

Analyzing Gender Representation in Green Jobs Across Manufacturing

Labor supply and demand assessment of Naroda Chemical Cluster in Gujarat, India

MacArthur Foundation

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<u>CONTENTS</u>

Acl	know	vledgement	3			
Exe	cuti	ve Summary	6			
1.	Introduction					
	1.1	 Project Background 1.1.1 Decarbonizing India's SME Sector: A Catalyst for Women Empowerment 1.1.2 Decarbonization as a Platform to Embed Gender Equity in the Manufacturing Sector 	10 12 13			
	1.2	Objectives and Scope of Work	13			
	1.3 Approach and Methodology					
2.	Perspective of the Manufacturing Sector Towards Clean Technology and Gender inclusion					
	2.1	 The barriers for gender representation in the chemical sector 2.1.1 Legislation and Policies 2.1.2 Outdated Perceptions and Subconscious Biases 2.1.3 Gender Discrimination in STEM Education and Careers 2.1.4 Lack of Women Friendly Infrastructure in Chemical Manufacturing Factories 2.1.5 Absence of Monitoring for Gender Equity in Business Settings Emerging Industry Trends for Embedding Gender Equity in the Chemical Sector in the 	16 16 17 17 18			
		Transition to Cleantech	18			
3.	Stal	keholder Insights: Key information and perspectives	20			
	3.1	Owners and Other Senior Management of SMEs and Factories3.1.1Transition to Clean Technology and Knowledge about Green Jobs3.1.2Intent of Company Leadership to Employ Women in Green Jobs3.1.3Training, Upskilling and Employment of Women in Green Jobs3.1.4Perspectives about Women in STEM Education and Jobs3.1.5Measures to Ensure a Safe and Secure Working Environment	20 22 23 24 24 24 26			
	3.2	Factory Floor Workers (Male and Female)	27			
		3.2.1 Knowledge about and perceived opportunity for green jobs3.2.2 Current status and working conditions of female workers3.2.3 Recommendations by male and female workers on improving working conditions	27 28			
		and specifically in green jobs	28			

		3.2.4	Career aspirations and willingness to work in the manufacturing sector	29				
		3.2.5	Family restrictions placed on women and men to pursue work opportunities					
			outside of their homes	29				
	3.3	Comr	nunity	29				
	3.4	Othe	Stakeholders	30				
		3.4.1	Students Perspectives and Awareness about Green Jobs and Related Career Aspirations	30				
		3.4.2	Cluster Association - Naroda Industries Association (NIA)	31				
4.	Stal	kehold	er Insights: Key Information and Perspectives	32				
	4.1 Key Gender Gap Findings in SMEs							
	4.2	Recommendations for Training Needs of Key Stakeholders						
	4.3	3 Recommendations for Job Roles for Women in the Chemical Manufacturing Sector						
	4.4	4 The Way Forward						

Annexures

Annexu	Ire 1: Detailed Approach and Methodology	41					
1. Kio	Kick-off and Planning Meetings						
2. Co	Collection and Review of Secondary Data						
3. De	. Development of Assessment Tools						
4. De	A. Determination of Study Area and Sample Size						
5. Pri	imary Data Collection	45					
6. Lir	nitations of the Methodology	45					
Annexu	re 2: Tools/ Questionnaire Used for Primary Data Collection	47					
Tool 1:	Interviews with Owners/ Senior Leadership of SMEs	47					
Tool 2:	Interviews with Plant/ Site Heads	50					
Tool 3:	FGD with Factory Workers (Female)	55					
Tool 4:	FGD with Factory Workers (Male)	60					
Tool 5:	Community Consultations	66					
Tool 6:	KII/ FGD with Women in STEM Education	70					
Tool 7:	Relevant Cluster Associations	73					
Annexu	Annexure 3: Sample Size covered for the Primary Study						
Annexu	Annexure 4: Proposed Key Training Outcome Indicators 75						

Executive Summary: Gender Equity and Decarbonization in Indian SMEs

Evidence from the Chemical Cluster in Naroda, Gujarat

This report delves into the intersection of gender equity and decarbonization within Indian Small and Medium Enterprises (SMEs), particularly focusing on evidence from the chemical cluster in Naroda, Gujarat. Drawing upon evidence from the Naroda chemical cluster with 200 chemical units out of 900 in total, in Ahmedabad, Gujarat the report presents insights from 12 Small and Medium Enterprises (SMEs) and reflects perspectives and experiences of almost 700 employees on women's participation in the sector and their engagement in the adoption of clean technologies.

The choice to delve deeply into this cluster was motivated by its ongoing efforts in decarbonization. Additionally, the study aimed to analyze the involvement of female workers and foster discussions on fair and gender-inclusive decarbonization. Participants in the study included members of the Naroda Industrial Association, factory owners and managers, both male and female factory workers, students enrolled in vocational training courses, and members of the local community near the cluster.



This report will serve as a valuable resource for a diverse array of stakeholders involved in decarbonization efforts, including factory owners, managers, NGOs, think tanks, and policymakers working towards building equitable and low carbon supply chains. The findings and recommendations presented herein offer action points for skill training institutions, policymakers, and experts dedicated to fostering inclusive and just energy transitions and enhancing women's labor force participation.

Low female workforce



Only 28% of employees across 11 Small and Medium Enterprises (SMEs) and 1 CETP are women. Most are working in the quality check and assurance department.

Uncertain equal pay and career advancement opportunities



Factory owners claim adherence to equal pay laws but lack documented policies. The current scope of work is limited, hence reducing the opportunity for promotions.

Safety concerns



Perception of the industry being hazardous discourages women's participation, limiting job profiles at the end of the value chains.

Night work restrictions



Labor laws limiting female night shifts are seen as a barrier from both employers and employees)

Gendered roles



Lab work is seen as suitable for women, while factory work is dominated by men. It is believed that chemical factories are hazardous workplaces, women are more suitable for domestic jobs, and owners lack motivation to divert resources and responsibility towards women workers.

Equitable green skills gap



There is no reported training on clean technology, green skills or gender sensitivity. Aspirant women workers have little to no understanding of green jobs and factory owners and managers lack definite plans for a gender inclusive green workforce.

Aspiration of working women



Currently, women working in research and development labs as quality control/ assurance professionals seek skilling. They are interested in better-paying, skilled roles, switching to pharmaceutical and textile industry as well senior positions in the Environment, Health and Safety (EHS) domain. Unskilled women lacked clear aspirations and expressed concerns about their freedom to continue working after marriage and childbirth (i.e. highlighting job security concerns).

Commuting & childcare



Women have a preference for work close to homes with childcare facilities.

Community resistance



Family members and young women remain hesitant about factory work due to social norms and safety concerns at chemical factories due to lack of EHS compliance.

Opportunities for advancing gender equity:

- Women are already involved in lab research, quality control, and unskilled/semi-skilled positions. Training
 programs can enhance their skills and equip them for roles like lab analysts, hydraulic press operators,
 supervisors, and plant maintenance technicians.
- Companies are taking initiatives in water reuse, waste recycling, and solar energy. These efforts create opportunities for women in areas like reuse/recycling systems and supply chain management.
- Skill development programs in energy efficiency and green procurement can create new career paths for women. Energy audits present another potential area for training and employing women, particularly in effluent treatment plants.
- Promoting micro-entrepreneurship among women can create a network of technicians, quality control specialists, and service providers supporting the green transition.



Recommendations:

Fostering Gender-Centric Approaches: SME owners, managers, and associations can adopt a gender-centric approach to ensure women benefit from clean energy jobs. Job profiles for a decarbonized factory that is willing to promote gendered roles could include GHG/ ESG reporting, energy manager and maintenance of clean technologies.

Creating a Gender-Inclusive Green Jobs Ecosystem:

Policy makers must encourage as well as create a gender-inclusive green jobs ecosystem with safe workplaces, equal wages, and career progression opportunities. For instance, they can advocate for budget allocations for investment in separate facilities like washrooms, changing rooms, and childcare centers.

Advancing Gender Equity in Green Technology: The Industrial Association, think tanks, and NGOs should promote the adoption of green technologies, with focus on gender equity. This must also take into account considerations such as ergonomics and automation of machinery. **Promoting Female Participation in Vocational Trainings:** Local training bodies must encourage and facilitate females to be trained at vocational institutions for factory floor jobs that are considered suitable for men (e.g. welding, cutting, etc.).

Reaping intersectional co-benefits through multistakeholder engagement: Policy makers and NGOs can launch a multi-stakeholder initiative to support women-led and inclusive cleantech enterprises.

Addressing Cultural and Social Barriers: Local NGOs and organizations must address cultural and social biases at a community level to remove barriers for women entering green jobs.

Overall, this study highlights the significant potential for women's participation in the greening of the Naroda chemical cluster. By addressing gender equity, this analysis paves the way for a more inclusive and sustainable future for India's green manufacturing sector.

INTRODUCTION

The world must decarbonize at a previously unheard-of rate to avoid the worst impacts of climate change. A growing number of organizations, sectors, and nations have established "net-zero" goals to push for decarbonization. On the road to reaching net-zero status by 2070, India aims to generate 50 percent of energy from renewable resources and reduce its total projected carbon emissions by one billion tonnes¹ by 2030. Transitioning to a low-carbon future is not only a technological and financial process but also a nuanced issue intersecting with social aspects such as gender integration. In the recent decade, the significance of a comprehensive decarbonization strategy that considers the environmental, economic, social, and cultural aspects of the transition has been emphasized². This has resulted in the emergence of the concept of the Just Energy Transition, to ensure the fair and equitable treatment of individuals and communities affected by the transition to clean energy sources.

Evidence highlights the disproportionate vulnerability of women to climate change owing to the imbalances in power structures and social, economic, and political disparities. The UN reports that nearly 80 percent of populations displaced due to climate change are women³. Women are also more likely to be living in poverty and having lower socio-economic status with greater inability to bounce back from climate disasters impacting jobs, as well as infrastructure⁴. Hence, the gendered nature of energy transitions and decarbonization cannot be overlooked. From an SDG standpoint, Gender equality (Goal 5), is imperative in enabling gender equitable environments globally. Without achieving gender parity, several other SDGs like those of Goal 1 (No Poverty), Goal 3 (Good Health and Well-Being), Goal 4 (Quality Education), Goal 7 (Clean and Affordable Energy), Goal 8 (Decent Work and Economic Growth), Goal 10 (Reduced Inequalities), Goal 13 (Climate Action) and Goal 16 (Peace, Justice and Strong Institutions), are by default unachievable⁵. Gender equity must constitute the basis of all aspects of sustainable development, including decarbonization and the clean energy transition.

1.1 Project Background

Global Dynamics: Just Transition and Gender Equity in Decarbonization

Historically, decarbonization and gender equity have been treated as distinct issues requiring different solutions and are considered mutually exclusive. A large proportion of the population vulnerable to climate change includes groups that have been historically marginalized and excluded from the rapid pace of economic growth and development.

¹ https://www.bbc.com/news/world-asia-india-59125143

² https://www.researchgate.net/publication/303321437_Transition_to_a_post-carbon_society_Linking environmental_justice_and_just_transition_discourses

³ https://www.unicef.org/rosa/blog/climate-changes-greatest-victims-are-women-and-girls#:~:text=Yet%20they%20show%20a%20harsh,by%20climate%20change%20are%20women.

⁴ https://www.unwomen.org/en/news/in-focus/end-violence-against-women/2014/poverty

⁵ https://www.undp.org/sustainable-development-goals

To sufficiently address the principles of equity and fairness, the concept of Just Transitions has been introduced and is expected to play a pivotal role in climate action, especially in the phasing out of fossil fuels. Just Transitions prioritizes the well-being of historically excluded people in the implementation of policies and programmes to reduce greenhouse gas emissions and demands addressing equity and justice issues pertaining to women along with other marginalized people.



Similar to Just Transition, another concept that looks at gender within energy use is energy justice. Energy justice also has a body of literature that tries to highlight the disparities and effects that energy projects have on various socioeconomic groups. Energy justice comes with burdens like equitable allocation of its benefits and opportunities and raises the justice issues prevalent in the energy debate and in the development of energy policies.

"Just Transitions" and "energy justice" have largely been researched on a macro level, with gender inclusion in the decarbonization pathway for participation in clean tech jobs either missing or vaguely defined. With the deployment of clean tech, there exists a plethora of intersectionality that requires further research, such as monitoring and reporting of quantitative and qualitative gender data that would aid in understanding the reasoning behind low participation of women in the workforce and the socioeconomic benefits of including women workforce in CleanTech operations.

The mutual reinforcement of gender equity and decarbonization is particularly relevant for the manufacturing sector in the country. In the case of India, the Bureau of Energy Efficiency (BEE) states that the entire industrial sector has the highest energy-saving potential of up to 60 percent, which can be realized by 2031, making manufacturing an ideal sector to undertake large scale decarbonization⁶. Decarbonization initiatives offer the scope for creation of new job roles, providing the sector immense opportunity to improve its gender representation, which comprises only 12 percent of the female workforce⁷.

According to McKinsey, addressing gender inequity can add \$12 trillion to the world's economy⁸. Female workforce participation in the Indian manufacturing sector has a significant potential to display signs of improvement while decarbonizing. Moreover, higher participation of women in the workforce and gender-inclusive workspaces have been linked to an increase in creativity, productivity, and economic growth of nations and individual companies alike.

In their present state, energy policy and decision-making processes are prejudiced and largely examined only from a technocratic standpoint, with sociologists, anthropologists, and gender experts lacking participation in energy

 $^{6 \}quad https://beeindia.gov.in/sites/default/files/publications/files/Impact%20Assessment%202020-21_FINAL.pdf$

⁷ https://lifestyle.livemint.com/news/big-story/why-the-manufacturing-sector-needs-more-women-111635684506116.html

 $^{8 \}quad https://www.mckinsey.com/featured-insights/employment-and-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth/how-advancing-womens-equality-can-a$

policy design. Gender-equitable decarbonization is not solely a social and moral obligation but also yields economic and social benefits, thereby establishing a robust business case. Thus, decarbonization stands as an ideal platform to delve deeper into climate justice concerns, particularly those affecting women, and to ensure and promote gender equity.

1.1.1 DECARBONIZING INDIA'S SME SECTOR: A CATALYST FOR WOMEN EMPOWERMENT

In developing countries like India, women encounter structural and cultural barriers that restrict their participation in the workforce with considerable underrepresentation in the manufacturing sector. Small and Medium Enterprises (SMEs) represent small businesses with revenues falling under predefined financial thresholds. As per the latest classification by the Ministry of Micro, Small, and Medium Enterprises, micro enterprises are defined by investments in plant and machinery or equipment up to Rs 1 crore and an annual turnover of not more than 5 crores. Small enterprises, on the other hand, encompass investments not exceeding Rs. 10 crores in plant and machinery or equipment, with an annual turnover not exceeding Rs. 50 crores. Lastly, medium enterprises are identified by investments not surpassing Rs. 50 crores in plant and machinery or equipment, along with an annual turnover not exceeding Rs. 250 crores⁹. Despite the role of MSMEs in India employing over 100 million people with substantial contribution to manufacturing output and exports, the share of women in this sub-sector remains abysmal. Even though MSMEs are hailed as inclusive sectors contributing to the economy, women constitute only a fifth of the workforce in the MSME sector. Female-owned businesses comprise nearly 14% of registered and 9% of unregistered MSMEs¹⁰.

The MSME sector is emissions intensive, accounting for approximately one-fourth of the country's total emissions. There are over 200 energy-intensive manufacturing clusters¹¹ in the country. The energy use of MSMEs in India is estimated to be equivalent to 50 million metric tons of oil used per year¹². The pressing need to decarbonize the MSME sector creates an opportunity to contribute to women's participation and establish gender equity. This would include introducing a mix of clean tech solutions, energy efficient practices, and sustainable manufacturing processes. This transition can result in a two-fold impact contributing to environmental sustainability and the simultaneous creation of green jobs for both men and women. It also holds the potential to break down gender barriers by offering women the opportunity to access new roles. By actively promoting the engagement of women in this process, MSMEs can tap into a vast and previously underutilized workforce. This will not only enable women to take advantage of the employment prospects presented by cleantech but also contribute to the vision of women led development. In essence, equitable decarbonization becomes not just an environmental imperative but a strategic pathway towards fostering inclusive economic development.

⁹ https://msme.gov.in/know-about-msme

¹⁰ Gender Issues in the MSME Sector in India, World Bank

¹¹ Clusters are agglomerations of interconnected companies and associated institutions. Firms in a cluster produce similar or related goods or services and are supported by a range of dedicated institutions located in spatial proximity, such as business associations or training and technical assistance providers. Vibrant clusters are home of innovation-oriented firms that reap the benefits of an integrated support system and dynamic business networks. (Source: UNIDO)

¹² https://theprint.in/opinion/indias-msme-sector-largest-after-chinas-but-no-one-is-talking-about-its-role-in-emissions/745629/

1.1.2 DECARBONIZATION AS A PLATFORM TO EMBED GENDER EQUITY IN THE MANUFACTURING SECTOR

The share of women in science and technology roles related to green jobs is insufficient in the SME sector, with a pronounced gap in the chemical sector. This can be attributed to cultural norms posing challenges for women seeking employment in chemical plants, owing to misconceptions regarding need for physical labor and risks. Contrary to these beliefs, modern chemical plants require less physical labor and are safer due to technological advancements.

Aggravating the issue, local legislation restricts women from working in factories after 7PM. These challenges are further compounded by the limited availability of sex-disaggregated data. This lack of data hinders our ability to fully understand women's representation in the chemical sector and, consequently, to quantify the full extent of their underrepresentation.

In the pursuit of decarbonization and energy transitions, various opportunities exist to question stereotypical career options traditionally associated with women. We outline the scope and objective of gender inclusive decarbonization in the SME sector in the following sections:

1.2 Objectives and Scope of Work

Accelerating Clean, Equitable (ACE) Manufacturing is a three-year sustainable manufacturing program funded by the MacArthur Foundation. The objectives of the project are:

- i. Facilitate decarbonization and adoption of green manufacturing practices among SME clusters through a market-based approach,
- ii. Build SMEs' capacity to create a gender equitable green workforce and operate profitably with sustainable practices, and
- iii. Provide policy recommendations to develop an inclusive green labor force in the SME cluster based on the learnings from the clean tech deployment pilots conducted.

In building an equitable green workforce, adopting a gender perspective in cleantech deployment is critically important to allow for the contribution of women's skills, experience, competencies, and overall participation in the industry. With ACE Manufacturing, the study aimed to explore the theme of gender equity and activate gender-responsiveness in cleantech ecosystems. For this report, a gender gap analysis was undertaken using data collected from the chemical manufacturing sector as they transition to clean energy.

The objective of this study was to understand supply and demand for green jobs, particularly high productivity green jobs, for women in the manufacturing sector as it adopts sustainable practices and clean technology¹³.

¹³ Cleantech, also referred to as clean technology, has emerged as an umbrella term encompassing the investment asset class, technology, and business sectors which include clean energy, environmental, and sustainable or green, products and services, that ultimately reduce the greenhouse gas emissions.

The scope of work for this study was to:

- Determine a baseline scenario for improvement of women's engagement in chemical manufacturing units moving towards decarbonization.
- Assess the gender gap in the chemical manufacturing in factory floor of SMEs in an industrial cluster with a commitment to head towards clean energy transition.
- Identify the feasibility of and areas for enhancing women participation in both the existing and proposed decarbonized manufacturing ecosystems.



1.3 Approach and Methodology

This study focused on collecting qualitative data through a situational assessment of gender gaps in the Small and Medium Enterprises (SME) within the Naroda Chemical Cluster that are pursuing clean tech adoption and decarbonization. Qualitative data was collected to undertake a perception analysis by a broad range of stakeholders. The key data collection methods included semi-structured interviews with company management, plant site heads, and senior leadership and Focus Group Discussions (FGDs) with male and female factory workers, local community members, and female students at a training institute. Additionally, key informant interviews were conducted with representatives from the Naroda Industries Association (NIA) in Ahmedabad, Gujarat. The data collected from the sample were further corroborated through FGDs, direct engagement with key people within the cluster inputs, and insights from domain experts, along with an extensive review of secondary literature on global and Indian MSMEs. This also included their interventions on gender and cleantech. For this, we studied publicly available information from reputable agencies like the ILO, UN, etc. Further details on the detailed approach and methodology have been added in Annexure 1. The tools used for data collection and the sample size are presented in Annexure 2 and Annexure 3, respectively.

PERSPECTIVE OF THE MANUFACTURING SECTOR TOWARDS CLEAN TECHNOLOGY AND GENDER INCLUSION

With nearly 80,000 different chemicals produced in India every year, India's chemical industry is the sixth largest in the world and the third largest in Asia¹⁴. The chemical industry has been a key player in India's economic growth, contributing to 7% of its GDP in 2022¹⁵. The industry had an estimated value of \$100 billion in 2019 and generated employment for around five million people in the country².

While the industry is crucial to India's economic development, it is also one of the most energy-intensive and polluting industries in the world and comes under the "hard to abate" sectors. As the chemical industry grows both globally and in India, it must address its significant contribution to greenhouse gas emissions. Because the chemical sector provides building blocks and raw materials for many other industries like textiles, pharmaceuticals, and agrochemicals, the emissions associated with the chemical industry are released further downstream in the value chain in other sectors. The sector plays a crucial role in global business and MSMEs. Emissions in this sector must peak soon, then decline by 2030 for a net-zero GHG target by mid-century, playing a vital role in the global and Indian net-zero pathway. Based on Kearney's 2022 report on the Indian chemical sector¹⁶, the global chemical sector will likely be the last major sector to achieve net zero emissions, and India's chemical sector may follow the same suit for the country's net-zero goals.

Despite the complexities of decarbonizing the chemical sector, it provides India with an opportunity to emerge as a global leader in green chemicals such as green ammonia, green methanol, and biobased chemicals. This can be done by enhancing resource efficiency, use of renewable energy and biomass/bioenergy, use of hydrogen (green/ blue hydrogen), carbon capture, utilization, and storage, use of biobased feedstock/technologies, and the adoption of circular economy practices. The transition of the chemical sector in India to clean and efficient resources, though underway, would have to be a continuous and aggressive process, and the industry will need to adapt to new technological and economic circumstances in order to meet its objectives.

This transition to a net zero chemical sector can create tens of thousands of jobs and place India at the front line of the global mitigation of climate change. However, there remains a need for skilled Research and Development (R&D) talent. Despite India's massive labor availability of over 470 million people, only 1,400 chemical engineers graduate from India's top 25 to 30 universities annually. Most either opt for higher studies or switch careers, leaving the industry

¹⁴ Chemical industry in India - statistics & facts | Statista

¹⁵ Awasthi, Anurag (6 September 2022). "In the global semiconductor race, India's chip manufacturing needs to get the 'chemistry' right". The Economic Times. Retrieved 6 January 2023.

^{16 2022 -} Mission Net-Zero - A Roadmap for the Indian Chemical Industry - Kearney

dependent on foreign talent for its chemical R&D needs¹⁷. The chemical industry also lacks gender representation. ASI 2019-20 shows that merely 15.2% of the workforce in the chemical and chemical products industry is women¹⁸.

Historically, the chemical sector has faced gender disparities, and female representation has remained low. Women have encountered several barriers that have hindered their participation and success in the chemical sector. The following section explores key reasons behind the low participation of women in the chemical manufacturing sector in Naroda, Gujarat.

2.1 The Barriers for Gender Representation in the Chemical Sector

2.1.1 LEGISLATION AND POLICIES

According to research conducted in Gujarat by IFC¹⁹, affect women's employment across the manufacturing sector, including the chemical industry. One of the primary concerns in the industry is the lack of flexibility in working hours. Legislation (Section 66(1)(b) of the Factories Act, 1948) prohibits women from working night shifts after 7 pm, and this discourages companies from hiring women for shift roles that require night work.

2.1.2 OUTDATED PERCEPTIONS AND SUBCONSCIOUS BIASES

Another factor that affects women's employment in the chemical industry is the perception that the industry is dangerous and requires physical labor. Modern chemical plants, however, need little physical labor and are much



17 India: The next chemicals manufacturing hub | McKinsey

16

18 https://mospi.gov.in/sites/default/files/publication_reports/Volume%20I%202019-20%20FINAL.pdf

19 Employing Women Catalyzes Change at A Chemical Plant in India

20 IRENA (2019), Renewable Energy: A Gender Perspective. IRENA, Abu Dhabi

21 Hammond, A.; Matulevich, E.R.; Beegle, K.; and Kumaraswamy, S.K. (2021). The Equality Equation: Advancing the Participation of Women and Girls in Science, Technology, Engineering and Mathematics (STEM). World Bank. https://documents1.worldbank.org/curated/en/789951595308672516/pdf/Main-Report.pdf

safer than they were historically. Studies have noted several barriers^{20 21} for women participation in the manufacturing sector, such as patriarchal gender roles, discriminatory labor laws, and a range of social norms in the workplace that create hostile work environments, unequal pay, and a lack of opportunities for professional advancement. Likewise, perceptions and stereotypes include doubts in women's technical competencies, and low self-esteem among women themselves as well as among men about whether women have the ability to succeed in technical roles. Women also shoulder the 'double burden' of balancing work and family, including childcare responsibilities, mobility restrictions, safety concerns, sexual harassment, discriminatory labor laws, and a range of unequitable social norms in the workplace. Together, this leads to hostile work environments, unequal pay, and a lack of opportunity for the professional advancement of women.

2.1.3 GENDER DISCRIMINATION IN STEM EDUCATION AND CAREERS

The gender gap in STEM fields, particularly in the chemical manufacturing sector, remains a persistent issue worldwide. This lack of representation is due to various factors, such as the low participation of girls in STEM-related activities and education and gender biases that create stereotypes that STEM fields are 'masculine'. Women disproportionately discontinue STEM disciplines when they are transitioning to work and during their career in higher numbers than men²². This pattern—higher attrition rates among girls and women in STEM from primary to tertiary education and into jobs—is commonly called the leaky pipeline in STEM²³ and contributes to gender pay gaps. While Women's enrollment in STEM courses has increased in recent years, there is still a significant disparity between the number of women who graduate in STEM fields and the number of women employed in STEM jobs. As per the annual All India survey on Higher Education (AISHE) report, the number of women enrolled in STEM courses was estimated at 10,56,095 in 2019-2020^{24 25}. In fact, 30% of students enrolled or graduated in technical and engineering programmes at Indian universities are women, among the highest in the world²⁶. Despite 43% of STEM graduates being women²⁷, only 14% of women occupy STEM jobs²⁸. This poor female workforce participation eventually also translates to low women engagement in India's manufacturing sector, including the chemical sector.

2.1.4 LACK OF WOMEN FRIENDLY INFRASTRUCTURE IN CHEMICAL MANUFACTURING FACTORIES

In India, infrastructure in the manufacturing domain is designed without considering the unique needs of women and girls, adversely impacting their safety, well-being, and economic opportunities²⁹. This holds true for factories in the chemical cluster, which are infamous for hazardous working conditions and lack of safety equipment. Additionally, there is a lack of facilities such as functioning toilets, menstrual hygiene products, and pregnancy-

24 Khullar A.; Bhandari, N. (2022). 'Women in STEM: Is India Doing Better Than the 'Developed' World?'

²² UNESCO. (2017). Cracking the code: girls' and women's education in science, technology, engineering, and mathematics (STEM) - UNESCO Digital Library. https://unesdoc.unesco.org/ ark:/48223/pf0000253479

²³ Hammond, A.; Matulevich, E.R.; Beegle, K.; and Kumaraswamy, S.K. (2021). The Equality Equation: Advancing the Participation of Women and Girls in Science, Technology, Engineering and Mathematics (STEM). World Bank. https://documents1.worldbank.org/curated/en/789951595308672516/pdf/Main-Report.pdf

²⁵ Aishe 2019-20

²⁶ https://www.oecd.org/education/skills-beyond-school/AHELOFSReportVolume1.pdf

^{27 &}quot;Gender Data Portal (2018)". World Bank.

²⁸ https://www.thehindubusinessline.com/news/science/need-to-reduce-gender-gap-in-stem-jobs-in-india/article33324409.ece

²⁹ Gender-smart infrastructure improves gender equality in South Asia

related requirements. Women face discomfort due to the absence of separate washrooms, changing rooms, and restrooms, making it challenging to work effectively in these factories.

requirements. Women face discomfort due to the absence of separate washrooms, changing rooms, and restrooms, making it challenging to work effectively in these factories.

2.1.5 ABSENCE OF MONITORING FOR GENDER EQUITY IN BUSINESS SETTINGS

The absence of a robust monitoring system for gender equity in business settings is a significant challenge for achieving gender equity in the workplace. While several laws and policies exist to promote gender equality in the workplace, their implementation and enforcement remain weak, leading to widespread gender-based discrimination and harassment. While the National Policy for Women Empowerment in India aims to create an enabling environment for the active participation of all stakeholders, including women, its implementation has been inadequate, with patriarchal norms and gender biases continuing to restrict women's access to employment.³⁰

2.2 Emerging Industry Trends for Embedding Gender Equity in the Chemical Sector in the Transition to Cleantech

The chemical sector is transitioning towards cleantech, focusing on reducing carbon emissions and addressing climate change. Simultaneously, there are also initiatives of embedding gender equity across the manufacturing sectors.

Environmental, Social, and Governance (ESG) factors are becoming increasingly important for manufacturing companies, including those in the chemical sector. Investors are now looking for companies that prioritize sustainability, equity, and have strong ESG policies. Companies that meet these criteria are more likely to attract investment, which can help them grow and develop. Indian companies have already started to incorporate gender equity and ESG factors in their operations. For example, Tata Chemicals has set a target of achieving 50% gender diversity in leadership positions by 2025 and has also implemented initiatives to reduce its carbon emissions³¹.

Green jobs can contribute to preserving or restoring environmental quality, and they can create employment opportunities in the chemical sector while promoting sustainable development. The Indian government has recognized the potential of green jobs, and estimates indicate that India has the potential to create up to 35 million green jobs by 2047³². In the chemical sector, green jobs could include process engineers, sustainability strategists developing and implementing sustainable manufacturing processes, researchers, scientists for developing green chemicals and materials, personnel skilled in green chemistry implementation³³, energy auditors, monitoring and evaluation personnel, experts in resource efficiency and the circular economy, and more.

³⁰ Gender Inequality Essay for Students | 500+ Words Essay

³¹ https://www.tatachemicals.com/media/410522/gri_sustainability_report_2020-21.pdf

³² https://economictimes.indiatimes.com/jobs/mid-career/green-careers-report-understanding-green-jobs-and-their-increasing-demand/articleshow/109617277.cms?from=mdr

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Case Study: Meghmani FineChem Limited's Gender-Smart Approach to Expand Women's Employment in the Chemical Industry

Background: Meghmani Organics Limited, a chemical group in Gujarat had yet to employ women at its four existing chemical plants due to the prevailing norms. However, the company planned to install advanced equipment in a new plant in the port city of Dahej, Gujarat and needed to expand its labor force. The International Finance Corporation (IFC) invested \$12.5 million in the new plant, Meghmani FineChem Limited (MFL), and saw an opportunity to address the challenges of recruiting, hiring, and promoting women in a sector where they were traditionally absent or underrepresented.

Problem Statement: MFL faced several challenges in hiring women in the chemical industry in India. Despite being safe and technologically advanced, the industry was perceived as dangerous and unsuitable for women. Legal requirements prohibited women from working after 7 pm, discouraging companies from hiring them for shift roles requiring night work. Social norms also reduced the number of female applicants for the chemical industry, leading to a need for more basic facilities such as women's bathrooms.

Solution: MFL adopted a gender-smart approach to overcome gender gaps in employment with IFC's support.

- The company designed separate facilities for women, such as bathrooms, locker rooms, and shower rooms, in the new plant.
- It established flexible work policies and identified roles women could fill in compliance with local law.
- It opened blue- and white-collar positions to women in research and development, office management, technical and operational service departments, and the canteen.
- With these initiatives in place, MFL targeted female candidates in colleges and universities, particularly women engineers, to increase the number of women in the plant.
- The company worked with its community engagement officer to spread the word that it was actively seeking women employees. Once women were onboard, Meghmani updated its HR policies and procedures, specifically focusing on revising occupational health and safety standards for a mixed-gender workplace.

Impact: Meghmani's gender-smart initiatives enabled the company to increase its female workforce by offering flexible work policies and opportunities for women in a sector where they were traditionally absent or underrepresented. It demonstrated that women could excel in the chemical industry. Meghmani's success could serve as a model for other companies looking to increase diversity and inclusivity in their workforce.



STAKEHOLDER INSIGHTS: KEY INFORMATION AND PERSPECTIVES

This section presents an analysis of the data collected for this study from various stakeholder groups (see Annexure1). The study has been primarily qualitative with efforts made to collect quantitative data on the number of factory workers and employees in the company, details on male and female staff, and information on skilled, semi-skilled, and unskilled workers. However, owing to inconsistencies in the information provided by different individuals in companies and reluctance to share relevant documents, this quantitative data has not been captured in detail in the report. However, attempts have been made to share relevant data on female employees as percentage of total employees wherever possible.

3.1 Owners and Other Senior Management of SMEs and Factories

The study encompassed 11 Small and Medium Enterprises (SMEs) engaged in the production of dyes and intermediaries as well as one Common Effluent Treatment Plant (CETP).

The key findings around female employment include:

- * Nine out of 12 facilities reported having women employees; three reported no women employees.
- Out of a total of 696 full time employees spread across the 12 companies in the study, only 197 were women.
 Overall, women accounted for 28 percent of the total employees in the units surveyed.
- However, a majority of female employees were from only one company (140 women), and two companies together accounted for 180 female employees of the total.
- Four out of 12 companies reported having women in managerial and/or senior leadership positions, and one company's Director is currently a woman. However, these women in senior positions were not always based out of their Naroda offices or plant sites.
- Only a few companies shared the exact number of skilled, semi-skilled and unskilled female workers. (See section 3.2.1, Table 1 for definitions)
- Interviews with plant site heads revealed that 75 women across four companies were skilled, 37 women across two companies were semi-skilled (a third company could not reveal numbers but mentioned that the majority of their workers were semi-skilled), and 35 women in one textile company were unskilled.

On analyzing the roles where women were deployed, it is found that they were limited to non-technical and junior roles. Some of the roles, as mentioned in interviews with senior management, are:



Based on the profile of the male and female factory workers who participated in the Focus Group Discussions (FGDs), the following distribution of roles among male and female workers was derived. This might not be representative of the entire factory units but is meant to provide an insight into the limitations and opportunities in chemical factories for jobs for women.



In one company that runs a Common Effluent Treatment Plant (CETP), it was reported that being a Multinational organization (MNC), there were quite a few women working in managerial positions in HR and in Vice President positions in their headquarters (although officials in the Naroda cluster, were not entirely aware of their exact roles and responsibilities). The remaining two units merely had two women holding directorial positions.

3.1.1 TRANSITION TO CLEAN TECHNOLOGY AND KNOWLEDGE ABOUT GREEN JOBS

Senior management interviewed included site heads and directors, who had limited understanding of clean technology and mostly understood it as the use of Piped Natural Gas (PNG) in production and use of solar panels. They couldn't entirely grasp the idea of cleantech. Respondents reported the transition from coal or wood to PNG, but it was noted that this shift was mandatory, largely driven by associations and local bodies owing to their implications on cost.

The CETP emerged as the sole entity in Naroda where clean technology adoption and use was central to their operations. A lack of planned and sustained efforts in clean tech adoption was observed in the cluster. There were individual efforts of solar panel installation, energy audits as well as coating furnaces with cerawool. However, solar panels were not utilized as an alternative source of energy for production lines or to operate office lighting owing to higher cost implications. Some units were also reluctant to use solar panels due to impacts of the high amount of dust in the area, which could hamper their ability to generate energy.

Only a single company discussed any steps they would like to take to further incorporate clean technology into the functioning of their company. Senior management in one particular company mentioned their plan to shift to manufacturing dyes instead of intermediaries due to issues of waste management and the rising cost of production.

Among the companies that reported cleantech adoption, one reported focusing on decarbonizing its supply chain. The respondent mentioned carefully sourcing its raw materials and following regular checks to meet quality standards. Moreover, the respondent added that these ideals are embedded in their factory culture and extend to operators and chemists, who are well-aware of and uphold these expectations, refusing to compromise on quality and related norms.





Thus, it was found that while specific efforts towards the adoption of cleantech were noted as being undertaken by all companies, these appeared to be ad-hoc and minimal in scale.

Discussions with the Naroda Industries Association (NIA) further revealed that larger companies and MNCs are engaged in energy efficiency and sustainability initiatives whereas SMEs lack resources to participate in sustainability initiatives and are skeptical. NIA, with support of Gujarat Energy Development Agency (GEDA) and World Resources Institute (WRI) was able to install solar panels. These companies were also noted for their active participation in tree plantation drives.

3.1.2 INTENT OF COMPANY LEADERSHIP TO EMPLOY WOMEN IN GREEN JOBS

Discussions with the company leaders further highlighted that hiring women, particularly for green jobs, was not identified as a priority. Two companies discussed investments in R&D processes pertaining to green technology for manufacturing dyes and intermediaries and in the effluent treatment plant. Among these two companies, one company had three women employees; one in R&D as a Chemist and two others were found to be engaged in the operations department of the plant.

The common perception was that the chemical industry is not meant for women workers. Respondents cited that labor laws, compliances on safeguards for women employees and workers are deterrents, given the small nature of business and the monetary burden. For instance, restrictions on employing women after 7 PM complicate the planning of worker rotations for women. Creches were also considered to be issues because of constant crying, and one such creche had to be shut down because of disturbances.

3.1.3 TRAINING, UPSKILLING AND EMPLOYMENT OF WOMEN IN GREEN JOBS

Two companies reported having conducted training for supervisory staff and selected workers on green skills. Training topics included steps in clean production, machines, blungers, ball mills, water & waste recycling & reuse. Training was accompanied by on-the-job discussion and practice. Most companies do not organize training separately but ensure that instructions and on-the-job training are provided by supervisors. None of the 15 female or 17 male workers in the focus group discussions reported receiving any training on green skills, energy efficiency, or clean technology.

3.1.4 PERSPECTIVES ABOUT WOMEN IN STEM EDUCATION AND JOBS

Respondents expressed various views on occupying STEM and green jobs. Gender stereotypes were observed among both male workers and senior leadership. Respondents highlighted women's roles as supervisors and in labs as Quality Assurance/Quality Control (QA/QC) professionals as well as supportive functions in HR, accounts and administration. However, other respondents opined that women are reluctant to work in the chemical industry or that the chemical industry is not meant for women.

Comments about participation of women reflect a perception that they are more suitable for laboratory work due to their patient nature compared to men. Factory floors and production units were mostly dominated by men. Observations were made regarding men using hydraulic presses while women were noted to use tablet press machines. Men expressed the view that women were incapable of standing for long periods.





Additionally, some reasons identified by companies for the low percentage of women in the chemical industry are as follows:

- A misunderstanding that work in factories comprises heavy labor and the use of hazardous chemicals, which are believed to negatively affect reproductive capacity and fertility.
- Younger women employees tend to prefer desk-based work.
- Employers are not sensitized to adopting women-friendly policies and workplace practices to ensure a safe and respectful working environment. For example, providing creches and ensuring women's safety through CCTV cameras. The mandate that women cannot work at night as per labor laws creates the notion that additional investment has to be made for women, whereas it is hassle-free to employ men.
- There is a notion that equal opportunities and efforts should be made to recruit both men and women; special efforts should not be made to recruit women because companies believe that performance matters more. Intentional efforts to recruit women might be perceived as hampering productivity and performance, despite several studies mentioned in this report demonstrating that women outperform men in several instances.

Given the concentration of men in skilled roles on factory floors and women in low productivity, unskilled and repetitive roles there is a higher likelihood of women workers to lose their jobs due to automation.

3.1.5 MEASURES TO ENSURE A SAFE AND SECURE WORKING ENVIRONMENT

Regarding safeguards to ensure a safe and secure workplace, some respondents mentioned adhering to existing labor laws such as equal pay for equal work and overall labor welfare. However, most of them reported that there was no formal documentation of policies on equal wages, discrimination and prevention of sexual harassment at the workplace. In the discussion on provisions for women's safety, none of the companies mentioned Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 (POSH Act) or having instituted a policy against workplace sexual harassment. Units without a sufficient number of women, believe they did not need such policies. Furthermore, companies also reported employing a mix of informal means/channels to ensure safety of women such as direct reporting to senior management or reporting any untoward incidents to the HR or their immediate supervisors. Some companies also reported having no past record of sexual harassment and another company reported that they had a zero-tolerance policy for misbehavior, which involved immediate termination of employment. One on one discussions with female HR representatives on a monthly basis to resolve concerns of female employees was reported by one of the units surveyed.

Other observations in terms of facilities to ensure a safe working environment in companies with women employees include:

- The factories lack separate facilities for women such as washrooms and changing rooms rendering a sense of discomfort and insecurity.
- There is often a shortage in the provision of safety gear like hand gloves, masks, uniforms, safety shoes and hard helmets as per need and other requirements as per government norms. Additionally, workers are informed that they can be fired in case of not adhere to safety compliances.
- Even when available, this gear does not adhere to the existing clothing preferences of women. The absence of changing rooms further compounds the problems.
- Fixed working hours for men and women (9 am- 5.30 pm) and overtime when required is only done by men.



3.2 Factory Floor Workers (Male and Female)

The lack of documented regulations as well as functional POSH committees reflect a negligent attitude towards building a safe and responsible workplace for women workers, in turn inadvertently reinforcing existing stereotypes regarding safety concerns.

3.2.1 KNOWLEDGE ABOUT AND PERCEIVED OPPORTUNITY FOR GREEN JOBS

Both male and female participants of the FGD lacked knowledge and information regarding green jobs and opportunities. Some respondents mentioned that their units were undertaking measures to reduce consumption of electricity and/or reuse water, use PNG as well as abide by the rules of the Pollution Control Board. Both groups of workers mentioned receiving on the job training to use equipment and processes. However, there was no mention of training to use clean tech except for the company using CETP for wastewater management.

A gist of common jobs and roles in a typical factory set up is presented in Table 1:

dof	Role	Skill Level					
Worker	People working on production line, responsible for smooth operation of the line	Un/Semi-skilled					
Supervisor	Oversees work done by workers and ensure smooth operations	Semi/Skilled					
Maintenance	Cleaning of the plant, maintenance of equipment	Semi/Skilled					
Plant/ operation Head	Manages all the supervisors. Ensures smooth operation of the plant	Skilled					
Lab Assistant, R&D & Quality Assurance and Quality Control (QA/QC) Professionals	QC and testing of chemicals	Skilled					
HR & Admin	Human resource function with administrative activities	Skilled					
Accounts	Responsible for accounting	Skilled					
Owner	Responsible for operation and growth	Skilled					

Table 1: Jobs and Roles in a Typical Factory Setup

3.2.2 CURRENT STATUS AND WORKING CONDITIONS OF FEMALE WORKERS.

The FGDs revealed that there is no formal contractual agreement between the workers and the management and the code of conduct pertaining to acceptable behavior was explained to women at the time of joining. Some of the notable points discussed regarding their current working conditions were reported as

- * Lack of trainings on sexual harassment
- Overtime was only done by male workers but was not common practice.
- Occupational safety needs are taken care of as participants reported being trained in fire safety and wearing protective gear.
- Women also reported that most of them live nearby and have been working in the same premises for many years, hence they do not feel unsafe while commuting.
- Women employees working in the lab were restricted from visiting the plant sites. However, notable developments such as installation of proper lighting has helped women workers feel safe in the factory premises.
- Grievance redressal committees were absent in the majority of the units barring one, which reported on a formal policy around the issue. Alternately, monthly meetings with supervisors were mentioned as other platforms to raise concerns.
- * There was a complete lack of access to workers unions to collectively raise their issues.

3.2.3 RECOMMENDATIONS BY MALE AND FEMALE WORKERS ON IMPROVING WORKING CONDITIONS AND SPECIFICALLY IN GREEN JOBS.

Workers were also asked to list their expectations and priorities to ensure a safe and comfortable work environment. Priorities mentioned by women workers include improved access to separate and safe toilets, improved lighting, respectful and cordial behavior of male colleagues and supervisors. They indicated their preference to work in units closer to home. To retain workers, upskilling and growth prospects need to be improved. Additionally, they highlighted the need for childcare facilities especially to support working women living in nuclear families.

For male workers, access to their immediate supervisors for any concerns and provision of safety gear like goggles, gloves, safety belts, masks etc. contributed to good working conditions; No other requirements were mentioned by them apart from these.

It is to be noted that even though safety gear is compulsory for all workers, this was not mentioned as a priority for women workers, and they appeared to be more concerned about their own and their children's safety and wellbeing.

3.2.4 CAREER ASPIRATIONS AND WILLINGNESS TO WORK IN THE MANUFACTURING SECTOR.

While some women in skilled work in R&D and QA/QC roles wanted to switch to sectors like pharmaceuticals, textiles etc. because of better career prospects, others wanted to continue in the chemical sector but with a prospect of working in managerial positions such as heading the laboratory or pursuing a senior role related to Environment, Health and Safety (EHS). Several participants reported finding their work monotonous and shared a desire to hone their skills (including green skills), if it also entailed better emoluments.

Women engaged as unskilled workers could not explicitly share their aspirations and expressed concern about being able to continue working post marriage. A common practice of discontinuing work due to marriage and relocation was mentioned.

3.2.5 FAMILY RESTRICTIONS PLACED ON WOMEN TO PURSUE WORK OPPORTUNITIES OUTSIDE OF THEIR HOMES.

Women, both unskilled and skilled, noted that while their families were supportive of their careers and assisted in relocating to their current sites, they faced criticism from extended families and neighbors at times. Even skilled women mentioned challenges, such as leaving their children at home under the care of others, especially if lacking a robust support system.

3.3 Community

An FGD was also conducted in the Muthiya village near Naroda to gauge community perceptions about women working in the chemical factories specifically and women working in general along with a broad understanding of green jobs and adoption of clean tech by companies.

The majority of the participants cited reservations against working in chemical factories due to associated health risks and hazards. Several respondents were engaged in work in the Naroda Gujarat Industrial Development Corporation (GIDC) but not employed in the chemical factories³⁴. Women were mostly engaged in menial tasks such as packaging, whereas men reported working with heavy machinery. Respondents were also aware of the adverse impact of chemical industries on the environment; however, they were not aware of the steps taken by the industries to cut down their emissions and impacts. The companies had also not engaged in any sustainability initiatives in the surrounding areas.

Given the association of chemical industries with adverse environmental impacts, residents of the communities are reluctant to find work in these units, compelling them to employ migrant workers. This emerges as a key entry point for green jobs to create employment for local communities.

³⁴ FGDs were not conducted in communities where the labor from the chemical factories resides given that i) There was no entry point in most communities and hence many of the persons approached in communities refused and ii) the scope for undertaking an FGD in the community was to understand general perceptions about women working and working in the chemical industry. Given that this community was located close to the factories, it fitted the criteria.

Lastly, male members were not against women working in industries as they believed this would greatly help in supplementing household incomes. They expressed concern over distance to the workplace, wages, working hours and workplace safety.

3.4 Other Stakeholders

3.4.1 STUDENTS PERSPECTIVES AND AWARENESS ABOUT GREEN JOBS AND RELATED CAREER ASPIRATIONS

Discussions were undertaken with students in polytechnic institutions in the cluster. Respondents mentioned that mostly boys opted for technical courses, whereas girls enrolled in non-technical courses such as those in beauty, wellness, sewing skills, garment finishing, etc. The majority of teachers in technical courses were male, thereby reinforcing existing gender stereotypes, while those in non-technical courses were female.

The student group consulted was aware of several elements of sustainable development, such as climate change, efforts to reduce energy consumption, installation of solar panels, use of EVs, and using LED bulbs at home. A handful of students mentioned learning about green chemistry and environmental studies as part of their curriculum. Nonetheless, only one student was aware of green jobs but did not know about it in detail. Given that the majority of girls were engaged in non-technical courses, they had little to no interest in green jobs. They also mentioned family members did not encourage them to pursue jobs in male-dominated sectors. Respondents added that, due to marriage, several female students were unable to pursue a career even after completing graduation or postgraduate education. '9-5' jobs were favorable for women as they could simultaneously manage household responsibilities along with work.

When asked about concerns regarding potential chemical industry jobs, students expressed a preference for a secure and supportive environment. They emphasized the importance of company support and increased female representation to avoid unwarranted challenges. Limited exposure to factories, often shaped by familial





associations, influenced their perceptions. However, a major challenge anticipated was lack of family support to work in remote factory sites.

Stereotypes associating chemical companies with a predominantly male workforce, despite recognizing women's roles in traditional sectors, were noted. Respondents mentioned that women typically tend to work as vegetable workers, construction workers, in parlors, stitching and tailoring roles, snack making units, teachers and nurses. Of late women were venturing into newer areas of work such as computers, garment making and packaging.

3.4.2 CLUSTER ASSOCIATION - NARODA INDUSTRIES ASSOCIATION (NIA)

Discussions with the NIA reaffirmed the discussion with companies regarding the low proportion of women employees, especially in chemical industries. The industries too preferred employing men over women laborers, while in rare occasions, women are employed in the laboratories or in administrative roles. Women are mostly employed by the garment manufacturers or in packaging roles. Packaging jobs offer very low wages and are opted for by individuals from very poor backgrounds.

The outlook among industries and SMEs is that employing women poses an additional burden, since it includes provision of separate amenities for which resources are limited.

Lastly, most SMEs had a higher likelihood of hiring men over women, even when they were migrants or had no educational qualifications. They were willing to provide on the job training to the migrant workers rather than employ women. This seemed to stem from gender stereotypes, non-availability of resources as well as monetary reasons.



STAKEHOLDER INSIGHTS: KEY INFORMATION AND PERSPECTIVES

This section summarizes the findings from Section 3 to highlight key emerging gaps in the chemical cluster in Naroda. The assessment then delves into an analysis of training needs of the key stakeholders of the program i.e. Owners and Senior Management of SMEs, Factory Workers (Male and Female) as well as local communities.

Further, the gap assessment has been used as a basis to propose certain job role recommendations for women in this cluster. The recommendations rely on global and national evidence in terms of job roles that may open up due to transition to clean technology.

4.1 Key Gender Gap Findings in SMEs

A common set of themes across stakeholders emerge as gaps from interactions with stakeholders. These are highlighted below and also constitute the basis for the recommendations in subsequent sections:

1. Slow progress towards clean tech adoption by companies in the chemical cluster:

The initial assessment explored the degree of acceptability of clean tech in the SME clusters in Naroda. Findings suggested that the SME units are not proactively undertaking planned and sustained efforts towards decarbonization. None of the units covered as part of the study had clearly documented their decarbonization strategy. Additionally, in-depth knowledge of the clean energy transitions was also lacking among senior management.

2. Gender Bias in Hiring Practices:

Senior leadership roles in the SMEs were predominantly occupied by men who held strong misconceptions and gender bias regarding the engagement of women in chemical factories. These ranged from beliefs that perpetuate the notion that women have lower energy levels than men, cannot stand for long durations and are unable to handle heavy machinery, thereby making them suitable for low paying jobs like packaging in the garment industry. Misconceptions also include adverse impacts of working in chemical factories on reproductive health.

3. Low workforce participation of women

A supply side perspective of the chemical industry revealed that women who were already working in these units, mentioned the monotonous nature of work with little to no opportunity for upskilling and in many cases struggled having to balance providing for their families with low educational qualifications and inadequate support of family members. The lack of upskilling opportunities, coupled with their low bargaining power, awareness of safeguards

and lack of access to unions and collectives can emerge as a key factor in their stagnant roles at their current jobs or leaving them behind for a slightly better pay elsewhere. Respondents mentioned the pharmaceutical and textile industries where they believed better jobs for women existed.

Interactions with male and female students at Industrial Training Institutes (ITIs) as well as members of a nearby community, revealed a general reluctance for women to work in the chemical sector. These notions were also founded on preconceived notions regarding the hazardous and labor-intensive nature of work. Additionally, since the sector predominantly employed men, some families had reservations regarding female members of their family to work in these units.

4. Lack of basic amenities, poor safeguards and mechanisms:

While SMEs reported having informal systems for addressing grievances, there was a lack of formal mechanisms for reporting of sexual harassment. There was also evidently a lack of safe spaces including separate toilets. In terms of safety mechanisms, senior leaders and managers, when consulted, did not mention the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 (POSH Act).

Interestingly, companies with few women employees were of the opinion that owing to a small female employee base, they did not need to have these amenities and safeguards in place. Additionally, it was observed that recruitment of more women employees could potentially be viewed as time and resource intensive, which they were reluctant to invest in.

Observations and findings from the site visits and surveys clearly underscore the need for training on decarbonization and gender equity to focus on building knowledge, aspirations and skills for green jobs along with awareness of laws and safeguards. However, if these trainings are not clubbed with enhancing life skills as well as a platform for women for peer learning, and building access to existing support structures, collectives, unions etc., the sustainability component of efforts targeting women's workforce participation will be weak.

4.2 Recommendations for Training Needs of Key Stakeholders

Based on the findings and assessment of gaps above, a comprehensive framework for training needs of the key stakeholders is provided below. The framework includes required behavioral changes of company leadership and management towards gender equity and cleantech adoption. However, it is to be noted that while a comprehensive framework has been provided below, efforts will be required for:

- * Ensuring buy-in and increased willingness of companies to bring about this change.
- Planning changes at company level at an appropriate pace that companies will be able to create lasting changes.
- Supporting companies with resources, especially technical resources to be able to incorporate certain policy and strategy level change.

Based on the key gaps and training needs identified, a set of indicators to measure the outcomes have been defined and enlisted in Annexure 4.

Table 2: Recommendations for Training Needs of Key Stakeholders								
Stakeholder	Key Gaps		is					
		Knowledge	Skills	Behavior				
Owners/ Senior Management of SMEs	 Lack of understanding and awareness about green jobs Absence of planned and documented strategy for cleantech adoption Dearth of business cases for cleantech adoption and benefits of having women employees Unwillingness to invest resources to ensure a safe working environment for women employees No/inadequate formal mechanisms to prevent or report sexual harassment at workplace Poor engagement with local communities 	 Support companies to develop the following knowledge areas: Understanding of green jobs, just transition³⁵ and equitable aspects pertaining to cleantech adoption Understanding the business case for integrating gender and increasing women's employment in green jobs and in general within the factory workforce at all levels Exploring ways for community engagement which can lead to improved environmental, sustainability, positive environment, social and business outcomes Increased sensitization regarding gender and stereotypes that are being perpetuated at the workplace Understanding ways for community engagement which can lead to improve environmental, sustainability, positive environment, social and business outcomes 	Support companies to develop the following skills: Recruitment and retention of women employees at all levels (skilled, semi-skilled and unskilled) Design and implement upskilling programmes based on necessary green skills for women to enter green jobs	 Support companies to develop the following: A formal strategy on clean tech adoption and energy efficiency for the company for the next 5-10 years Identify required competencies and green skills for prospective green jobs A robust grievance mechanism as well as POSH policy A stakeholder engagement plan for stakeholders outside the factory unit (e.g. communities) Upskilling and on-the-job training programmes with a special focus on female employees along with career progression plans On-the-job training programmes for green jobs linked to semi and unskilled work for female employees (for e.g. solar panel repair and maintenance, waste segregation for waste collectors, operators/ technicians etc.) Organize awareness sessions and bystander response trainings on sexual harassment at the workplace Gender responsive policies at the workplace, taking into account legal requirements as well as needs of female contractual workers and employees, such as safety gear, childcare facilities, clean toilets, and breaks, 				

35 A Just Transition means greening the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind (Source: International Labor Organization, ILO)

Stakeholder	Key Gaps	Training Needs			
		Knowledge	Skills	Behavior	
Factory Workers- Female	 Understanding of green jobs Poor perceptions regarding scope of growth within the manufacturing sector in the chemical industry Low aspirations owing to family pressures, pressure to marry early/ discontinue work after marriage, childcare responsibilities, lack of support system, mobility restrictions, need to provide for family and inadequate education Lack of leadership skills, decision making and negotiation ability to negotiate with employers, supervisors, family members etc./ lack of important life skills Insufficient knowledge of rights and safeguards of workers especially women in workplaces as well as mechanisms to address gender-based violence Lack of associations with unions or collectives 	 Understanding of what green jobs entail, and what is meant by just transition and equitable aspects pertaining to cleantech adoption Understanding of career prospects in green jobs in the industry (chemical and also otherwise) Increased knowledge and awareness of rights and safeguards of women in workplaces and legal provisions for the same. 	 Technical and life skills Leadership skills Ability to identify and express one's aspirations especially in relation to green jobs Life skills training to be able to negotiate with employers, supervisors and family members 	 Women workers are able to access peer support networks at the workplace as well as garner support from employers to be a member of unions/ collectives Participation in upskilling and on-the-job training programmes for green jobs organized by employers Participation in trainings on gender norms and stereotypes, life skills and leadership building, prevention of sexual harassment at the workplace and safeguards for women workers as well as bystander response trainings. 	

Stakeholder		Key Gaps	Training Needs					
				Knowledge		Skills		Behavior
Factory Workers- Male	1. 2. 3. 4. 5.	Lack of understanding of green jobs Perceptions w.r.t scope of growth within the manufacturing sector in the chemical industry Low aspirations owing to the need to provide for family and inadequate education Poor knowledge of labor rights and safeguards of women in workplaces as well as redressal mechanisms to address gender-based violence Lack of association with unions or collectives 1.Understanding of green jobs, just transition and equitable aspects pertaining to cleantech	1. 2. 3.	Understanding of green jobs, just transition ³⁶ and equitable aspects pertaining to cleantech adoption Understanding of career prospects in green jobs in the industry (chemical and also otherwise) Increased knowledge and awareness on gender norms and stereotypes, rights and safeguards for women in workplaces and legal provisions for the same	1. 2. 3.	Sensitization towards prevalent Gender biases at the workplace and in their homes Ability to identify and express one's aspirations especially in relation to green jobs Ability to identify sexual harassment at the workplace and take corrective action in instances of Sexual	1. 2. 3.	Participation in upskilling and on-the-job training programmes for green jobs organized by employers Support women colleagues at the workplace and make space for them to pursue green job-related aspirations Participation in Sexual Harassment and Bystander Response Trainings
Community	1.	adoption Negative perceptions related to chemical factories Poor support system to support women and girls' aspirations and ability to make life decisions about education, skills training, employment, marriage, children etc.	1. 2. 3. 4. 5.	Understanding of green jobs and how these can help benefit professional growth and the environment Awareness of jobs that do not require handling hazardous chemicals Awareness of gender norms and stereotypes that hinder women's employment Knowledge about potential job roles that can open up for women in the chemical manufacturing sector Knowledge about prospects in the environment and sustainability field as well as education courses linked to environment sciences, energy management etc.		Harassment	2.	Supportive community network for women taking up green jobs or other employment opportunities in the chemical industry as well as girls aspiring to study chemistry, environment engineering, environment sciences and other relevant subjects. The network can also foster a culture where women members continue to work post marriage and childbirth. This could be ensured by raising awareness as well as setting up community based childcare facilities for working mothers.

36 A Just Transition means greening the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind (Source: International Labor Organization, ILO)

Data showed that in several instances women spoke about pressures to marry early and having to leave their jobs, having to face negative comments from relatives about leaving their children and working in remote places, and in community discussions, how women are 'allowed' to work but the decision-making lies with the men. Hence, negotiations have been put under life skills training.
4.3 Recommendations for Job Roles for Women in the Chemical Manufacturing Sector

Apart from an assessment of gaps that impede women's employment in green jobs in the chemical manufacturing sector and subsequent training needs for key stakeholders, this study also revealed existing potential and capacity for green jobs and opportunities for women in the Naroda cluster.

- 1. Some women are working in research and development labs, including quality control to enhance product and process efficiency. This can be a potential area to train existing women and employ more women as lab technicians, GHG/ ESG analysts, and energy managers for clean energy transitions. Women who have good factory experience, show leadership qualities and good technical skills can be trained to become supervisors in the plant. Women can also be trained to undertake maintenance of plant equipment and clean technologies. In contrast, for unskilled and semi-skilled positions, existing women can be trained to undertake work otherwise done by men (such as hydraulic press operators) that is compliant with state labor laws.
- Several companies reported having undertaken initiatives on water re-use, waste recycling, as well as installation of solar panels (although the installation of solar panels was a challenge for some companies owing to space issues, corrosion of the panels etc.). These are again opportunities to contribute towards increased employment for women in reuse, recycling and remanufacturing systems of these products.
- Some other potential areas for women include specialization in energy efficiency, green procurement, etc. Offering a skill development program in these areas would create a set of specialists in the cluster and initiate a career progression channel for women already employed and from the community in new green services.
- 4. The units studied in the chemical cluster were not energy intensive due to the nature of processes involved in the manufacture of dyes and intermediates. However, in the effluent treatment plan, the operations are energy intensive; of the total cost of operations of the ETP, about 50 percent is energy.

An additional potential opportunity for training women is on energy audits of ETPs and units which are energy intensive in Naroda, as well as, in neighboring clusters.

5. Yet another area which has potential for women in the cluster and also applicable to other SME clusters covering various sectors, is developing a micro entrepreneurship development program with a clear strategy for incubating startups and micro enterprises led by women addressing the emerging needs from the green transition. Promoting entrepreneurship among women through structured programs will help in creating a cadre of micro entrepreneurs along the value chain of green jobs like technicians for solar panels, storage batteries, quality control, energy audits, maintenance services, spare parts etc.

4.4 The Way Forward

While it is widely established that the transition towards a green economy is resulting in new career paths across almost all sectors, there is a need for a deliberate and targeted focus on a gender-centric approach so that women are not left behind in the clean energy transitions and the emerging opportunities. To promote the transition to green technology, a systematic promotion program is needed. As green tech adoption is in its early stages, particularly in SMEs, promotional efforts for clean tech adoption, addressing gender issues as an integral part of the strategies would help achieve the twin objectives faster.

In our quest of decarbonization and just transitions in the Indian SME sector, it is important to go beyond the traditional focus on inclusivity and account for gender equitable outcomes.

Gender equity goes beyond 'equal opportunity' and strives for fairness at all levels. Women encounter several challenges in attaining gainful employment owing to their poor educational background, lack of agency, opportunity and power imbalances. There are several barriers that restrict women's career growth and hinder their progress to leadership positions within organizations. Around 75 percent of businesses worldwide have equal opportunity and gender-inclusive policies however women workforce participation in managerial, and leadership position still remain low³⁷. For example, according to the World Bank enterprise surveys, despite several companies having gender policies in place, in India, the share of women CEOs remains as low as 6.9 percent in small companies, 7.7 percent in medium companies and 19.1 percent in large companies^{38, 39}. Thus, equal opportunity, diversity and inclusion policies are not enough to fix gender imbalances, because the conditions and requirements of women are different to men and an equitable approach becomes more essential. With this background, we propose the concept of gender-equitable decarbonization for the SME sector. This focus on equity will go beyond the usual policies and practices, thereby ensuring that individuals, irrespective of gender, have a fair chance to succeed through recognition, redistribution and representation.

We provide the following recommendations to establish an enabling environment for achieving gender equity in SME manufacturing sector in the process of clean tech adoption:

Policy level recommendations include introducing a conducive national and sub-national policy framework that incentivizes gender equitable outcomes in labor force participation in the context of a green economy. This involves evaluating existing policies for gender equality and recommending modifications to include

- 37 https://www.ilo.org/infostories/en-GB/Stories/Employment/beyond-the-glass-ceiling#beyond
- 38 Enterprise Surveys www.enterprisesurveys.org, The World Bank
- 39 https://www.ilo.org/infostories/en-GB/Stories/Employment/beyond-the-glass-ceiling#beyond



measures to address gender equity in the adoption of cleantech. Policy makers could also encourage as well as create a gender-inclusive green jobs ecosystem with safe workplaces, equal wages, and career progression opportunities. For instance, they can advocate for budget allocations for investment in separate facilities like washrooms, changing rooms, and childcare centers.

From a training perspective, ITIs and vocational training institutes must design a comprehensive skill training program tailored to suit women as well as be at par with industry standards and requirements in emerging areas. The program must incorporate elements of practical training through apprenticeships, internships, projects on the job as well as offer mentorship programs to encourage participation through women change makers. These institutions may also encourage female students to enroll in courses that are traditionally considered suitable for men.

Furthermore, a multi-stakeholder initiative for incubation and acceleration of women led and inclusive enterprises in cleantech can be launched which creates a favorable environment for the promotion of women entrepreneurs and ensures appropriate institutional, capacity building and mentorship support.

There should be continuous gender sensitization by local NGOs to address cultural and social biases that women face in accessing green jobs, ensuring removal of entry level barriers faced by women, especially in traditionally male dominated sectors and roles. Actors such as industrial associations, think tanks and NGOs can promote the creation of a gender inclusive, conducive and favorable green jobs ecosystem. This ecosystem must have adequate infrastructure to support women workers, improve access to skilling and opportunities, and provide the necessary technology and resources. Workplaces must put into practice policies and processes that prioritize workplace safety, equitable wages and opportunities for career progression.



ANNEXURES

Annexure 1: Detailed Approach and Methodology Annexure 2: Tools/ Questionnaire Used for Primary Data Collection Annexure 3: Sample Size covered for the Primary Study Annexure 4: Proposed Key Training Outcome Indicators

ANNEXURE 1

DETAILED APPROACH AND METHODOLOGY

The study is primarily qualitative in nature and undertakes a situational assessment of gender gaps in the SMEs in the chemical manufacturing sector that is heading towards decarbonization through adopting cleantech solutions.

Qualitative data was collected to undertake a perception analysis of a broad range of stakeholders. Data collection focused on the Naroda Chemical Cluster in Ahmedabad, Gujarat, involving various stakeholders including semistructured interviews with company management, plant site heads, and senior leadership, along with Focus Group Discussions (FGDs) with male and female factory workers, local community members, and female students at a training institute. Key informant interviews were also conducted with representatives from the Naroda Industries Association (NIA) in Ahmedabad, Gujarat.

The information collected from the sample has been corroborated with FGDs, direct engagement with key people within the cluster, inputs, and insights from domain experts, along with an extensive review of secondary literature available in the public domain for global and Indian context in SMEs, gender, and clean tech from reputed agencies like the ILO, UN etc.

The methodology has been detailed out in subsections below:

1. Kick-off and Planning Meetings

ISC organized a kickoff meeting was organized with the team at SEED Impact who were the on-ground partners

for data collection of the study. Priorities and expectations from the primary data collection and its assessment were defined and the thematic focus to be incorporated was clarified. Analysis of both the primary data collected and the secondary data that would be reviewed was used to assess the gender gap in the manufacturing sector, and at the individual level of the selected chemical cluster at Naroda in Ahmedabad using a suitable sample size.

2. Collection and Review of Secondary Data

Existing reports were reviewed on themes of adoption of clean technology (in MSMEs): the current potential for adoption, job opportunities, women participation and gender parity⁴⁰ In cleantech, an assessment of equitable green jobs was undertaken. Further, this review included an assessment of existing best practices nationally as well as globally to understand gender gaps in the transition to clean technology, specifically focusing on the chemical industry. A review of existing policies for the MSME sector for facilitating the adoption of green technology and ensuring gender equity was also conducted.

3. Development of Assessment Tools

Based on secondary research, a list of themes was developed that would help attain the objectives of this study. With the basis of the thematic areas identified; stakeholder mapping was conducted to identify suitable stakeholders for the survey.

⁴⁰ Term for equal representation of women and men in a given area, for example, gender parity in organizational leadership or higher education. Working toward gender parity (equal representation) is a key part of achieving gender equality, and one of the twin strategies, alongside gender mainstreaming. (Source: UN Women Training Centre, Gender Equality Glossary)

The following table highlights the key thematic areas and the relevant stakeholders identified for this study:

Table A: Key Thematic Areas studied and Key Stakeholders Mapped				
S No	Category	Objective		
Α	Category A: Owners/ Ma	anagers of SMEs		
1	Owners of SMEs	To understand:		
		 Intent of company leadership to employ, ensure easy entry/hiring of women and retain more women in green jobs. 		
		 Reason for current lack of women engagement 		
		 Awareness about green jobs that will be generated as they transition to energy efficiency and renewable energy deployment. 		
		 Training and growth opportunities for women workers w.r.t green jobs in manufacturing, specifically, as well as in Science, Technology, Engineering, and Mathematics (STEM) positions, in general 		
		 Perspectives about women in STEM education and jobs 		
		 Intent of company leadership and measures taken to provide a safe 		
		and secure working environment including addressing Gender-Based Violence. and Harassment (GBVH) risks at factory units		
2	Plant/ Site Managers in	To understand:		
charge	charge at units	 Assessing awareness levels of green technology and gender equity 		
		 Emerging green job positions in factories and how the transition to clean tech is being implemented in factories. 		
		 Challenges of hiring women, and reason for lack of women engagement 		
		 Worker management, training, working conditions, 		
		 Safeguards for women workers and grievance mechanisms 		
		 Perspectives on women in the industry and green jobs 		

В	Category B: Factory workers: Male and Female		
3	FGDs with male workers	To understand:	
	in units (contract as well	 Current status and working conditions of male and female workers. 	
as permanent workers;	 Knowledge about and perceived opportunity for green jobs 		
		 Perceptions about women workers in STEM and green jobs, including in 	
		senior leadership positions	
		\star Recommendations by male workers on improving working conditions and	
		specifically in green jobs	
		\star Career aspirations and willingness to work in the manufacturing sector	
		\star Enablers which they consider as critical to enhancing their participation	
		 Family restrictions placed on women and men to pursue work opportunities outside of their homes 	
		 Gender based discrimination at the workplace 	
4	FGDs with female	To understand:	
	workers in units	 Knowledge about and perceived opportunity for green jobs 	
	(contract as well as	 Current status and working conditions of female workers 	
	skilled and semi-skilled)	 Recommendations by female workers on improving working conditions, specifically in green jobs 	
		 Career aspirations and willingness to work in the manufacturing sector 	
		 Family restrictions placed on women and men to pursue work opportunities outside of their homes 	
		 Gender based discrimination at the workplace 	
	*	 Understand the perception towards clean technology and providing opportunities for women participation 	
		 Any other restrictions 	
С	Category C: Community		
5	Community-level	To get a broad level understanding of:	
	consultations in any one or two local villages/ slums near any of the units.	 Gender norms and stereotypes 	
		 Concerns about women's safety 	
		 Perceptions of women in non-traditional jobs/ STEM fields/ green jobs 	
		 Support received from family members/ backlash/resistance faced 	
		 Knowledge and Awareness about Energy Efficiency Initiatives and Green Jobs 	

D	Category D: Others		
6	Potential employees – Women undergoing training in ITI/ polytechnic/ training Institute	With the assumption that students would be potential employees or aspirants in STEM fields and green jobs, this group was included in the study to be able to understand STEM field related aspirations, knowledge about green jobs, etc. The key thematic areas for this stakeholder group were as follows:	
		 STEM education related aspirations Perceptions about girls and boys pursuing STEM education and jobs and perceived gender differences as well as discrimination 	
		 Knowledge about green jobs and green jobs related aspirations 	
		 Perceived challenges faced by women in the sector 	
		 Recommendations by students on how workplaces like factories can be made safer and how more women can be employed in green as well as STEM jobs 	
7	Cluster Associations-	To understand perspectives and knowledge of cluster associations:	
	Naroda Industries Association	 Knowledge about companies transitioning to energy efficiency models and opening of green job positions as a result 	
		\star Scope and opportunities for women to pursue opportunities in green jobs	
		 Working environment and safety concerns for women in these factories 	
		 Level of awareness of members about the economic benefit transition to clean tech and increasing women participation can bring the Cluster specifically and to the SME sector in general 	
		 Perspective on professional development for women employees in units 	
		 Recommendations about what can be done to employ more women in the chemical industry in both senior management and technical/ engineering/ sustainability-specific positions 	

4. Determination of Study Area and Sample Size

Naroda Industrial Cluster was selected because the chemical sector in Naroda offers huge opportunities for decarbonization, and the intent exhibited by the owners of SME units also justified its selection.

About Naroda Industrial Cluster:

44

Naroda Industrial Estate, located in Ahmedabad, Gujarat, is a mixed cluster with about 900 industrial units ranging

from pharmaceutical, food processing, heavy engineering, chemical dye, ceramic, ice making, to textiles. The unit size varies from micro, small, medium, and large. The Chemical Cluster, with an aggregate turnover of Rs 1854 crore and over 154 units, is one of the largest clusters⁴¹. The principal products manufactured in the Cluster are dyes, intermediates, and chemicals. The average investment in plant and machinery is approximately Rs 35 lakhs⁴².

41 Brief Industrial Profile of Ahmedabad District, MSME-DI, MoMSME, Gol

42 Brief Industrial Profile of Ahmedabad District, MSME-DI, MoMSME, Gol

Some of the major issues faced by the cluster are in the area of raw materials, finance, infrastructure, and pollution control. The cluster has linkages with a variety of sectors like textiles, leather, paper, plastics, printing inks, etc., and access to export markets in EU, Indonesia, Malaysia, Hong Kong, South Korea etc.

The sample size covered for the primary study is provided as Annexure 3.

5. Primary Data Collection

Primary data collection was undertaken by field investigators who were given orientation of the toolkit, under guidance of gender experts and local partners.

The primary data was then collated and analyzed in relation to the key thematic areas listed above in Table A. The themes identified helped build the framework for this

study and the data collected was interpreted and analyzed to identify sub-themes, patterns and dissimilarities of responses between and across stakeholders. While analysis is presented by stakeholders, recommendations assimilate the analyzed data across common themes that emerged across all stakeholders.

6. Limitations of the Methodology

Limitation in data collection: Given that there was no mandate for companies to participate in the study (e.g. from a lender or investor), it was anticipated that the process of finding the right set of companies that fit the criteria and their availability to make time for interviews as well as let their factory workers participate in the study was expected to be a challenge and not entirely within the control of the

Figure 1: Stakeholders Covered



Owners and Senior Managers of factories

- Owners of factories
- Plant/Site Incharges
- Interviewes with women in Senior Management



Factory workers (male and female)

- FGDs with male workers (both conracted and permanent, skilled and semi-skilled)
- FGDs with female workers (both conracted and permanent, skilled and semi-skilled)



Local Communities

Community levels consultations in the local villages/slums within the vicinity of the factories



Students from Polytechnic Institutes and Cluster Associates

- Potential employees (womrn undergoing training in ITI's Polytechnic Institutes
- Cluster Associations

team implementing the study on-ground. Further, even when attempts were made to access company employee records and policy documents, these were not shared by companies as there was no pressure for them to do so. Companies did not provide data and records for verification and for absolute numbers in terms of employment.

The study was intended to focus on gender disparity and exploration of the opportunities for green jobs in the chemical manufacturing sector specifically for women, and hence, the analysis was not intended to explore future opportunities for chemical companies in cleantech adoption and environment sustainability in general, but rather was limited to explore the understanding of green jobs in companies and the level of clean tech adoption by them in the context of gender equity and employment opportunities and challenges for women.

The study was primarily intended to be qualitative in nature with limited qualitative information to be collected. Hence, the quantitative information presented in this report may not be representative of the entire universe of SMEs that are in the chemical manufacturing sector in the Naroda cluster in Gujarat, but rather is intended to be a situational assessment that provides an understanding of the interventions that need to be planned with relevant stakeholders to work towards increasing women's workforce participation in various levels in green jobs and a green economy.

ANNEXURE 2

TOOLS/ QUESTIONNAIRE USED FOR PRIMARY DATA COLLECTION

Tool 1: Interviews with Owners/ Senior Leadership of SMEs

Overview for Interviewer:

The aim of this interview with owners/ leadership personnel of SMEs is to delve deeper into company intent and culture to provide a safe and enabling working environment for women and to understand the intent and existing efforts made towards recruitment of women specifically in green jobs and STEM positions in the company.

Introduction by the interviewer:

Hello, my name is XYZ, and I have part of the ISC supported assessment on gender issues in the industry in general and in your company in particular. We are planning to conduct gender sensitivity and mainstreaming training for various personnel in the company that include owners/senior management leaders like you as well as factory floor workers that include male and female workers as well as nearby communities around the factory/ plant sites.

Confidentiality and disclosure of information:

With your consent, the discussions will be audio-recorded and later transcribed removing any identifying personal information about you. You can choose to stop the recording at any time. Documentation will only be accessed by us and will not be made available to any other person. Any information such as your name and feedback on the program that is obtained in connection with this study and that can be identified with you will remain confidential. If you so wish, you have the right to refuse to answer any question that may be put up to you during the discussion.

Part A: Company Profile and Transition to Clean Technology and Green Jobs			
A1.	Can you tell us about your company profile? What is the nature of the work undertaken?		
A2.	What is your understanding of green jobs, clean technology, renewable energy, energy efficiency etc. and related measures being taken up by companies to work towards these issues? Currently, what kind of efforts are being undertaken by companies in this regard in your knowledge?		

АЗ.	Is your company taking any steps towards cutting down on its energy consumption, reducing carbon dioxide emissions and/or focusing more on renewable energy and saving energy to save costs as well as reduce GHG emissions? If yes, can you tell us what measures have been undertaken? (Probes and specific examples to be used: do you have technicians who do audits for energy consumption/ measurements? With renewables particularly, has this factory installed solar PV- can you show me where? Have you also seen less use of coal- can you explain more about this- in what aspects and what kind of reduction have you observed as compared to before?
A4.	How and when was this transition initiated? Currently what is the status of this transition? (What has been planned, what has been done and what is planned to be done + timeline). In your opinion, how are/ can your employees benefit from this transition (w.r.t upskilling, better jobs and pay). Do you have any strategy document/ SOP for this transition that you can share with us?
A5.	What are the legal obligations and mandates that you have to keep in mind while undertaking this transition to clean technology? What are the legal obligations and mandates that you follow for employment of female workers in factories?
A6.	Are any community initiatives being undertaken to reduce toxic emissions in the local communities around your factories, either through your corporate social responsibility or business activities? Is any employment for local community members being generated through any of these activities? Can you provide details into these communities and interventions as well as learning and challenges?
Α7.	 Who are the various kinds of suppliers and contractors that you engage with for your factory operations? Are any efforts being undertaken to: Ensure usage of clean technology/energy efficiency measures by your suppliers and contractors? What kind of efforts are these? Supporting women employment through your suppliers and contractors and/or engaging with women run/led businesses? Please share a profile of these contractors and suppliers and also what measures are taken with contractors to push for women's employment (e.g., any clauses/ mandates in bidding and contract documents, policy documents, training to be conducted etc.)
A8.	Have you undertaken any training in clean technology, energy efficiency etc. for your contractors and/or suppliers? Please provide details of the same.

Part B:	Training and Employment of Women in Green Jobs
B9.	Are there women employed by your company? Can you describe the various positions where women are employed, including permanent and contractual staff, within the corporate office(s), factory floors and other locations? What is the nature of work/ positions for which women are hired here? How many women are in senior management/leadership positions? Among the employees who got promoted in the last three years, how many have been women? (Ask for records of women workers in factory sites with info on work position, experience etc. along with socio-economic (caste, religion) profile, if available. Next, ask for a list of women in senior leadership and management positions as well as any female board members in the company).
B10.	What are the various issues faced in terms of recruiting and retaining women in the company? What are the issues faced in recruiting and retaining women in the manufacturing units/ factories? Are there any strategies in place to deal with/ address these challenges?
B11.	 (If the company is transitioning to clean technology), do you conduct any trainings for your employees on: i. Clean technology ii. Energy efficiency and energy consumption systems iii. Waste management and toxic emissions
B12.	How do you select which employees should participate in these training sessions? Do you conduct these training courses for your factory workers as well? Are there more men than women who participate? If yes, why so? In your opinion, what is the inclination and willingness of employees to participate in these training sessions?
B13.	Is there any difference between the inclination of men and women? Have any efforts been made by your company to include more women in these training sessions? Can you describe what efforts have been made and how effective these have been?
B14.	What are the STEM positions/job roles in the company and in your factory units? Which of these job roles are generally performed by women? Is there a difference between the positions, in general and particularly STEM roles that are held by men and women? Can you explain the difference? Do you think women are capable of working with manual, automated, computerized machinery? Clean technology? According to you, what kind of machinery and job roles can women handle?
B15.	With the energy transition phase in your company, what new job roles do you anticipate for your employees focusing on clean technology, waste management etc.? Will there be specific new job roles for men and for women? What according to you are the criteria (required skills) of selection for the engagement of women working with clean tech machines?
B16.	How do you currently/ plan to measure internally the efforts made towards ensuring clean technology and energy efficiency by your company? What kind of job roles do you anticipate w.r.t this kind of monitoring?

Part C	: Building a Safe Working Environment		
C17.	In your opinion, what kind of training do senior managers/ owners of SMEs need w.r.t increasing women's workforce participation as well as providing a safe working environment for them? Please keep in mind challenges faced by the company in this regard.		
C18.	In your opinion, how important is it to address gender-based violence (GBV) and sexual harassment (SH) in the chemical industry? Can you give some examples of where in your company's functioning this need is felt the most?		
C19.	What are the safeguards in place for protecting the rights of your factory floor workers? Who are the relevant personnel who oversee the implementation of these safeguards? (Probe about: equal wages for equal work; non-discrimination policy; which labor welfare laws are they implementing; grievance redressal mechanisms.		
C20.	What are the various systems in place in your company to address gender-based violence (GBV) and sexual harassment (SH)? (Probe for corporate office level, contractor management systems as well as factory floor level). What challenges do you face in addressing gender-based violence (GBV) and sexual harassment (SH) in the company? (Probe for corporate office level, contractor management systems as well as factory floor level)		
Part D: Perspectives about women in STEM education and jobs			
D21.	What is your view about the performance of women in STEM positions and green jobs that focus on energy efficiency? Do you think companies such as yours can benefit from having more women in their workforce? If yes, how? Can you explain with examples?		
D22.	In your opinion, why are there fewer women in STEM jobs/green jobs? Do you know of companies in the chemical industry where women are actively hired for these positions (i.e., STEM jobs/green jobs)?		
D23.	Do you have any suggestions on how women's workforce participation esp. in green jobs positions can be increased?		

Tool 2: Interviews with Plant/ Site Heads

Overview for Interviewer:

The aim of this interview with Plant/ Site Heads/ Supervisors of Factory floor units in SMEs is to understand green job positions and how the transition to clean tech is being implemented in factories, related job roles, worker management, training, working conditions, key concerns around Health and Safety, GBV and SH within factory units. The interview should take an hour to complete all questions well; so, you need to seek time from the respondents for the same.

Introduction by the interviewer:

Hello, my name is XYZ, and I have part of the ISC supported assessment on gender issues in the industry in general and in your company in particular. We are planning to conduct gender sensitivity and mainstreaming training for various personnel in the company that include company leadership and senior management as well as factory floor workers that include male and female workers as well as nearby communities around the factory/ plant sites.

Confidentiality and disclosure of information:

With your consent, the discussions will be audio-recorded and later transcribed removing any identifying personal information about you. You can choose to stop the recording at any time. Documentation will only be accessed by us and will not be made available to any other person. Any information such as your name and feedback on the program that is obtained in connection with this study and that can be identified with you will remain confidential. If you so wish, you have the right to refuse to answer any question that may be put up to you during the discussion.

Part A: Women in the Workforce and Working Conditions			
A1.	What is your role as the Plant/ Site head/ Supervisor in this factory?		
A2.	Are there women employed in this factory unit? Can you describe the various positions where women are employed, including permanent and contractual staff, within the corporate office(s), factory floors and other locations/ What is the nature of work/ positions for which women are hired here?		
АЗ.	Among the factory workers, are they all local workers or migrants as well? Do you have female migrant workers as well in the factory units? What are the applicable laws/ licenses required for migrant workers in this state- what are these and have you been able to arrange for all of them?		
A4.	Are there any women in your management/supervisory staff? Who are the personnel who manage women workers here? (If it is a different person who oversees women workers, ask them to join the meeting as well)		
A5.	 What is the total number of women employed in this unit? At this site, how many women are part of your: i. Skilled workforce: ii. Semi-skilled workforce: iii. Unskilled workforce: 		
	(Facilitator to ask for records of all men and women workers in the site- job role, experience, pay, migrant or local workers, socio-economic profile including caste and religion if available)		

A6.	Do women have the same working conditions as the men? Please describe (for men and women)-		
	i. Working hours:	M-	F-
	ii. Overtime (hours as well as inclusion of overtime pay):	M-	F-
	iii. Whether any leave is given to workers and what is the system:	M-	F-
	iv. Rest Breaks:	M-	F-
	v. Housing and accommodation provisions (if any):	M-	F-
	(Facilitator can randomly check records of working hours, overtin	ne etc.	if this is possible)
Part B:	Transition to Clean Technology and Green Jobs		
В7.	What is your understanding of green jobs, clean technology, renew related measures being taken up by companies to work towards factory currently taking any measures or planning to take any me its energy consumption, reducing carbon dioxide emissions and/ and saving energy? If yes, can you explain what measures have undertaken?	wable these asures or focu been u	energy, energy efficiency etc and issues? Is the company and this s to transition to cutting down on using more on renewable energy undertaken or are planned to be
	(Probes and specific examples to be used: do you have technicians measurements? With renewables particularly, has this factory where? Have you also seen less use of coal- can you explain more kind of reduction have you observed as compared to before?	who d installe e abou	o audits for energy consumption/ ed solar PV- can you show me It this- in what aspects and what
B8.	How and when was this transition initiated? Currently what is the been planned, what has been done and what is planned to be don can your employees benefit from this transition (w.r.t upskilling, be	ne stat e + tir etter jo	tus of this transition? (What has neline). In your opinion, how are/ obs and pay).
B9.	Has any training been conducted for employees and workers on frequently were these conducted and what was the content cover useful to the employees- if yes, how?	the sa ed in t	ame? What kind of training, how these trainings? Was the training
B10.	Is there any difference between the inclination of men and wome efforts been made by your company to include more women in the what efforts have been made and how effective these have been?	en to a se trai	attend these trainings? Have any ning sessions? Can you describe
B11.	Has there been a shift in the job roles (with new roles opening u profiles) in this unit due to the transition to clean energy? What ki	p or e	xpansion of scope of current job changes have you observed?
B12.	What are the STEM positions/job roles in this factory unit? Which of by women? Is there a difference between the positions, in genera held by men and women? Can you explain the difference? Also who are involved in specific STEM positions in the chemical factor jobs done, whether these are unskilled or semi-skilled etc., partic discrimination faced in terms of behavior, wages etc.)	these al and o, are ories t ular ca	job roles are generally performed particularly STEM roles that are there any specific communities hat you know of? (Probes about aste-based occupations and any

B13.	What are the various green job positions in this factory? Are there any women in these positions? If not, please provide why in your opinion there are no women?
B14.	With the energy transition phase in your company, what new job roles do you anticipate in the future for your employees focusing on clean technology, waste management etc.? Will there be specific new job roles for men and for women?
B15.	Are any community initiatives being undertaken to reduce toxic emissions in these areas, either through your corporate social responsibility or business activities? Is any employment for local community members being generated through any of these activities? Can you provide details into these communities and interventions as well as learning and challenges?
B16.	Who are the various kinds of suppliers and contractors that you engage with for your factory operations? Are any efforts being undertaken to:
	 Ensure usage of clean technology/energy efficiency measures by your suppliers and contractors? What kind of efforts are these? Supporting women employment through your suppliers and contractors and/or engaging with women run/led businesses?
Part C:	Safeguards for Women Workers and Grievance Redressal
C17.	What are the safeguards in place for protecting the rights of your factory floor workers? Who are the
	relevant personnel who oversee the implementation of these safeguards? (Probe for the kinds of safeguards in:
	relevant personnel who oversee the implementation of these safeguards? (Probe for the kinds of safeguards in:i. Separate toilets:
	 relevant personnel who oversee the implementation of these safeguards? (Probe for the kinds of safeguards in: i. Separate toilets: ii. Accommodation facilities:
	 relevant personnel who oversee the implementation of these safeguards? (Probe for the kinds of safeguards in: i. Separate toilets: ii. Accommodation facilities: iii. Maternity benefits iv. Orboho facilities
	 relevant personnel who oversee the implementation of these safeguards? (Probe for the kinds of safeguards in: i. Separate toilets: ii. Accommodation facilities: iii. Maternity benefits iv. Crèche facilities v. Equal wages
	 relevant personnel who oversee the implementation of these safeguards? (Probe for the kinds of safeguards in: i. Separate toilets: ii. Accommodation facilities: iii. Maternity benefits iv. Crèche facilities v. Equal wages vi. Safety and prevention of GBV and Sexual Harassment at work, in accommodation if provided and during travel to work/ campsite
	 relevant personnel who oversee the implementation of these safeguards? (Probe for the kinds of safeguards in: i. Separate toilets: ii. Accommodation facilities: iii. Maternity benefits iv. Crèche facilities v. Equal wages vi. Safety and prevention of GBV and Sexual Harassment at work, in accommodation if provided and during travel to work/ campsite vii. Occupational health and safety:

C18.	What are the various systems in place in this factory to address gender-based violence (GBV) and sexual harassment (SH)?		
	 (Specifically ask about: i. Policies that focus on recruitment of women, equal wages, diversity and inclusion, prevention of sexual harassment, grievance redressal etc. ii. Whether these policies are only applicable at the corporate office level or also to the contractor management systems as well as factory floor level. iii. Ask for relevant policy and procedure documents mentioned. iv. Any code of conduct signed with employees (both permanent staff as well as contractual staff including factory floor workers. Do they ask contractors to have a code of conduct document that is shared and signed with their workforce especially factory floor workers.)? Ask for copies of the same. 		
	 v. Training conducted for supervisory staff as well as workers on safeguarding rights of women workers: 		
C19.	How do you encourage reporting of SH cases in your company? What are the various ways in which all your employees including factory floor workers are made aware of how to file sexual harassment complaints in the company?		
C20.	Do workers have access to any collective bargaining forums or committees where they can collectively raise issues of worker rights and welfare? Can you tell us the composition of these committees and whether any women are active members of these committees (office bearers)? If there are no trade unions, then are there any other committees like health and safety, worker welfare etc. (i.e., any forum where workers sit together jointly with management to discuss these issues)		
Part D: Perspective about women in the industry and green jobs			
D21.	What is your opinion of the performance of women workers in comparison to male workers in your factories?		
D22.	Do you have any suggestions on how women's workforce participation esp. in green jobs (that focus on energy efficiency) can be increased?		
D23.	In your opinion, what changes are needed in your factory to build a safe, equitable (Samta) and enabling (Samarthak/ supportive) working environment (Surakshit) for women, especially on factory floors?		

Tool 3: FGD with Factory Workers (Female)

Overview of FGD:

The aim of this Focus Group Discussion with Female Factory Workers is to understand knowledge and awareness about green jobs, interest and education in STEM fields (including green jobs) and career aspirations; understanding of systems and policies in the company for gender mainstreaming and address GBVH, concerns about perceived and actual safety of women workers etc. The interview should take an hour to complete all questions well; so, you need to seek time from the respondents for the same.

Guidelines for Conducting an FGD:

- There should not be more than 8-10 people in the FGD.
- Choose a quiet place/ room for the FGD with no presence of any supervisor/male staff member so that women can speak comfortably.
- Introduce yourselves in a simple language and spend some initial time in rapport building and building an informal environment/ rapport for discussion.
- Only have woman interviewer(s) for the discussion
- Ideally there should be two people conducting the discussion; one to lead, the other person to add to any points/probe further and take notes, make observations.
- Ensure that the discussion is recorded from a place where voices can be captured- thus, place the recorder in the center and the room where you conduct the discussion should be free from noise/ disturbance.
- Make eye contact and hold eye contact for a few seconds with each person before speaking.
- Try not to make anybody nervous by insisting they speak up or point out names.
- Don't ask about personal incidents of violence or harassment.
- If somebody shares any personal incidents, then insist that this should stay within the group itself and that others should respect the person who shares their personal experience and should keep it confidential.
- Ensure that the consent given by participants is recorded.
- Note that all questions will not be applicable to everyone. For e.g., Questions around green jobs may not be relevant to housekeeping staff. That is okay; you can skip an entire section if it is not applicable to anybody present.

Introduction by the facilitator(s):

Hello, my name is XYZ, and I have part of the ISC supported assessment on gender issues in the industry in general and in your company in particular. We are planning to conduct training to increase work opportunities for women in the companies for various personnel in the company that include company leadership and senior management as well as factory floor workers that include male and female workers as well as nearby communities around the factory/ plant sites. (For e.g., Many women are joining the manufacturing sector as there is adoption of automated machinery. New jobs like solar PV maintenance doesn't require prior knowledge of Science, Technology, Engineering and Mathematic (STEM) and there are vocational programs where women are getting trained to be technicians)

Confidentiality and disclosure of information:

With your consent, the discussions will be audio-recorded and later transcribed removing any identifying personal information about you. You can choose to stop the recording at any time. Documentation will only be accessed by us and will not be made available to any other person. Any information such as your name and feedback on the program that is obtained in connection with this study and that can be identified with you will remain confidential. If you so wish, you have the right to refuse to answer any question that may be put up to you during the discussion.

Further, we also request that whatever personal information is shared here by other women here stays within this group only and that you do not mock anybody or make fun of them for sharing their experiences. If you agree to take part, we will then ask you to give your consent.

It will take about one hour of your time to conduct this discussion. In case you have something urgent to attend to, you may choose to leave in the middle but for a good discussion, we do encourage everyone to stay till the end.

Do we have everyone's consent for this discussion? Can we start the discussion now? We would like to remind you that you have the right to stop the discussion at any time you desire.

Facilitator Details		
Name of Facilitator-1		
Name of Facilitator-2		
Location of FGD (Name of Factory Unit and		
Location):		
Time of FGD:		
Consent Recorded (Y/N):		

Participant Profile									
S. No	Name	Age	Total Work Experience	Years of Working in this	Job Role and Dept.	Contract Workers/ Permanent	Migrant Workers/ Local	Income	Contact no
				Company			Workers		

I. Perceived opportunity for green jobs

- How did you all get to know about this work? How were you hired here and what is the work that you do?
- 2. What is the work you were doing prior to joining here? Why did you leave that place?
- 3. Have you had any training to take up work like this before joining here? Can you tell us what kind of training/ educational background you received? Did you have any training after joining?
- 4. Can you tell me what kind of training you received after joining this company/factory and how did this training help you? (Probe if this meant that they were able to learn new technologies, gain more skills and get better pay and position in the company).
- Do you know if all employees, male and female get the
 - a. same trainings?
 - b. growth opportunities in this company?
 - c. If not, what are the different/additional opportunities that men get?
- 6. Can you tell us in general, what jobs do women do over here? What is the work that men do? Is there some work that both men and women do (if the response is no, probe as to why they think this is so)?
- 7. (If there is some work women and men both do and if these are in semi-skilled or skilled work, then ask this question) Do you know if men and women get paid the same for the same work that they do? (Facilitator to ask for Payment and Wages Records when interviewing factory supervisors/site heads.)

- 8. Is there anyone here or that you know of in this factory among women, who are handling technical/ skilled work? What kind of skilled work/ job positions are these? Do you know about the kind of education and training required for these jobs?
- 9. Have you heard about ways in which your factory unit is cutting down on its energy consumption, reducing carbon dioxide emissions and/or focusing more on renewable energy and saving energy? If yes, how did you hear about it? (Probes and specific examples to be used: have any technicians come to do audits for energy consumption/ measurements? With renewables particularly, has this factory installed solar PV- can you show me where? Have you also seen less use of coal- can you explain more about this- in what aspects and what kind of reduction have you observed as compared to before?
- 10. Have you had any meetings/discussions/ training on these aspects of energy efficiency and how factories are working towards improving their systems of energy consumption, waste management, toxic emissions etc.? Were you told that you need to save energy by switching off extra lights? Have you noted any introduction of new clean technology?
- 11. If yes, do you think this change towards clean energy systems will lead to more job opportunities? If yes, what kind of new job roles will be created? Do you know about the skills required to undertake such jobs (facilitator to use examples of specific green job roles here to ask about new skills needed to perform these jobs)
- 12. Have you received any training on the new skill sets required for these job opportunities? If yes, can you

tell us what was covered in these training sessions and how was this training beneficial to you? What did you learn and how was it useful in your work? Did it lead to better job roles and pay/promotion?

- 13. If you have not undergone such training on clean technology, and as women who handle kinds of work in this factory, will you be interested in participating in such training and subsequently take up clean energy jobs? In your opinion, do you think you can benefit from these training sessions?
- 14. Do you know of any jobs in this factory that currently involve using such clean technology in work that improves energy efficiency? If yes, please explain what these jobs involve and how do these job roles incorporate the use of clean technology?
- 15. Are both men and women working in these green/ clean tech job positions? If yes, what are the various job roles that men are undertaking, and which ones are generally given to women?
- 16. According to you, what kind of machinery can women handle in this factory? Have any of you had to handle any kind of machinery; what kind of challenges were/are faced?
- 17. Are there any specific communities being involved in specific jobs in the chemical factories that you know of? (probe about jobs done, whether these are unskilled or semi-skilled etc., particular caste-based occupations and any discrimination faced in terms of behavior, wages etc.)
- 18. If any of the workers reside in communities close to the site, ask whether they know of any communityoriented work that is being undertaken to reduce toxic emissions (for e.g., through community sharing mechanism of boilers; renewable energy focused measures/ solar energy etc., use of bio-digesters/

environmentally friendly waste management etc.). Please ask for detailed information including whether this has led to employment generation for community members as well as involvement of community women in such type of employment.

II. Working conditions of women workers

- 19. When you joined here for work, did you have to sign a contract? Can you tell us what was written in the contract (probe about duration of employment, salary/wages, timings of work, leave, social security etc.)?
- 20. Did your employers brief you about what work you will have to do here? Did they also tell you what is acceptable behavior here and what is not acceptable- What was it that they told you? Who briefed you about it?
- 21. Have you ever felt that women are treated differently here at work? If yes, how and can you share examples (again remind them of confidentiality clause) (Different wages for equal work, abusive language, staring, sexual harassment from supervisors, whether they have only male supervisors, different work hours, only made to do work like housekeeping and not hired for technical work etc.)
- 22. With regard to rest breaks and toilet breaks, do you feel free to take these when needed or do you have to seek permission?
- 23. Do you feel free to leave at the end of the day once your shift is done?
- 24. Do women workers/employees here feel unsafe while:
 - i. commuting to work (ask if they live nearby, where do they live, how do they travel to work, how much do they have to pay),

ii. in your accommodation (if they have been provided accommodation by contractor) oriii. in the factory premises?

What are these situations that make them feel unsafe? Are there any specific /routes/ locations or paths where you feel unsafe? (give them time to think and encourage them to respond without fear)

25. In case of any case of harassment or if you must make a complaint, who would you complain to? Do you know the system for handling complaints here at this factory? In case of a sexual harassment related complaint, has anybody told you what is the process to file a complaint and about the law against sexual harassment? What did they tell you about it? Was any training conducted; who conducted it and when/how often was it conducted?

III. Scope for improvement of working conditions

26. According to you, what are the various aspects needed at a workplace that will make it comfortable and help women feel safe?

(Probe for changes to physical infrastructure such as toilets, lighting, creches, safe and affordable transportation to and from factory as well as behavior of male colleagues; female supervisors and presence of more male colleagues; health and safety equipment and gears provided to ensure safety at work, health and safety trainings)

IV. Call for action – Recommendations by women workers

27. Are you or other women here part of any collective forums where you can share your concerns with the management here? These may be part of the trade union or there might also be health and safety committees, canteen committees etc. Is there

anybody here who is an active member of any of these committees?

- 28. Why will you recommend any women in your close relationship to work in this factory? If yes, why? Can you tell us what are the various aspects about the work that you do here that you like and that motivate you to work here?
- 29. In terms of your own career goals and what you want out of your lives, do some or many of you see yourselves continuing to work in the manufacturing sector or do you see better opportunities for yourselves elsewhere?
- 30. Do family restrictions and rules play any role in your work/career goals? Please can you explain with reallife examples?
- 31. Who are your role models here in this factory? (Check and note if any of them have any female role models and whether these role models are their supervisors) Why are they your role models? Please explain with examples.

We have now come to the end of our discussion. Thank you for your time today. Do you have any questions to ask us or share something more about yourself and work that we might not have asked?

Tool 4: FGD with Factory Workers (Male)

Overview of FGD:

The aim of this Focus Group Discussion with Male Factory Workers is to understand perceptions of male workers about women workers in general as well as women in STEM/ non-traditional jobs, gender norms and stereotypes, knowledge and awareness about systems and policies in the company for gender mainstreaming and address GBVH, trainings received on gender and GBVH issues, pay structures, labor welfare issues etc. The interview should take an hour to complete all questions well; so, you need to seek time from the respondents for the same.

- There should not be more than 8-10 persons in the FGD
- Choose a quiet place/ room for the FGD with no presence of any supervisor/male staff member so that women can speak comfortably.
- Introduce yourselves in a simple language and spend some initial time in rapport building and building an informal environment/ rapport for discussion
- Male facilitator(s) preferred for the discussion
- Ideally there should be two persons conducting the discussion; one to lead, the other person to add to any points/probe further and take notes, make observations
- Ensure that the discussion is recorded from a place where voices can be captured- thus, place the recorder in the center and the room where you conduct the discussion should be free from noise/ disturbance
- Make eye contact and hold eye contact for a few seconds with each person while speaking before moving on to the next person. This helps build rapport.
- Try not to make anybody nervous by insisting they speak up or point out names
- Don't ask about personal incidents of violence or harassment
- If somebody shares any personal incidents, then insist that this should stay within the group itself and that others should respect the person who shares their personal experience and should keep it confidential.
- Ensure that the consent given by participants is recorded
- Note that all questions will not be applicable to everyone. For e.g., Questions around green jobs may not be relevant to housekeeping staff. That is okay; you can skip an entire section if it is not applicable to anybody present.

Introduction by the facilitator(s):

60

Hello, my name is XYZ, and I have part of the ISC supported assessment on gender issues in the chemical industry in general and in your company in particular. We are planning to conduct gender sensitivity and mainstreaming trainings for various personnel in the company that include company leadership and senior management as well as factory floor workers that include male and female workers as well as nearby communities around the factory/ plant sites. (Simplify this while explaining so that it is easy to understand)

Confidentiality and disclosure of information:

With your consent, the discussions will be audio-recorded and later transcribed removing any identifying personal information about you. You can choose to stop the recording at any time. Documentation will only be accessed by us and will not be made available to any other person. Any information such as your name and feedback on the program that is obtained in connection with this study and that can be identified with you will remain confidential. If you so wish, you have the right to refuse to answer any question that may be put up to you during the discussion.

Further, we also request that whatever personal information is shared here by other women here stays within this group only and that you do not mock anybody or make fun of them for sharing their experiences. If you agree to take part, we will then ask you to give your consent.

It will take about one hour of your time to conduct this discussion. In case you have something urgent to attend to, you may choose to leave in the middle but for a good discussion, we do encourage everyone to stay till the end.

Do we have everyone's consent for this discussion? Can we start the discussion now? We would like to remind you that you have the right to stop the discussion at any time you desire.

Facilitator Details					
Name of Facilitator-1					
Name of Facilitator-2					
Location of FGD (Name of Factory Unit and Location):					
Time of FGD:					
Consent Recorded (Y/N):					

Participant Profile									
S. No	Name	Age	Total Work	Years of	Job Role	Contract	Migrant	Income	Contact
			Experience	Working	and	Workers/	Workers/		no
				in this	Dept.	Permanent	Local		
				Company			Workers		

FGD Questions:

I. Perceived opportunity for green jobs

- How did you all get to know about this work? How were you hired here and what is the work that you do?
- 2. What is the work you were doing prior to joining here? Why did you leave that place?
- 3. Have you had any training to take up work like this before joining here? Can you tell us what kind of training/ educational background you received? Did you have any training after joining?
- 4. Can you tell me what kind of training you received after joining this company/factory and how did this training help you? (Probe if this meant that they were able to learn new technologies, gain more skills and get better pay and position in the company).
- Do you know if all employees, male and female get the
 - d. same trainings?
 - e. growth opportunities in this company?
 - f. If not, what are the different/additional opportunities that men get?
- 6. Can you tell us in general, what jobs do women do over here? What is the work that men do? Is there some work that both men and women do (if the response is no, probe as to why they think this is so)?
- 7. (If there is some work women and men both do and if these are in semi-skilled or skilled work, then ask this question) Do you know if men and women get paid the same for the same work that they do? (Facilitator to ask for Payment and Wages Records when interviewing factory supervisors/site heads.)

- 8. Is there anyone here or that you know of in this factory among women, who are handling technical/ skilled work? What kind of skilled work/ job positions are these? Do you know about the kind of education and training required for these jobs?
- 9. Have you heard about ways in which your factory unit is cutting down on its energy consumption, reducing carbon dioxide emissions and/or focusing more on renewable energy and saving energy? If yes, how did you hear about it? (Probes and specific examples to be used: have any technicians come to do audits for energy consumption/ measurements? With renewables particularly, has this factory installed solar PV- can you show me where? Have you also seen less use of coal- can you explain more about this- in what aspects and what kind of reduction have you observed as compared to before?
- 10. Have you had any meetings/discussions/ training on these aspects of energy efficiency and how factories are working towards improving their systems of energy consumption, waste management, toxic emissions etc.? Were you told that you need to save energy by switching off extra lights? Have you noted any introduction of new clean technology?
- 11. If yes, do you think this change towards clean energy systems will lead to more job opportunities? If yes, what kind of new job roles will be created? Do you know about the skills required to undertake such jobs (facilitator to use examples of specific green job roles here to ask about new skills needed to perform these jobs)
- 12. Have you received any training on the new skill sets required for these job opportunities? If yes, can you tell us what was covered in these training sessions

and how was this training beneficial to you? What did you learn and how was it useful in your work? Did it lead to better job roles and pay/promotion?

- 13. If you have not undergone such training on clean technology, and as a woman who handles this kind of work in this factory, will you be interested in participating in such training and subsequently taking up clean energy jobs? In your opinion, do you think you can benefit from these training sessions?
- 14. Do you know of any jobs in this factory that currently involve using such clean technology in work that improves energy efficiency? If yes, please explain what these jobs involve and how do these job roles incorporate the use of clean technology?
- 15. Are both men and women working in these green/ clean tech job positions? If yes, what are the various job roles that men are undertaking, and which ones are generally given to women?
- 16. Are there any specific communities being involved in specific jobs in the chemical factories that you know of? (Probe about jobs done, whether these are unskilled or semi-skilled etc., particular caste-based occupations and any discrimination faced in terms of behavior, wages etc.)
- 17. If any of the workers reside in communities close to the site, ask whether they know of any communityoriented work that is being undertaken to reduce toxic emissions (for e.g., through community sharing mechanism of boilers; renewable energy focused measures/ solar energy etc., use of bio-digesters/ environmentally friendly waste management etc.). Please ask for detailed information including whether this has led to employment generation for community members as well as involvement of community women in such type of employment.

II. Current status and condition of male and female workers

- 18. When you joined here for work, did you have to sign a contract? Can you tell us what was written in the contract (probe about duration of employment, salary/wages, timings of work, leave, social security etc.)?
- 19. Did your employers brief you about what work you will have to do here? Did they also tell you what is acceptable behavior here and what is not acceptable- What was it that they told you? Who briefed you about it?
- 20. With regard to rest breaks and toilet breaks, do you feel free to take these when needed or do you have to seek permission?
- 21. Do you feel free to leave at the end of the day once your shift is done?
- 22. Do you as male workers/employees here feel unsafe while:
 - commuting to work (ask if they live nearby, where do they live, how do they travel to work, how much do they have to pay),
 - ii. in your accommodation (if they have been provided accommodation by contractor) or
 - iii. in the factory premises?

What are these situations that make you feel unsafe? Are there any specific /routes/ locations or paths where you feel unsafe?

23. In case of any case of harassment or if you must make a complaint, who would you complain to? Do you know the system for handling complaints here at this factory? In case of a sexual harassment related complaint, has anybody told you what is the process to file a complaint and about the law against sexual harassment? What did they tell you about it? Was any training conducted; who conducted it and when/how often was it conducted?

III. Perceptions about Women Workers in STEM/green jobs

- 24. What is your opinion of the performance of women workers in comparison to male workers in your factories?
- 25. In your experience, are women equally inclined to STEM positions and green jobs as men are in this factory? Probe for reasons and examples.
- 26. In your opinion, do women have an equally supportive working environment for their growth in the factory? (Probes about equal opportunities in training, upskilling, promotions etc.)
- 27. Have you ever felt that men and women are treated differently here at work? If yes, how and can you share examples (again remind them of confidentiality clause) (Different wages for equal work, abusive language, staring, sexual harassment from supervisors, whether they have male supervisors, different work hours, only made to do work like housekeeping and not hired for technical work etc.)

IV. Scope for improvement of working conditions

28. According to you, what are the various aspects needed at a workplace that will make it comfortable and help both men and women feel safe?

(Probe for changes to physical infrastructure such as toilets, lighting, creches, safe and affordable transportation to and from factory as well as behavior of male colleagues; female supervisors and presence of more male colleagues; health and safety equipment and gears provided to ensure safety at work, health and safety trainings)

V. Call for action – Recommendations by male workers

- 29. Are you or other workers here part of any collective forums where you can share your concerns with the management here? Are women workers also part of these forums? What kinds of forums are these? These may be part of the trade union or there might also be health and safety committees, canteen committees etc. Is there anybody here who is an active member of any of these committees?
- 30. Why will you recommend any women in your close relationship to work in this factory? If yes, why? Can you tell us what are the various aspects about the work that you do here that you like and that motivate you to work here?
- 31. In terms of your own career goals and what you want out of your lives, do some or many of you see yourselves continuing to work in the manufacturing sector or do you see better opportunities for yourselves elsewhere?
- 32. Do family restrictions and rules play any role in your work/career goals? Please can you explain with reallife examples?
- 33. Do your family members place restrictions on women in your homes to work outside and do you face problems in the community and in your family for working here? What are the concerns of the family members? What is your opinion about these restrictions placed on women?
- 34. Who are your role models here in this factory? (Check and note if any of them have any female role models and whether these role models are their supervisors) Why are they your role models? Please explain with examples.

We have now come to the end of our discussion. Thank you for your time today. Do you have any questions to ask us or share something more about yourself and work that we might not have asked?

Tool 5: Community Consultations

Overview of FGD:

The aim of this Community Consultation tool is to get a broad level understanding of gender norms and stereotypes, concerns about women's safety, perceptions of women in non-traditional jobs/ STEM fields/ green jobs, support received from family members/ backlash/resistance faced. The interview should take an hour to complete all questions well; so, you need to seek time from the respondents for the same.

- There should not be more than 8-10 persons in the FGD
- Choose a quiet place/ room for the FGD with no presence of any supervisor/male staff member so that women can speak comfortably.
- Introduce yourselves in a simple language and spend some initial time in rapport building and building an informal environment/ rapport for discussion
- One male and one female facilitator(s) preferred for the discussion if it is going to be a mixed group
- Ideally there should be two persons conducting the discussion; one to lead, the other person to add to any points/probe further and take notes, make observations
- Ensure that the discussion is recorded from a place where voices can be captured- thus, place the recorder in the center and the room where you conduct the discussion should be free from noise/ disturbance
- Make eye contact and hold eye contact for a few seconds with each person while speaking before moving on to the next person. This helps build rapport.
- Try not to make anybody nervous by insisting they speak up or point out names
- Don't ask about personal incidents of violence or harassment
- If somebody shares any personal incidents, then insist that this should stay within the group itself and that others should respect the person who shares their personal experience and should keep it confidential.
- Ensure that the consent given by participants is recorded
- Note that all questions will not be applicable to everyone. For e.g. Questions around green jobs may not be relevant to housekeeping staff. That is okay; you can skip an entire section if it is not applicable to anybody present.

Introduction by the facilitator(s):

66

Hello, my name is XYZ, and I have part of the ISC supported assessment on gender issues in the chemical industry in general and in your company in particular. We are planning to conduct gender sensitivity and mainstreaming training for various personnel in the company that include company leadership and senior management as well as factory floor workers that include male and female workers as well as nearby communities around the factory/ plant sites. (Simplify this while explaining so that it is easy to understand)

Confidentiality and disclosure of information:

With your consent, the discussions will be audio-recorded and later transcribed removing any identifying personal information about you. You can choose to stop the recording at any time. Documentation will only be accessed by us and will not be made available to any other person. Any information such as your name and feedback on the program that is obtained in connection with this study and that can be identified with you will remain confidential. If you so wish, you have the right to refuse to answer any question that may be put up to you during the discussion.

Further, we also request that whatever personal information is shared here by other women here stays within this group only and that you do not mock anybody or make fun of them for sharing their experiences. If you agree to take part, we will then ask you to give your consent.

It will take about one hour of your time to conduct this discussion. In case you have something urgent to attend to, you may choose to leave in the middle but for a good discussion, we do encourage everyone to stay till the end.

Do we have everyone's consent for this discussion? Can we start the discussion now? We would like to remind you that you have the right to stop the discussion at any time you desire.

Facilitator Details					
Name of Facilitator-1					
Name of Facilitator-2					
Location of FGD					
Time of FGD:					
Consent Recorded (Y/N):					

Participant Profile								
S. No	Name Age		Nature of Work/	Years of Working in	Contact no			
			Employment	this Company				

FGD Questions:

I. Socio-Economic Profile of Women and Girls in the Village

- How much (till what education level) do girls study in this area? How much (till what education level) do boys study? How do children travel to school here?
- What are the various reasons for girls dropping out of school- at what age do they generally drop out? Do boys also generally drop out, at what age and any reasons for boys dropping out?
- 3. What are the main sources of household income in your families?
- 4. What are the kinds of paid work that men and women are involved in here outside of their homes (probe for women as well)? Do both men and women in the village participate in any skill building training programs? What kind of training programs are these?
- 5. How many of you own land in this group? (Only ask if this question is relevant) What is the kind of agricultural/ farm/ livestock work that men do and what is the work that women do?

II. Knowledge and Awareness about Energy Efficiency Initiatives and Green Jobs

6. Do you know of any efforts being undertaken in your community to save energy and reduce emissions of toxic gases through environmentally friendly measures? (e.g.: renewable energy, solar plants, bio-digesters, community usage of boilers etc.) Who has initiated these efforts? Have any private companies initiated any such measures here?

- If such efforts have been undertaken, has it led to any opportunities for employment? Have these efforts increased participation and employment of women in any way. Please explain with more detail and examples.
- 8. What is your understanding of the chemical industry and creation of jobs that focus on saving energy and reducing pollution and toxic emissions of chemicals? How did you get to know about this?
- Are there any specific communities being involved in specific jobs in the chemical factories that you know of? (Probe about jobs done, whether these are unskilled or semi-skilled etc., particular caste-based occupations and any discrimination faced in terms of behavior, wages etc.)
- What is your opinion of the various roles that women and girls can play in such work (energy efficiency, renewables etc.) by companies (with the assumption that these will be paid work)

III. Gender Norms and Attitudes in the Community

- 11. What are the kind of jobs that are acceptable for girls and women to take up outside the house in this community? What are the general attitudes towards women undertaking paid jobs outside of the house here? (Probe about perspectives on women taking up non-traditional jobs such as mechanics, truck drivers, pilot, engineer, scientists and any other professions in STEM fields
- Do you know any women working in these chemical industries nearby in XYZ (Vatava/ Naroda)? Do you know of any men? How do you feel about women

working in these factories? (Probe about any concerns, as well as positives)

- 13. What are the concerns that parents have for their daughters in general here?
- 14. Are there any concerns with girls and young women going out of the house alone? What is the reason for these concerns (Moderator to probe for more specifics around which locations/routes are considered unsafe/ any concerns around elopement/ relationships with boys etc.).
- 15. At what age do girls generally get married here? What are the reasons why girls are often made to marry early?

- 16. In your opinion, what are the reasons for which women might require to seek permission from their husbands? (Moderator to probe about spending money, taking up a job, going to meet someone etc.)
- 17. What kind of fears/ personal safety related concerns do women have while moving around in the area for example, market, school, work, health centre etc.

Is there anything else that you would like to share? If not, then we can close the discussion. Thank you for taking the time out to share your insights and experience with us; this has been very useful.

Tool 6: KII/ FGD with Women in STEM Education

Overview of FGD:

The aim of this KII/FGD with women undergoing training in ITI/ polytechnic/ vocational training institutes (i.e. STEM Education) is to understand knowledge about green jobs, green jobs related aspirations and challenges faced by women in STEM jobs. The interview should take about half an hour to complete all questions well; so, you need to seek time from the respondents for the same.

- There should not be more than 8-10 persons in the FGD
- Choose a quiet place/ room for the FGD with no presence of any supervisor/male staff member so that women can speak comfortably.
- Introduce yourselves in a simple language and spend some initial time in rapport building and building an informal environment/ rapport for discussion
- Only have woman interviewer(s) for the discussion
- Ideally there should be two persons conducting the discussion; one to lead, the other person to add to any points/probe further and take notes, make observations
- Ensure that the discussion is recorded from a place where voices can be captured- thus, place the recorder in the center of the room where you conduct the discussion should be free from noise/ disturbance
- Make eye contact and hold eye contact for a few seconds with each person before speaking
- Try to not make anybody nervous by insisting they speak up or point out names
- Don't ask about personal incidents of violence or harassment
- If somebody shares any personal incidents, then insist that this should stay within the group itself and that others should respect the person who shares their personal experience and should keep it confidential.
- Ensure that the consent given by participants is recorded
- Note that all questions will not be applicable to everyone. For e.g. Questions around green jobs may not be relevant to housekeeping staff. That is okay; you can skip an entire section if it is not applicable to anybody present.

Introduction by the facilitator(s):

Hello, my name is XYZ, and I have part of the ISC supported assessment on gender issues in the chemical industry in general and in your company in particular. We are planning to conduct gender sensitivity and mainstreaming training for various personnel in the company that include company leadership and senior management as well as factory floor workers that include male and female workers as well as nearby communities around the factory/ plant sites. (Simplify this while explaining so that it is easy to understand) We are here to speak to you today to collect some data on what are the various aspects we can include in the training.

Confidentiality and disclosure of information:

With your consent, the discussions will be audio-recorded and later transcribed removing any identifying personal information about you. You can choose to stop the recording at any time. Documentation will only be accessed by us and will not be made available to any other person. Any information such as your name and feedback on the program that is obtained in connection with this study and that can be identified with you will remain confidential. If you so wish, you have the right to refuse to answer any question that may be put up to you during the discussion.

Further, we also request that whatever personal information is shared here by other women here stays within this group only and that you do not mock anybody or make fun of them for sharing their experiences. If you agree to take part, we will then ask you to give your consent.

It will take about one hour of your time to conduct this discussion. In case you have something urgent to attend to, you may choose to leave in the middle but for a good discussion, we do encourage everyone to stay till the end.

Do we have everyone's consent for this discussion? Can we start the discussion now? We would like to remind you that you have the right to stop the discussion at any time you desire.

Facilitator Details						
Name of Facilitator-1						
Name of Facilitator-2						
Location of KII/ FGD (Name of Institute and Location):						
Time of FGD:						
Consent Recorded (Y/N):						

Participant Profile									
S. No	Name	Age	Current Course	Key Subject/	Name of Engineering/ Medical				
			and Year	Specialization	college/ ITI/ polytechnic/				
					training institutes				

FGD Questions:

- So, all of you/ you are pursuing your higher education in a subject that is to do with science, mathematics, technology or engineering. In short, a STEM field. Can you tell us about your journey till here? How did you decide to take up this subject, who supported you, what kind of family level challenges have you faced and what kind of challenges have you faced in your educational environment (from the institute, teachers, peers etc.)? Can you tell us more about the kind of restrictions you have faced overall? What were the concerns of your family members? How did you deal with these restrictions and challenges?
- In your opinion and experience, is it that there are more boys than girls pursuing STEM education? Is it that there are more girls pursuing medicine as against engineering- why do you think this is the case?
- 3. Particularly as a girl, in your opinion, what are the challenges you will face in pursuing a career of your choice? Do you think wanting to pursue a career in a STEM field will pose further challenges?
- 4. Do you know about how companies, especially in the chemical industry, are working towards reducing toxic emissions and focusing on clean technology? Can you tell us more about it?
- 5. Do you know what green jobs are? (If they don't, then explain this to them in a simple manner)
- 6. Do you think you have interest in the past in such jobs/work that involve clean technology or lowcarbon operations in factories? (Give examples of jobs, like on the shop floor, as energy auditors, process monitoring etc.)? If yes, can you tell us how you got to know about it and what specifically

about green jobs are you interested in and in which industry? (Facilitator should clarify that the intent of the discussion is not to provide jobs to the girls at the end)

- What do you think would equip you for working in clean technology in these factories? (Education, awareness of opportunities, training and skilling, higher safety and security, more women in the factory).
- Is there any carbon- conscious or low carbon technology courses/ modules available to you? Are there any training and skilling opportunities available?
- 9. In case a job offered to you requires you to work in a factory or visit factories in different cities frequently for supervision, what will your thought process be as to the pros and cons of the work? What kind of personal safety concerns will you have?
- Do you have any suggestions on how workplaces like factories can be made safer for women? Think about your own experience of either having visited a factory or how you imagine a factory setting to be.
- 11. Most companies for e.g. in the chemical or manufacturing industry, where you find more male employees and male senior leadership, say that women are not willing to work in our companies because of various reasons. What more do you think can be done by such companies to employ women in STEM positions, and in leadership roles in STEM fields? (remind them that there is no right or wrong answer and that you are there to learn from their experience and not assess what they are saying as right or wrong)

- Limit greenhouse gas emissions
- Minimize waste and pollution
- Protect and restore ecosystems
- Support adaptation to the effects of climate change

⁴³ According to ILO, green jobs are decent jobs that contribute to preserving or restoring the environment, be they in traditional sectors such as manufacturing and construction, or in new, emerging green sectors such as renewable energy and energy efficiency.

Green jobs help:

Improve energy and raw materials efficiency
Tool 7: Relevant Cluster Associations

Overview of FGD:

The aim of this interview with Cluster Associations is to assess the potential for gender mainstreaming in companies; relevance of addressing GBVH, green jobs and women's employment. The interview should take about 20-25 mins to complete all questions well; so, you need to seek time from the respondents for the same.

Introduction by the interviewer:

Hello, my name is XYZ, and I have part of the ISC supported assessment on gender issues in the chemical industry in general and in XYZ company in particular. We are planning to conduct gender sensitivity and mainstreaming trainings for various personnel in the company that include company leadership and senior management as well as factory floor workers that include male and female workers as well as nearby communities around the factory/ plant sites. We are here to speak to you to understand some of the key issues which we should cover in the training.

Confidentiality and disclosure of information:

With your consent, the discussions will be audio-recorded and later transcribed removing any identifying personal information about you. You can choose to stop the recording at any time. Documentation will only be accessed by us and will not be made available to any other person. Any information such as your name and feedback on the program that is obtained in connection with this study and that can be identified with you will remain confidential. If you so wish, you have the right to refuse to answer any question that may be put up to you during the discussion.

A1.	Can you tell us about the work done via your association? (Probe for more details as to membership process, type of members, what kind of support system do they provide, are these only for companies or also for workers like trade unions)
A2.	Do you know of companies in the chemical industry who are working on sustainability, energy efficiency, renewables etc. Are any of your companies your members? Can you share a list or some names even?
АЗ.	How often do companies employ women and in what positions generally? How many of these companies employ women for work/jobs on sustainability, energy efficiency, renewables etc. In your opinion, why are there fewer women in the chemical industry, especially in senior management positions and particularly in positions that are to do with technical/engineering/ sustainability-specific jobs?
A4.	In your opinion, where there are women workers in factories, how safe is the working environment for women?
A5.	What more can be done to employ more women in the chemical industry in both senior management and technical/engineering/ sustainability-specific positions. ?
A6.	In your opinion and experience, how can factories be a safe working environment for women? What actions need to be taken? Do you know of any such companies that are setting good standards on the same or have taken strong efforts to address SH in factories?

ANNEXURE 3

SAMPLE SIZE COVERED FOR THE PRIMARY STUDY

S No	Category	Coverage
Α	Category A: Owners and Senior Management of SMEs	
1	Owners of SMEs	9
2	Plant/ Site in charge at units	11
	Interviews with any women in senior management	0
В	Category B: Factory Workers: Male and Female	
3	FGDs with male workers in units (contract as well as permanent workers; skilled and	7 FGDs
	semi-skilled)	
4	FGDs with female workers in units (contract as well as permanent workers; skilled	6 FGDs
	and semi-skilled)	
С	Category C: Local Community	
5	Community-level consultations in any one or two local villages/ slums in the vicinity of	1 FGD
	any of the units.	
D	Category D: Students in Polytechnic Institutes and Cluster Associations	
6	Potential employees - Women undergoing training in ITI/ polytechnic/ training	2 FGDs
	institute	
7	Cluster Association	1 Interview

74

ANNEXURE 4

PROPOSED KEY TRAINING OUTCOME INDICATORS

Basis the key gaps identified and accordingly the key learning outcomes proposed for training of key stakeholders, the following key indicators against outcomes are proposed.

Training	Ke	y Learning Outcome	Key Indicator	
Assessment				
1. Owners/ Se	1. Owners/ Senior Management			
Knowledge	1.	Understanding of green jobs, just	X% owners and senior management of SMEs	
		transition and equitable aspects	trained are able to identify ways in which they can	
		pertaining to cleantech adoption	contribute towards environment sustainability	
			X% owners and senior management of SMFs	
			are able to define what green job positions and	
			related green skills could be for their companies	
			X% owners and senior management of SMEs can	
			explain what is meant by clean technology, green	
			jobs, environment sustainability, just transition and	
			equitable jobs.	
	2.	Understanding the business case for	X% owners and senior management of SMEs	
		integrating gender and increasing	demonstrate interest in integrating gender and	
		women's employment in green jobs and	increasing women's employment in the factory	
		in general within the factory workforce at	in general and in green jobs specifically through	
		all levels	publicly made commitments etc.	
	3.	Understanding how community	X% owners and senior management of SMEs have	
		engagement can lead to improved	developed pathways for community engagement	
		environment sustainability and positive	to improve environment sustainability	
		environment, social and business		
		outcomes		
	4.	Increased sensitization regarding gender	X% owners and senior management of SMEs	
		norms and stereotypes that are being	demonstrate increased knowledge and	
		perpetuated at the workplace	understanding of gender norms and stereotypes	
			at the workplace during and post the training	

	5.	Understanding laws and policies for	X% owners and senior management of SMEs have
		safeguards for women.	greater understanding of laws and policies for
			safeguards for women.
Skills	1.	Recruitment and retention of women	X% owners and senior management of SMEs
		employees at all levels (skilled, semi-	demonstrate efforts made towards recruitment
		skilled and unskilled)	and retention of women employees at all levels
			(skilled, semi-skilled and unskilled)
	2.	Design and implement upskilling	X% owners and senior management of SMEs
		programmes based on required green job	have designed upskilling programmes based on
		skills for women to enter green jobs	required green job skills for women to enter green
			jobs
Behavior/	1.	A formal strategy on clean tech adoption	X% owners and senior management of SMEs
Practice		and energy efficiency developed for the	have developed a formal strategy on clean tech
		next 5-10 years.	adoption and energy efficiency for the company
			developed for the next 5-10 years
	2.	Identify required competencies and green	X% owners and senior management of SMEs
		skills in relation to emerging green job	are aware of and have identified required
		positions.	competencies and green skills in relation to
			emerging green job positions.
	3.	A strong grievance redressal mechanism	X% owners and senior management of SMEs have
		as well as a POSH policy	in place a strong grievance redressal mechanism
			as well as a POSH policy in place.
	4.	A stakeholder engagement plan for	X% owners and senior management of SMEs
		communities	have initiated implementation of a stakeholder
			engagement plan with local communities
	5.	Upskilling and on-the-job training	X% owners and senior management of SMEs
		programmes designed and implemented	have implemented upskilling and on-the-job
		with a special focus on female employees	training programmes designed and implemented
		with a chemistry or environment sciences	with a special focus on female employees with a
		background.	chemistry or environment sciences background.
	6.	On-the-job training programmes for	X% owners and senior management of SMEs have
		green jobs linked to semi- and unskilled	implemented on-the-job training programmes
		work for female employees (for e.g.	for green jobs linked to semi- and unskilled work
		solar panel repair and maintenance,	for female employees (for e.g., solar panel repair
		waste segregation for waste collectors,	and maintenance, waste segregation for waste
		operators/ technicians etc.)	collectors, operators/ technicians etc.)

	7.	Organize awareness sessions, life skills	X% owners and senior management of SMEs
		training and bystander response trainings	demonstrate increased awareness of anti-sexual
		on sexual harassment at the workplace	harassment at workplace laws and safeguards
			for women for senior management, employees,
			contractual and other workforce through
			awareness sessions, life skills training and
			bystander response trainings.
	8.	Gender responsive policies and	X% owners and senior management of SMEs
		infrastructure at the workplace, taking	report having in place gender responsive policies
		into account state specific labor laws	based on legal requirements and needs of female
		and other legal mandates as well as	workers.
		needs of female contractual workers and	
		employees, such as childcare facilities,	
		clean toilets, separate washing facilities,	
		breaks, safety gear where mandated and	
		required etc.	
2. Factory We	orke	ers- Female	r
Knowledge	1.	Understanding of green jobs, just	X% female workers in companies who have
		transition and equitable aspects	undergone trainings demonstrate understanding
		pertaining to cleantech adoption	of what green jobs comprise of and what is meant
			by just transition and equitable jobs pertaining to
			cleantech adoption
	2.	Understanding of career prospects in	X% female workers in companies who have
		relation to green jobs in the industry	undergone trainings have an understanding of
		(chemical and also otherwise)	career prospects in relation to green jobs in the
			industry (chemical and also otherwise)

	3.	Increased knowledge and awareness of	X% female workers in companies who have
		labor rights and safeguards of women in	undergone training demonstrate increased
		workplaces and legal provisions for the	knowledge and awareness of labor rights and
		same.	safeguards of women in workplaces and legal
			provisions for the same.
			X% female workers in companies who have
			undergone trainings report that they have
			increased understanding of labor rights and how
			to seek redressal for complaints on gender-based
			discrimination, sexual harassment and gender-
			based violence.
			X% female workers in companies demonstrate an
			increased understanding of gender norms and
			stereotypes, life skills training, prevention of sexual
			harassment at the workplace and safeguards for
			women workers as well as bystander response
			trainings.
Skills	1.	Leadership skills	X% female workers in companies who have
			undergone training demonstrate leadership
			skills through participation in collective forums,
			supporting other women workers etc.
	2.	Ability to identify and express one's	X% female workers in companies who have
		aspirations especially in relation to green	undergone trainings are able to identify and
		jobs	express one's aspirations especially in relation to
			green jobs
	3.	Lite skills	X% female workers in companies who have
			undergone training demonstrate important life
			skills in handling family pressures, household
			decision making including financial decision
Dehavier/	1		making.
Benavior/	1.	women workers are able to access peer	X% female workers in companies have access to
Practice		support networks at the workplace as	peer support networks at the workplace as well as
		well as have support from employers to	nave support from employers to be a member of
	2	Participate in upskilling and on the ich	Whons/collectives.
	<u> </u>	training programmes for groop jobs	unskilling and on-the-job training programmes for
		arganized by their amplevers	aroon jobs organized by their amployers
		organized by their employers	green jobs organized by their employers

	3.	Participate in trainings on gender norms	X% female workers in companies report that they
		and stereotypes, life skills training,	or other female workers they know have sought
		prevention of sexual harassment at the	redress through a grievance redressal mechanism
		workplace and safeguards for women	X% female workers in companies report that they
		workers as well as bystander response	have the right platforms to voice their concerns
		trainings.	have the right platforms to voice their concerns
3. Factory Wo	orke	rs- Male	
Knowledge	1.	Understanding of green jobs, just	X% male workers in companies who have
		transition and equitable aspects	undergone trainings demonstrate understanding
		pertaining to cleantech adoption	of what green jobs comprise of and what is meant
			by just transition and equitable jobs pertaining to
			cleantech adoption
	2.	Understanding of career prospects in	X% male workers in companies who have
		relation to green jobs in the industry	undergone trainings have an understanding of
		(chemical and also otherwise)	career prospects in relation to green jobs in the
			industry (chemical and also otherwise)
	3.	Increased knowledge and awareness of	X% male workers in companies who have
		gender norms and stereotypes, rights and	undergone training demonstrate increased
		safeguards of women in workplaces and	knowledge and awareness of rights and
		legal provisions for the same.	safeguards of women in workplaces and legal
			provisions for the same.
Skills	1.	Ability to question gender norms and	X% male workers in companies who have
		stereotypes at the workplace and in their	undergone trainings demonstrate evidence of
		homes.	questioning and taking action against gender
			norms and stereotypes at the workplace and in
			their homes.
	2.	Ability to identify and express one's	X% male workers in companies who have
		aspirations especially in relation to green	undergone trainings are able to identify and
		jobs.	express one's aspirations especially in relation to
			green jobs
	3.	Ability to identify sexual harassment at	X% male workers in companies who have
		the workplace and take corrective action	undergone trainings have the skills to identify
		in instances of SH.	sexual harassment at the workplace and take the
			right action in instances of SH.
Behavior/	1.	Women workers are able to access peer	X% female workers in companies have access to
Practice		support networks at the workplace as	peer support networks at the workplace as well as
		well as have support from employers to	have support from employers to be a member of
		be a member of unions/collectives.	unions/collectives.

	2.	Participate in upskilling and on-the-job	X% female workers in companies participate in
		training programmes for green jobs	upskilling and on-the-job training programmes for
		organized by their employers.	green jobs organized by their employers
	3.	Participate in trainings on gender norms	X% female workers in companies report that they
		and stereotypes, life skills training,	or other female workers they know have sought
		prevention of sexual harassment at the	redress through a grievance redressal mechanism
		workplace and safeguards for women	X% fomale workers in companies report that they
		workers as well as bystander response	have the right platforms to voice their concorns
		trainings.	have the right platornis to voice their concerns
4. Factory Wo	orke	rs- Male	
Knowledge	1.	Understanding of green jobs, just	X% male workers in companies who have
		transition and equitable aspects	undergone trainings demonstrate understanding
		pertaining to cleantech adoption.	of what green jobs comprise of and what is meant
			by just transition and equitable jobs pertaining to
			cleantech adoption
	2.	Understanding of career prospects in	X% male workers in companies who have
		relation to green jobs in the industry	undergone trainings have an understanding of
		(chemical and also otherwise).	career prospects in relation to green jobs in the
			industry (chemical and also otherwise)
	3.	Increased knowledge and awareness of	X% male workers in companies who have
		gender norms and stereotypes, rights and	undergone training demonstrate increased
		safeguards of women in workplaces and	knowledge and awareness of rights and
		legal provisions for the same.	safeguards of women in workplaces and legal
			provisions for the same.
Skills	1.	Ability to question gender norms and	X% male workers in companies who have
		stereotypes at the workplace and in their	undergone training demonstrate evidence of
		homes.	questioning and taking action against gender
			norms and stereotypes at the workplace and in
			their homes.
	2.	Ability to identify and express one's	X% male workers in companies who have
		aspirations especially in relation to green	undergone trainings are able to identify and
		jobs.	express one's aspirations especially in relation to
			green jobs
	3.	Ability to identify sexual harassment at	X% male workers in companies who have
		the workplace and take the right action in	undergone trainings have the skills to identify
		instances of SH.	sexual harassment at the workplace and take the
			right action in instances of SH.
Behavior/	1.	Participate in upskilling and on-the-job	X% male workers in companies participate in
Practice		training programmes for green jobs	upskilling and on-the-job training programmes for
		organized by their employers.	green jobs organized by their employers
A	nalv	zing Gender Representation in	

Green Jobs Across Manufacturing

	2.	Support women colleagues at the	X% male workers in companies demonstrate
		workplace and make space for them to	evidence of supporting women colleagues at the
		pursue their green job-related aspirations.	workplace and make space for them to pursue
			their green job related aspirations
	3.	Participate in SH and Bystander	X% male workers in companies demonstrate an
		Response Trainings.	increased understanding of gender norms and
			stereotypes, prevention of sexual harassment at
			the workplace and safeguards for women workers
			as well as bystander response.
4. Communit	y Me	embers	
Knowledge	1.	Understanding of green jobs and how	X% women, men and young people around
		these can help benefit the environment	Naroda cluster out of a planned total target
		sustainability.	demonstrate a greater understanding of green
			jobs and environment sustainability
	2.	Awareness of gender norms and	X% women, men and young people around
		stereotypes that hinder women's	Naroda cluster out of a planned total target
		employment.	demonstrate evidence of challenging gender
			norms and stereotypes that hinder women's
			employment
	3.	Knowledge about prospects in the	X% young people and their families around
		environment sustainability field as well as	Naroda cluster out of a planned total target
		education courses linked to environment	demonstrate increased knowledge about
		sciences is enhanced.	prospects in the environment sustainability
			field as well as education courses linked to
			environment sciences
Behavior/	1.	Supportive community members for	X% women and young girls in local communities
Practice		women taking up green jobs or other	around Naroda cluster report increased support
		employment in the chemical industry as	from family members in women taking up green
		well as girls wanting to study chemistry,	jobs or other employment in the chemical industry
		environment engineering, environment	as well as girls wanting to study chemistry,
		sciences and other relevant subjects	environment engineering, environment sciences
			and other relevant subjects

81





Institute for Sustainable Communities is a non-profit organization with a mission to create equitable, climate change solutions around the world. We do this by forming collaborative, people-focused partnerships that support communities disproportionately impacted by the global climate crisis. Since its founding in 1991, ISC has utilized a unique, locally-led approach to ensure solutions emerge from within communities, rather than being imposed from the outside. Our projects focus on divested communities throughout the world, with specific attention paid to the impact systemic racism and gender inequity has in communities, workforces, and industrial sectors as they move toward a just transition.