependent profession here. Anyone who wants and loves to weave can weave and others can engage in allied activities. The Sualkuchi silk weaving ecosystem illustrates the tensions between traditional distributed economic models and the pressures of large-scale operations. Historically, small loom ownership (typically 1-4 looms per household) fostered economic power distribution, skill development, and direct market relationships, enabling local artisans to thrive. However, the rise of large loom owners is disrupting this balance by consolidating loom ownership, centralizing control over raw materials, and shifting the workforce from owner-weavers to wage laborers. This transition diminishes the bargaining power of individual weavers and erodes traditional skills and community networks, leading to economic, social, and environmental sustainability concerns. The case highlights the importance of developing policy frameworks that protect small-scale producers, support traditional knowledge systems, and

facilitate market access. Future research should focus on assessing the economic impacts on stakeholders, devising sustainable business models for small producers, and exploring successful resistance strategies to centralization. Overall, targeted interventions are essential to preserve the cultural and economic benefits of distributed production models.



Figure 10: Artisan of Sualkuchi

1.37. The Key Takeaway from the Assamese Way of Weaving Sustainability

The analysis of Assamese handloom clusters reveals critical insights into sustainable craft development, demonstrating how feminine design principles of care, collaboration, and holistic well-being can be effectively integrated into distributed economic frameworks. The research illuminates several key success factors: institutional support through organizations like Tata Trust, adaptive training models accommodating cultural commitments, balanced integration of traditional knowledge with market demands, and community-centric approaches prioritizing collective

growth. The Assamese model presents a viable framework balancing multiple sustainability dimensions through flexible production systems, cooperative economic structures, cultural preservation mechanisms, and eco-friendly practices. This holistic approach suggests important implications for policy development, including the need for gender-sensitive programming, alternative success metrics beyond financial parameters, preservation of distributed economic models, and sustained institutional support. The findings contribute significantly to the discourse on sustainable development in traditional craft sectors, suggesting that successful craft preservation lies in crafting innovative approaches that honor both tradition and modernity while prioritizing community well-being, ultimately offering valuable lessons for craft development initiatives worldwide, particularly in contexts where traditional knowledge systems intersect with contemporary market demands.