

# Bridging the Gap: The Role of Women in Promoting Environmental Sustainability Through Infrastructure Development



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## Introduction

In an era marked by unprecedented climate challenges, the need for environmental sustainability is clearer than ever. At its core, this involves safeguarding our planet's resources to ensure future generations can also thrive. Established during the 1972 United Nations Conference on the Human Environment, the concept of sustainable development emphasises meeting current needs without compromising the future. Significant milestones like the Rio Earth Summit and the Fourth World Conference on Women in Beijing reinforced that sustainable development requires the full participation of women. As global populations and economic activities intensify, the strain on natural resources grows, underscoring the urgent need for sustainable practices that ensure long-term resilience.

Women play a crucial role in advancing environmental sustainability, particularly in developing regions where they manage essential resources like water, food, and energy. Their expertise in resource management is invaluable in the global effort to combat environmental degradation. However, persistent gender inequalities often marginalised women's voices in policy and decision-making, limiting the effectiveness of sustainability initiatives.

Infrastructure development, including transportation networks, energy systems, and water management facilities, is integral to economic growth but also impacts the environment significantly. The challenge lies in designing infrastructure that supports sustainability and inclusivity, which can enhance economic and social well-being, particularly for women who are disproportionately affected by environmental issues.

The integration of environmental sustainability, women's empowerment, and infrastructure development is a crucial and interconnected challenge. Sustainable, inclusive infrastructure not only mitigates environmental impact but also improves the economic and social well-being of women, who are often disproportionately affected by environmental issues. Conversely, excluding women from infrastructure planning risks creating projects that fail to meet community needs, perpetuating environmental and social inequities. Addressing these intersections is essential for building a more sustainable and equitable future.

## Role of Women

Women's leadership plays a vital role in the sustainable management of environmental resources. However, various sociocultural barriers often hinder women from assuming leadership roles effectively. To address these challenges,

## Abstract

This article delves into the integration of environment sustainability, Women, and Infrastructure Development, which are essential pillars for sustainable and inclusive economic growth and development. This article will emphasise the women initiative showcasing how gender inclusion in these sectors can enhance the effectiveness of the development outcomes. By leveraging women's unique perspectives and community-centred approaches, infrastructure projects can be designed and implemented in ways that minimise environmental impact while maximising social benefits. Article will also highlight barriers women face in participating in these sectors and propose strategies for overcoming these challenges. Case studies will help in illustrating that in the real world scenario how the interconnectedness of these can foster holistic development and achieve broader environmental sustainable goals.

**Keywords:** Environment sustainability, economic growth, gender inclusion, women, infrastructure development

policymakers must develop strategies that empower women leaders to navigate these social constraints. This approach not only supports the sustainable management of resources but also promotes gender empowerment and equality. To make meaningful progress, it is essential to shift the focus from merely encouraging women's participation to truly recognizing and valuing their knowledge and capabilities in environmental management. While participation remains crucial, it is equally important to examine the nature of that participation and ensure it genuinely empowers women to lead.

### **Challenges faced by Women in Infrastructure Development**

Societal norms and gender biases often restrict women's participation in infrastructure development, limiting their access to education, training, and decision-making roles. Legal barriers can include restrictive land ownership laws, limited rights for women in decision-making, and inadequate environmental protection regulations. Effective integration requires collaboration across various sectors, including government, private industry, non-profits, and local communities. The gap in knowledge makes it challenging to develop evidence-based policies and strategies. Institutional resistance to change can slow down the adoption of new approaches that integrate sustainability and gender equality. Limited financial resources can restrict the scope and impact of these developmental projects. Existing policies may not be enforced effectively, or they may lack the necessary provisions to support the integration of the principles and policies. This article explains initiatives by two female entrepreneurs namely Chetna Sinha and Rhea Mazumdar Singhal who have worked on various dimensions like environment, women, infrastructure etc., which can be seen in the next part in detail.

#### **1. Case Study Of Chetna Sinha**

Chetna Sinha, a social entrepreneur and founder of the Mann Deshi Foundation, has been a pivotal figure in empowering rural women in India through financial inclusion and sustainable development. The foundation, established in 1996, operates in Maharashtra.

##### **a. Environmental Sustainability**

Mann Deshi Foundation built check dams and rainwater harvesting systems in drought-prone regions of Maharashtra, promoting sustainable agricultural practices. Foundation introduced solar power projects, providing clean energy solutions and reducing reliance on non-renewable sources and creating green jobs for women. Women-led movements, such as the Chipko Movement in India, exemplify how grassroots initiatives can successfully protect the environment. Similarly, Mann Deshi's initiatives in water conservation and renewable energy underscore the pivotal role of women in community-driven environmental sustainability.

##### **b. Women's Empowerment**

Established Mann Deshi Mahila Bank which is India's first women's cooperative bank in 1997, offering rural women access to savings, credit, and financial literacy. This financial empowerment allows women to invest in infrastructure, start businesses, and improve their economic status. Mann Deshi Foundation's rural business schools provide training and support to women entrepreneurs, empowering them to lead and grow their businesses.

##### **c. Infrastructure Development**

Marketplaces specifically for women entrepreneurs were established by Chetna, providing them with the resources and networks needed to scale their businesses. Additionally, her efforts in improving irrigation and farming infrastructure have greatly benefited women farmers, enhancing agricultural productivity and sustainability. Sinha's work exemplifies how targeted infrastructure projects can uplift communities by focusing on women's economic and social empowerment.

#### **2. Case Study of Rhea Mazumdar Singhal**

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Rhea Mazumdar Singhal is the Founder and CEO of Ecoware, India's leading company specialising in sustainable packaging. By establishing Ecoware, she introduced a pioneering approach to packaging in India, offering a natural, eco-friendly, and cost-effective alternative to single-use plastics. She has been honoured with India's highest civilian award for women, the Nari Shakti Puraskar, and has gained international recognition as a Young Global Leader and Impact Hero in 2021.

### a. Environmental Sustainability-

Founded in 2010, Ecoware combats the environmental impact of single-use plastics with affordable, plant-based packaging. Using biodegradable materials like sugarcane bagasse and wheat straw, its products decompose naturally, reducing plastic use and pollution. Committed to a zero-waste policy, Ecoware avoids harmful chemicals and waste, supporting environmental protection and lower carbon emissions. With rising demand for disposable products post-pandemic, Ecoware's sustainable solutions are well-positioned to meet this need and support global climate initiatives.

### b. Empowering Women

Ecoware is committed to creating economic opportunities for women, particularly those from rural and disadvantaged backgrounds. By offering jobs in manufacturing, packaging, and distribution, the company helps women achieve financial independence. Ecoware also provides training programs for the green economy, boosting women's confidence and enhancing their societal standing. Fostering a culture of inclusivity, Ecoware encourages women to take on leadership roles within the company, where they make up about 30% of the team. As Rhea Mazumdar Singhal, the founder, aptly puts it, "The biggest injustice is not trying. I would ask all women to take the first step and pursue their goals. Don't limit yourself; you don't have to pick just one thing as long as you are happy doing the multitasking." This philosophy underpins Ecoware's approach to empowering women and fostering an environment where they can thrive.

### c. Infrastructure Development-

Ecoware invests in sustainable, energy-efficient manufacturing facilities, minimising waste and using renewable energy. By establishing production units in rural areas, Ecoware improves local infrastructure and supports community development. Its focus on local material sourcing and job creation boosts regional economic growth, contributing to both local and regional development.

### Global Women Entrepreneurs Driving Sustainability

1. Akira Sakano - In the Japanese municipality of Kamikatsu, Akira Sakano, a female entrepreneur, is leading efforts to achieve zero waste by 2030. Her social venture focuses on repurposing waste from homes and businesses, creating new products while significantly reducing overall waste. Sakano's initiative exemplifies how innovative waste management can drive sustainable living.
2. Bilikiss Adebisi-Abiola- In Lagos, Nigeria, Bilikiss Adebisi-Abiola founded a waste management business that collects and recycles garbage, effectively reducing the risk of flooding in the city.

### Government Initiatives Supporting Women in Sustainability and Infrastructure Development

In the 2024 interim budget, India's Finance Minister Nirmala Sitharaman underscored the country's commitment to achieving net-zero carbon emissions and highlighted the crucial role of women entrepreneurship in advancing green development. This emphasis is part of the broader Viksit Bharat (Developed India) 2047 plan, aiming to transition India into an equitable green economy. The government's support for women-led enterprises is evidenced by the disbursement of 300 million loans since 2015 through the MUDRA Yojana scheme, which provides small loans to micro entrepreneurs. Additionally, the Ministry of Education has reported a 28% increase in female enrollment in higher education and a 43% enrollment rate for women in STEM courses, reflecting the potential for women to drive innovation in green solutions.

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Further strengthening these efforts, India's policy-making body, NITI Aayog, highlights the significant presence of women in the micro, small, and medium enterprises (MSME) sector, with around 20% of MSMEs being women-owned. The Self-Help Groups initiative, the world's largest microfinance project, primarily led by women, serves 142 million families and demonstrates the impact of women-led financial inclusion. Organisations like SEWA and the Global Alliance for Mass Entrepreneurship (GAME) showcase targeted interventions that support women in addressing climate change, providing crucial financial and mentorship resources. These initiatives not only drive economic growth but also enhance social and environmental outcomes, reinforcing the role of women entrepreneurs as key players in sustainable development. To ensure continued progress, targeted policies and research models are essential for fostering women's participation in green tech and climate-resilient sectors, thereby advancing India's Nari Shakti (Women Power) agenda and contributing to a more inclusive and sustainable future.

In weaving together environmental sustainability, women's empowerment, and infrastructure development, we create a pathway to a resilient and equitable future. By integrating these elements, we design infrastructure that not only meets today's needs but also nurtures our planet and empowers women on the front lines of environmental challenges. This intersection offers a promising blueprint for sustainable development. Embracing this approach is essential for achieving lasting progress and equity.

"For a future that's green and bright,  
we need women's voices in the fight;  
their strength and vision light the way,  
for a world where all can thrive and stay."

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