WORKSPACE MAPPING

Volume 1

Mapping vulnerabilities of Abodana's women artisans during extreme heat

Terms

Mandli/Cooperative
A Cooperative is defined as ‘an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise.’ by the International Cooperatives Association (ICA). In India, cooperatives are registered under the cooperative acts in their respective states. They operate as enterprises owned and managed by worker-shareholders, with a democratically elected Board of Directors overseeing governance.

Artisans
Member-workers of the cooperative engaged in handicraft work

SEWA
Self-Employed Women’s Association

Preface

India is home to 10.96 crore non-agricultural informal workers employed across 6,50,48,400 unincorporated enterprises in manufacturing, trade, and other services. These workers generally perform home-based work or are engaged in informal producers’ cooperatives. Women make up 26 percent of this workforce. Workplaces in the unorganised sector are often located in informal or low-income settlements that fall between the cracks of urban development planning. This leaves them vulnerable to challenges posed by urban infrastructure deficits pertaining to basic services of sanitation, transportation, electricity and waste management. These vulnerabilities are exacerbated during extreme weather events such as extreme heat or excess rainfall.

The state of Gujarat in western India is ranked among the top fifty regions in the world that are most ‘at risk’ from climate hazards. Ahmedabad district in particular has seen consistent increase in the duration and intensity of heat waves over the last three decades, and is projected to see a fivefold increase by the 2030s. Gujarat is also a hub for handicraft workers and Ahmedabad city has multiple clusters of informal home-based handicraft workers. This study is part of an ongoing effort to understand and unpack how climate change, experienced as extreme weather events such as heat waves and excess rainfall, impacts the operations and work of these informal women handicraft workers.

This report details the findings of an exploratory study conducted with members of Abodana Mahila Chaapkaam SEWA Sahkari Mandali (hereinafter, Abodana Cooperative)–a handicraft cooperative located in Ahmedabad, providing livelihoods to 428 home-based artisans–to understand the added risks and vulnerabilities posed by the work environment during conditions of extreme heat and how artisans adjust their activities to cope. Based on the insights from the pilot study, we present a method of conducting similar studies across seasons and across different built environments. The framework is organised around four key parameters - availability of space, access to amenities, cooling and ventilation, and availability of light. We hope these can serve as a starting point for systematically documenting and addressing the unique yet widespread challenges of workspaces, and climate hazards faced by various informal workers in India.

This publication is a collaborative effort between Self-Employed Women's Association (SEWA) Cooperative Federation (hereinafter, Federation) and Urban Design Square (UDS), and is part of ongoing research to provide actionable insights into improving the resilience of businesses owned and managed by informal women workers.

March 2025

SEWA COOPERATIVE FEDERATION

Capacity-building • Business Development • Policy Action

Gujarat State Women's SEWA Cooperative Federation Limited is a Federation of 112 informal women workers' cooperatives and collectives. The Federation provides a range of support services to these cooperatives and collectives with the ultimate aim of holistically empowering informal women workers to achieve full employment and self-reliance, at the collective and the member level.

www.sewafederation.org

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URBAN DESIGN square

Urban Design Square is a research organisation dedicated to shaping safe, sustainable, and harmonious communities through a collaborative, multidisciplinary approach to urban development. The organisations works through an integrated approach combining research, writing, and education.

www.urbandesignsquare.com

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About the Study

Background

Workers experience different forms of risks based on the type and nature of work they are engaged in. These risks are closely tied to the site of work, which is a crucial determinant of the wellbeing of a worker. Informal work, in particular, is characterised by a lack of stability and social security. Global research on informal employment indicates gaps in safety standards in workspaces, leaving workers at risk of multiple vulnerabilities. The impacts of climate change, experienced as extreme heat, cold waves, and excess rainfall, now pose an added risk in the workspace. However, there has been limited exploration of the impact of the workspace environment on informal workers.

A significant portion (10.96 crores) of the working population in India is engaged in informal work and contributes to a minimum of 20 percent of the nation's GDP (some estimates place it at a higher share of 52.4%). 73.2% of non-agricultural employment is informal, of which 23.5% are self-employed women, including home-based workers like handicraft artisans. The increased burden of economic instability and extreme climate events can exacerbate vulnerabilities over time, increasing the risk of workers losing their traditional source of livelihood and being pushed into poverty. Therefore, an examination of the intersection of workspace conditions and climate change is crucial.

The handicraft trade relies heavily on informally employed artisans, including self-employed women. These artisans often find themselves in inadequate and unfavourable working conditions owing to the informal nature of their work and workspaces. These are an outcome of the location, layout of the workspace, as well as the social and regulatory environment in which the workspace operates. Workers generally have little control over how the workspace operates and/or have little resources to invest in better alternatives.

In the case of home-based artisans, their homes double up as workspaces. These are typically located in informal or low-income settlements that are vulnerable to challenges posed by the built environment and deteriorating infrastructure, including poorly ventilated buildings and frequent power cuts. These homes are inefficient at managing heat waves, and air-conditioning is unaffordable to the occupants, putting them at risk of physiological stress due to rising ambient temperatures.

> **There is a 2% loss in productivity for every degree rise above 25C of indoor room temperature.**
> *(Vellingiri et.al., 2020)*

Figure 1. SEWA Cooperative Federation presence in India

Abodana Workspaces

The Abodana Mahila Chaapkaam SEWA Sahkari Mandali (Abodana Handicrafts Cooperative) henceforth referred to as Abodana handicrafts cooperative is a women artisans' cooperative in Gujarat, supported by the SEWA Cooperative Federation since 2019.

Artisans specialize in embroidery, stitching, badla work, patchwork, appliqué, jewellery making, beadwork, and crochet. The cooperative sells products online, at exhibitions under the SEWA Kalakruti brand, and fulfills third-party orders, handling about 21 orders per month.

Since 2021, part of its operations, including raw material storage, warehousing, sampling, inventory management, and packaging, have been based at 'SEWA ni Haveli'—a three-storey, Grade III heritage structure in Ahmedabad's old city at Dhal ni Pol. Restored in 2014, the Haveli hosts eight women for sampling and production work. The cooperative also collaborates with a network of home-based artisans across Ahmedabad for its production (figure 1).

The pilot study focuses on analysing the climate risk that extreme heat poses on the artisans and activities within Abodana's workspaces - SEWA ni Haveli, and artisans' homes - through spatial and qualitative methods.

Due to the exploratory nature of the pilot study, the scope of the spatial mapping exercise was limited to Abodana's workspace, and extreme heat was the primary risk assessed. The homes of artisans were not mapped but were observed during interviews to gain an understanding of the built environment they work in.

A limitation of the study is that Sewa ni Haveli is a grade-III heritage building, making some of the findings less applicable to non-heritage or modern urban built environments. Additionally, due to heritage preservation regulations, modifying the workspace—such as installing new fans, lights, or other elements to improve working conditions—is not feasible.

Abodana Handicraft Cooperative focuses on three areas - livelihood support through production and sales, capacity building via training, and the preservation of traditional crafts.

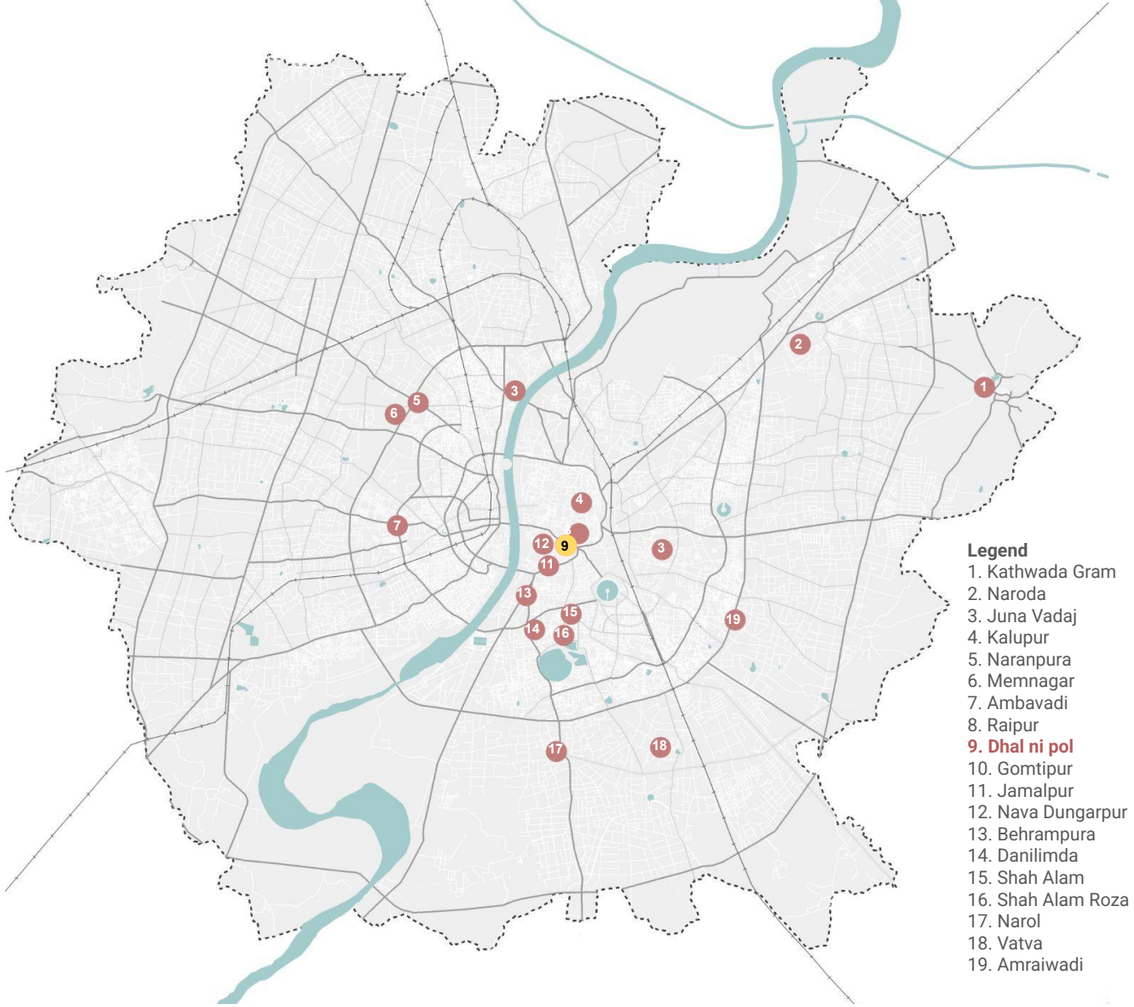


Figure 1. Map depicting neighborhoods where Abodana's artisans live

The map above depicts neighborhoods where the women artisans of Abodana live. Some travel daily to 'SEWA ni Haveli' - Abodana Mandli's Workspace in Dhal ni Pol, while others, who work from home, occasionally visit to pick up and drop off orders.

Aim of the Study

The pilot study seeks to examine the impact of extreme heat on the informal handicraft workers in Abodana by documenting and analysing the challenges they face in their workspaces during periods of extreme heat. Through an analysis of the impacts on the workers, the study aims to gain preliminary insights into how these impacts consequently affect the operations of Abodana cooperative.

SEWA Cooperative Federation has been promoting cooperatives owned and managed by informal women workers since 1992. Cooperatives are seen as effective mechanisms for enhancing workers' voice, visibility, and representation, leading to their economic empowerment and transition out of informal employment.

The Federation, in its position as a Women's Enterprise Support System (WESS), marks this pilot study–conducted in collaboration with UDS–as an important first step in a larger effort to assess the vulnerabilities of informal women artisans facing unprecedented and unpredictable climate conditions.

The study aims to assess the impact of extreme heat on the informal women artisans of Abodana and investigate the adaptation strategies that they employ.

Methodology

The study employs a mixed-methods approach, using spatial and qualitative methods to analyse the workspaces of Abodana Mandali: at Sewa ni Haveli, as well and artisans' homes. Data collection was done during the peak summer months of May-June in 2024, in Ahmedabad.

The study was initiated with an extensive review of literature to develop a set of indicators to assess climate risk.

Two guides were developed for conducting semi-structured interviews - one for the artisans (including the cooperative president and manager) who work at Sewa ni Haveli, and second for home-based artisans.

Data Collection

Data collection initiated with measurements of SEWA ni Haveli to understand its spatial aspects. After this, the focus shifted to 'activity mapping' through different times of the day to understand daily routines as well as occasional activities related to Abodana's logistics, production, and sales.

Semi-structured interviews were conducted with artisans who work at Abodana's workspace (n=5), as well as home-based artisans who are members of Abodana (n=7). The interviews helped build a deeper understanding of the challenges that women artisans face within the Abodana workspace at Sewa ni Haveli, as well as at their homes which double up as their workspace.

Documentation & Analysis

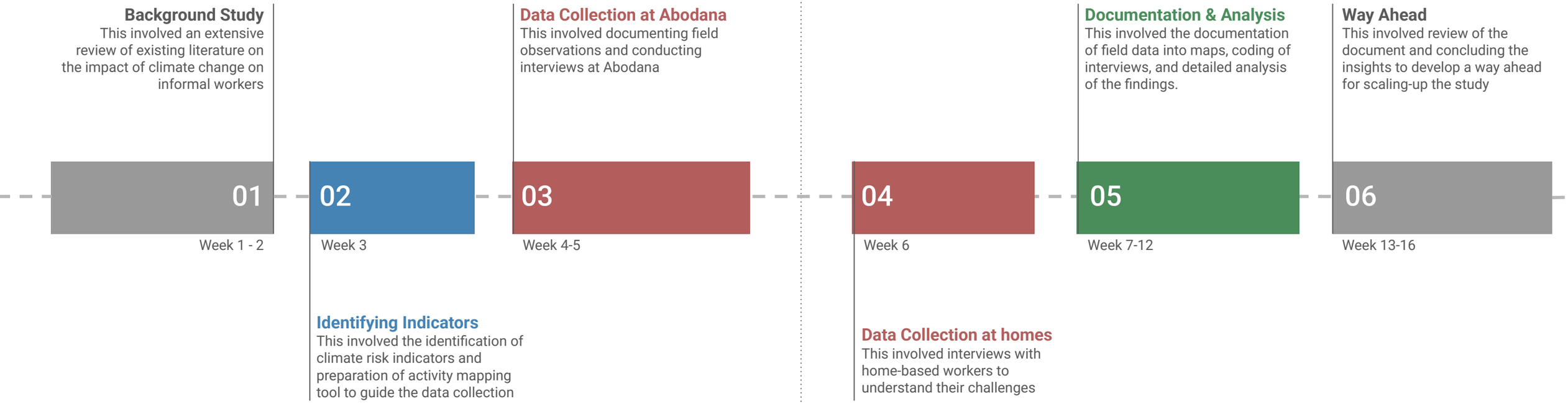
Observations gathered from activity mapping were translated into maps highlighting the activities during different times of the day. Interview data was analysed and coded using QDA Miner Lite - an open source software used for thematic qualitative analysis to distill the most significant insights from the interviews. Analysis was done with an intersectional lens to identify how heat exacerbates existing social, economic and health- related vulnerabilities.

Findings from both - activity mapping and interviews were triangulated to identify gaps and develop deeper insights. Based on the findings, climate risks were categorised into four key parameters.

Timeline

This study was completed over a consolidated time period of 16 weeks.

The gaps between milestones were utilised to reflect on the completed work and to strategize for the next stages, which helped in fine-tuning the research methodology, and, conducting multiple reviews with internal team members as well as external experts.



Study Parameters

Availability of Space

This parameter examines the spatial layout of the workspace, including the dimensions of the space, placement of furniture and the available space for movement, sitting and storage of items.

Access to Amenities

This parameter evaluates the availability and accessibility of essential amenities such as toilets, drinking water, and pantry facilities.

Cooling & Ventilation

This parameter examines the size and positioning of doors and windows and the placement of fans, coolers etc.

Availability of Light

This parameter evaluates the available natural light and its effectiveness for all workstations.

This categorisation facilitated a systematic analysis by inter-relating findings from interviews and activity mapping, enabling a deeper understanding of how the built environment at Abodana's workspace interacts with day-to-day activities of women artisans.

During the summer season, especially in the months of June and July, there is a high demand for orders, including bulk exhibition orders. However, our staff members also take more leaves to visit home or due to heat-induced illnesses. This makes it challenging to manage the workload effectively.

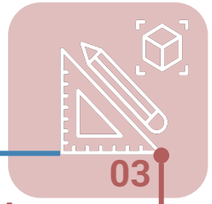
Process Overview

01 Identify the workspace

Identify a workspace that is accessible and relevant for understanding the impact of climate change on informal women workers

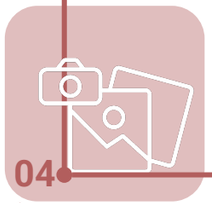
02 Seek Consent

Explain the importance of the project to members of the workspace and get them to sign a formal consent form



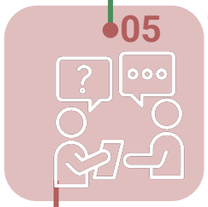
03 Measure the space

Measure the workspace dimensions, including sizes of the room, doors, windows, and furniture



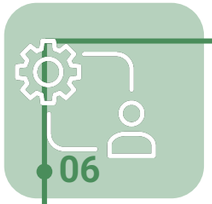
04 Document the activity

Set up a camera to capture photographs and videos of the members' activities.



05 Talk to members

Interview the members to validate the observations and dig deeper to understand their concerns



06 Document & Analyse

Prepare drawings/annotate photographs to highlight key observations. Analyse the interview data and compared with site observations

07 Write Insights

Draw conclusions from the study and write key insights

08 Compile & Publish

Compile the study in an easy-to-read format and publish it as an open access document

02

Abodana Workspace - SEWA ni Haveli

How to read this section?

Each spread details out one parameter, sharing site observations from SEWA ni Haveli (Abodana's workspace) through drawings and interview excerpts as text bubbles, complete with key inferences.

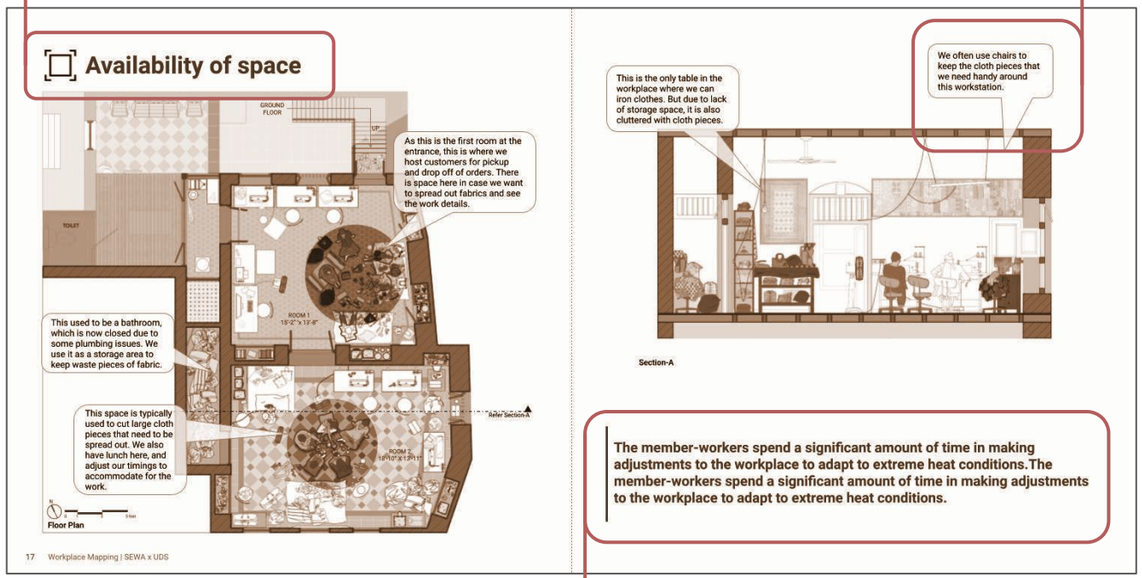
When reviewing the drawings in this section, begin with the coloured portions, which highlight key activities in focus. The text bubbles contain excerpts from interviews, offering insights into women's perception of these activities.

The drawings labeled as 'Floor Plan' provide a top-down view of the entire room, aiding in the understanding of the overall space layout. In contrast, the 'Section' drawings present a more detailed, eye-level perspective of specific walls, illustrating how different activities take place within the space. These sections also depict doors and windows, serving as reference points for orientation.

By interpreting both the Floor Plan and Section drawings together, a clearer understanding of the physical environment and the activities can be gathered.

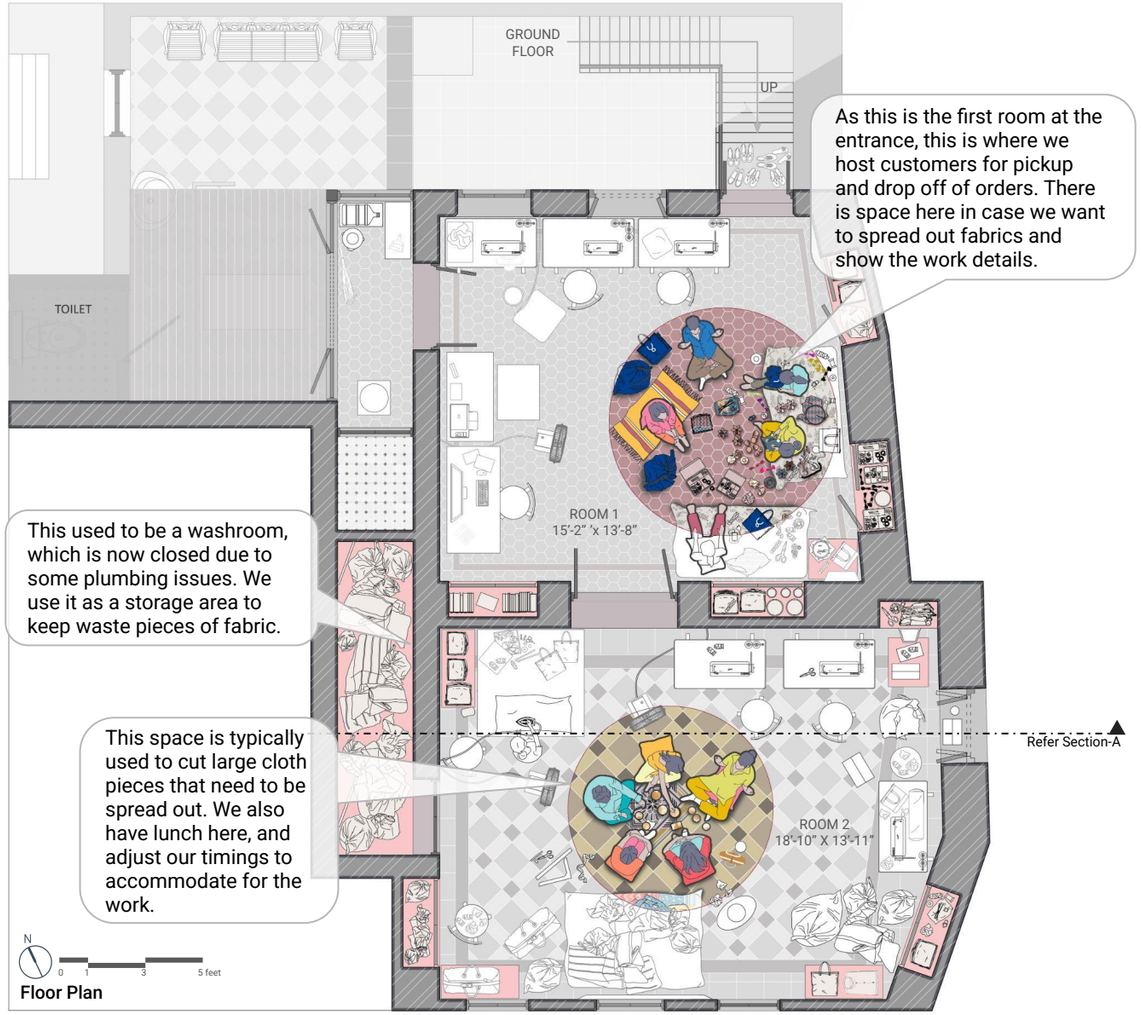
Parameter Name

Interview Excerpts
(translated verbatim into English)

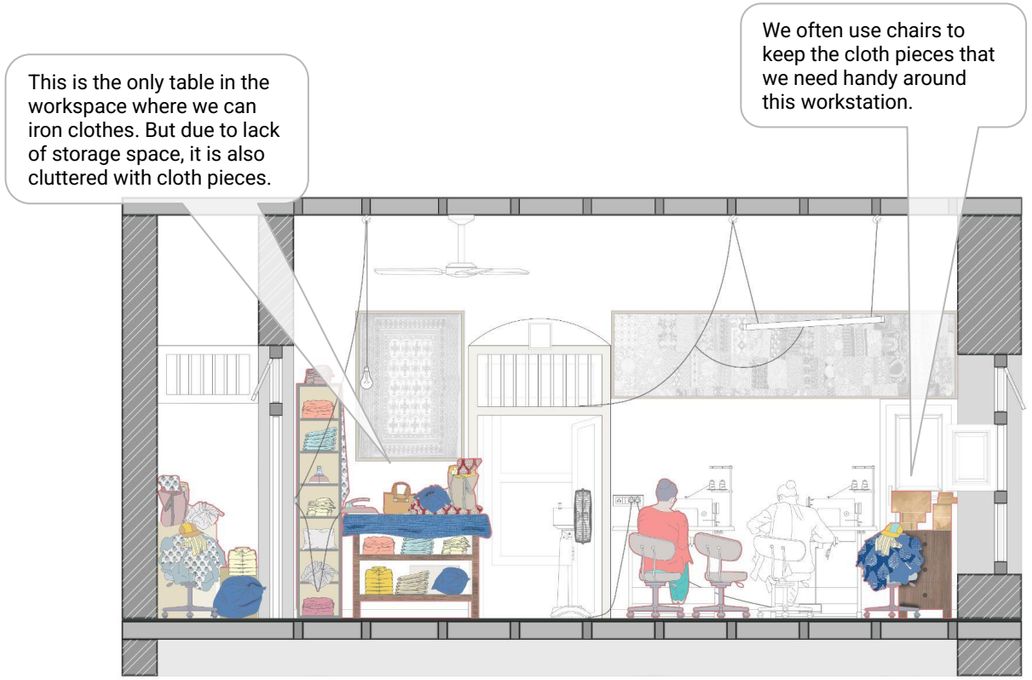


Key Inferences

Availability of space



Floor Plan



Section-A

As a heritage building, only two rooms are allocated for Abodana's operations, leading to several challenges. Storage is limited, so furniture is used to store items. The space also serves multiple functions, requiring careful scheduling to accomodate in work, lunch, and visitor interactions.

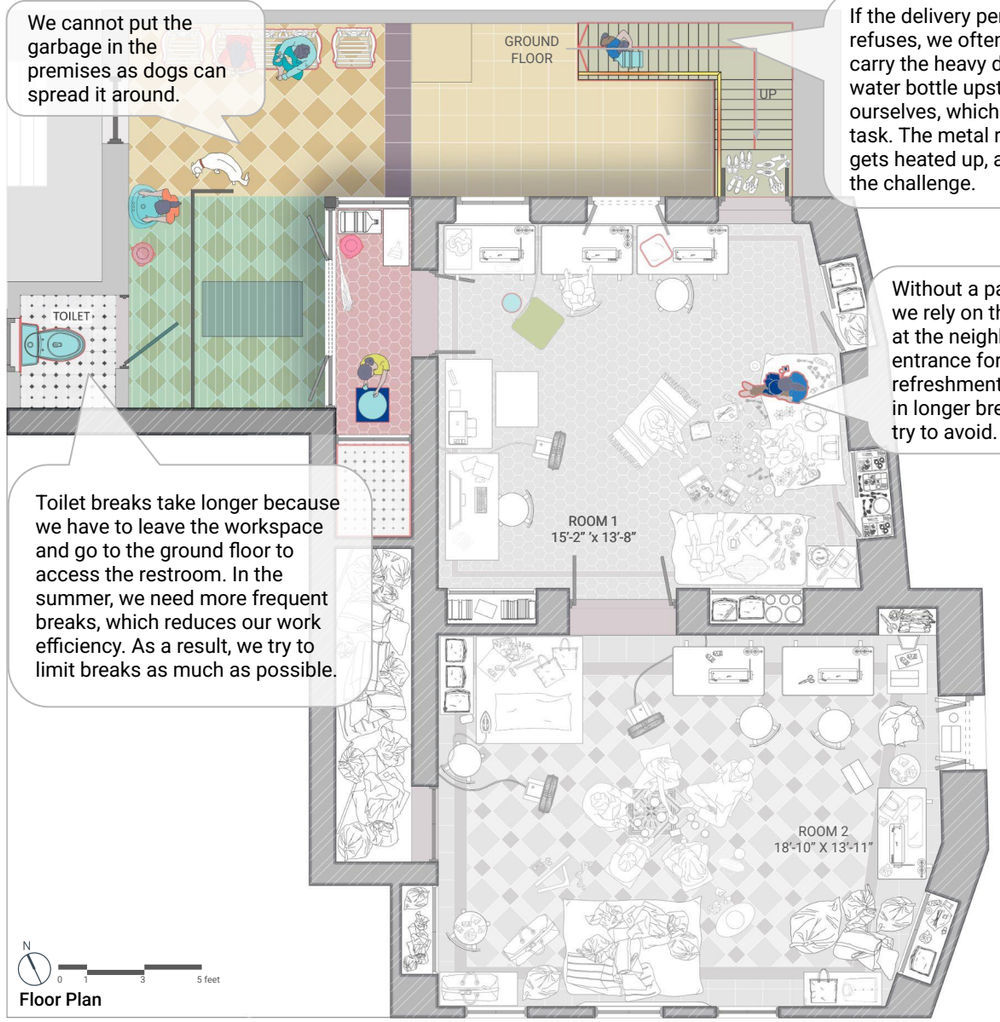
Access to amenities

We cannot put the garbage in the premises as dogs can spread it around.

If the delivery person refuses, we often have to carry the heavy drinking water bottle upstairs ourselves, which is a difficult task. The metal railing also gets heated up, adding to the challenge.

Without a pantry here, we rely on the tea stall at the neighborhood entrance for refreshments, resulting in longer breaks that we try to avoid.

Toilet breaks take longer because we have to leave the workspace and go to the ground floor to access the restroom. In the summer, we need more frequent breaks, which reduces our work efficiency. As a result, we try to limit breaks as much as possible.



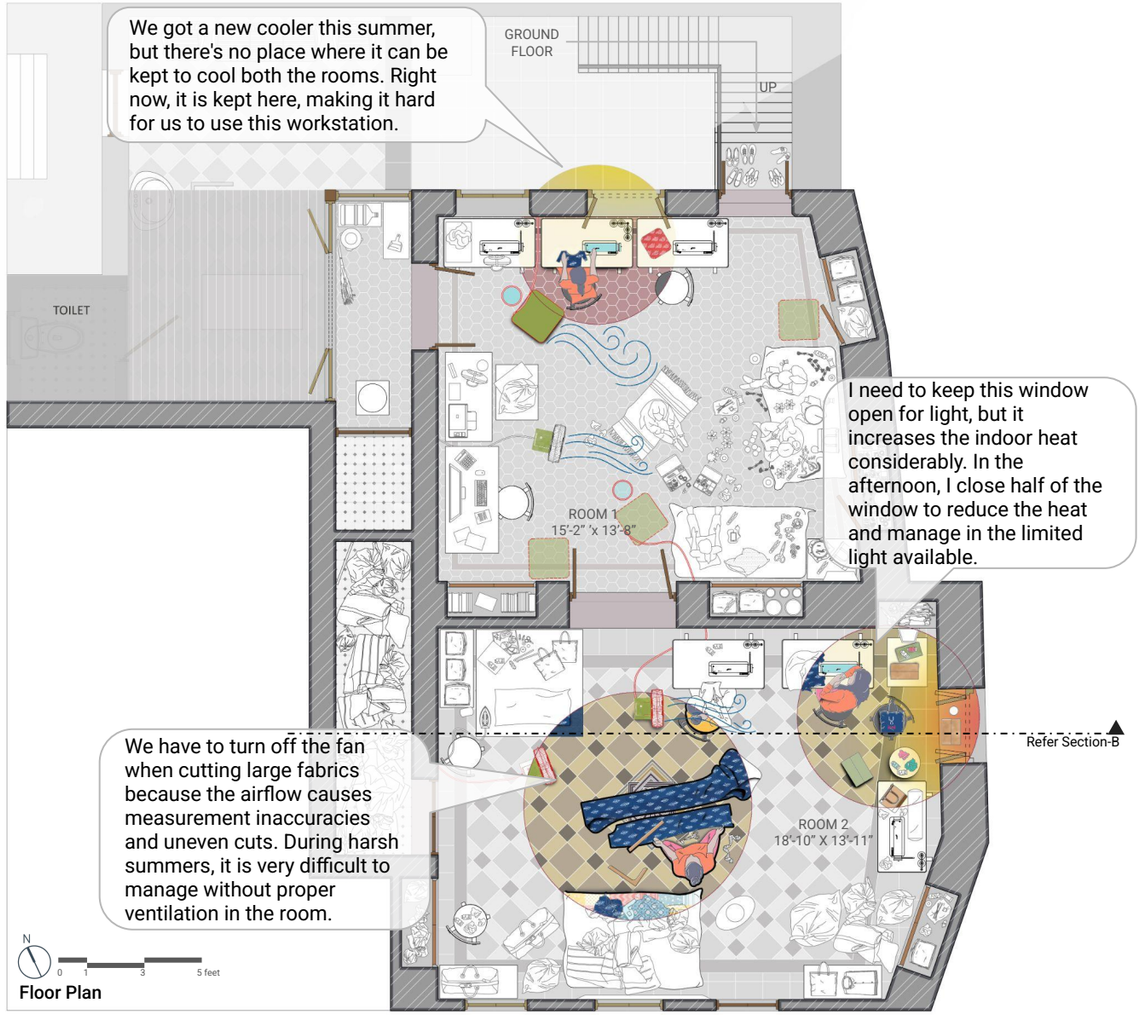
Floor Plan

Disposal of garbage is challenging for us. We frequently have a lot of scrap to discard, but the garbage collection schedule doesn't align with our work hours. This makes it feel like we are constantly struggling to manage waste alongside our work.

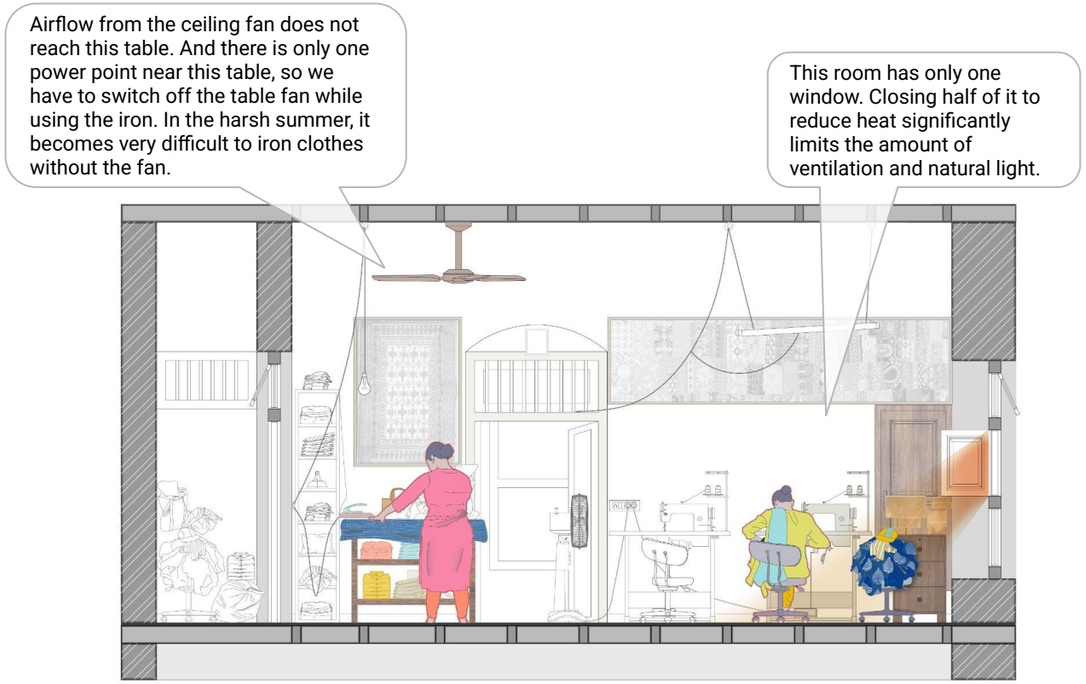
Resisting the urge to use the toilet can harm our health, causing urinary tract infections and bladder or kidney problems. It's even worse when there are many visitors and the toilet is dirty. Some girls prefer going to a friend's place nearby to use a clean toilet, especially during their periods.

The lack of amenities in the workspace presents an additional challenge for the women, affecting comfort and ease of work. To avoid frequent trips to the restroom, many limit their water intake, which can lead to serious health issues. Additionally, managing garbage disposal adds to their workload.

Cooling and Ventilation



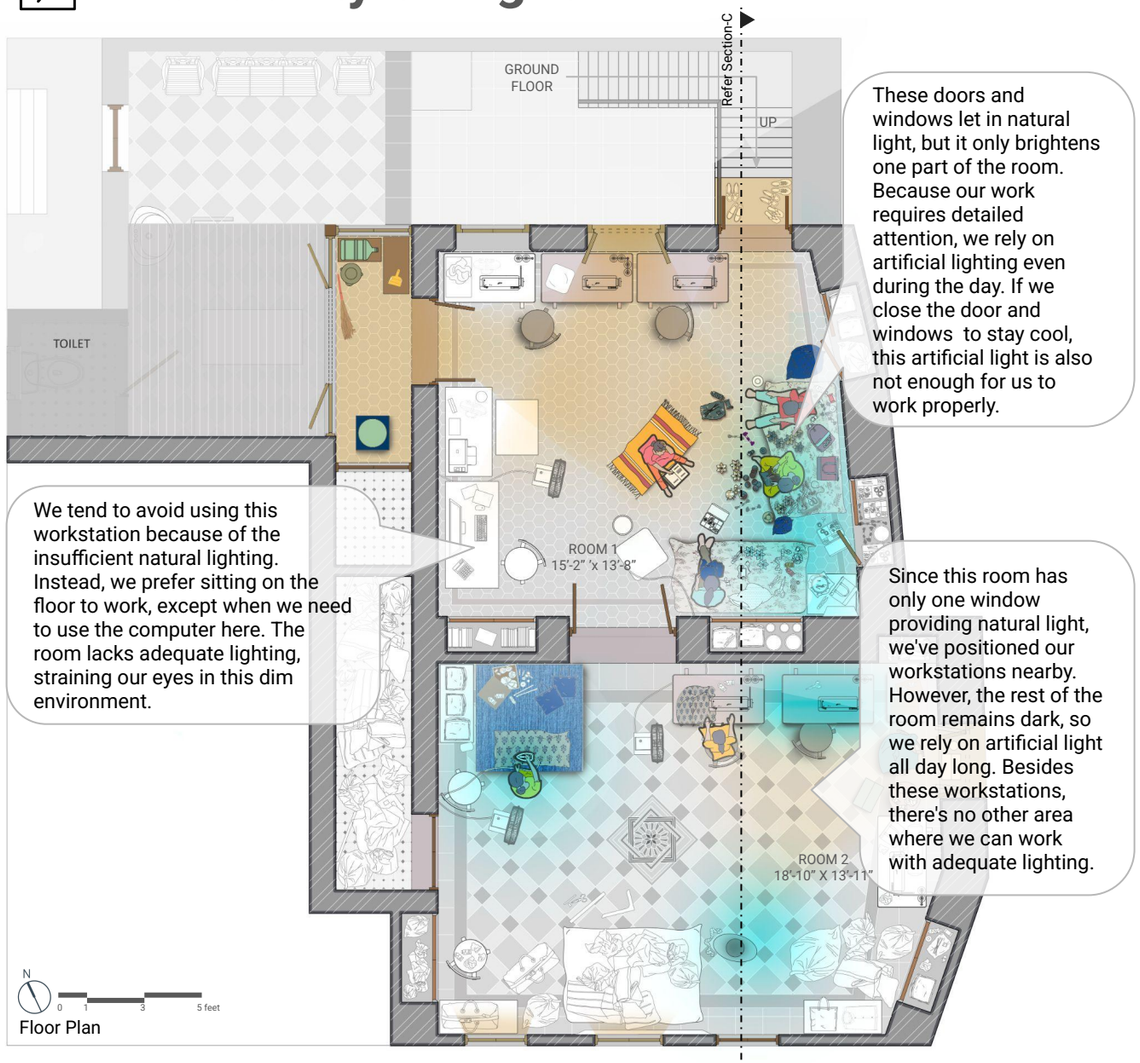
Floor Plan



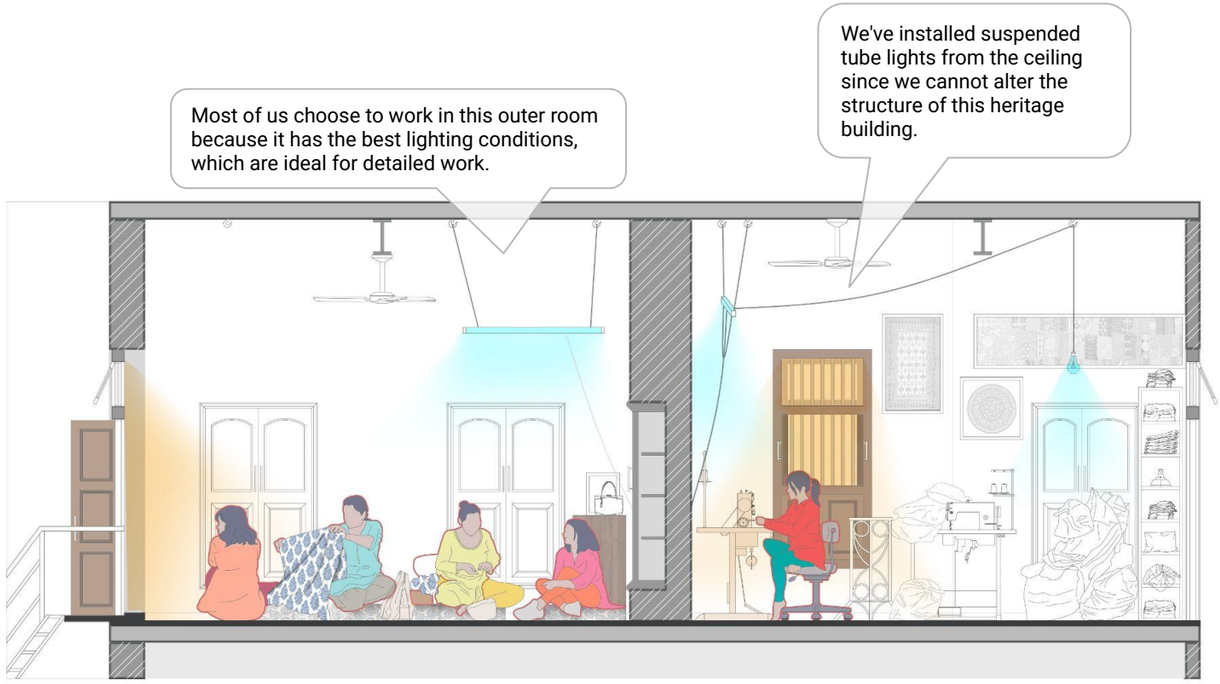
Section-B

The limited space and small windows and doors of the heritage building make heat management a significant challenge. The women must constantly adjust the windows to control heat and light. Additionally, the limited number of power outlets often prevent the use of pedestal fans.

Availability of Light



Floor Plan



Section-C

The small door and window openings allow only limited natural light to enter the rooms, illuminating only certain areas. This further reduces the usable space, and increase the usage of artificial lighting during the day, leading to higher electricity bills.

Interview Excerpts

A total of twelve interviews were conducted with women artisans, across their work environments at SEWA ni Haveli and at their homes. The interviews were guided by the identified climate risk indicators.

Conducting interviews with home-based artisans was challenging due to concerns and expectations of the artisans when requested for a visit to their homes to do interviews.

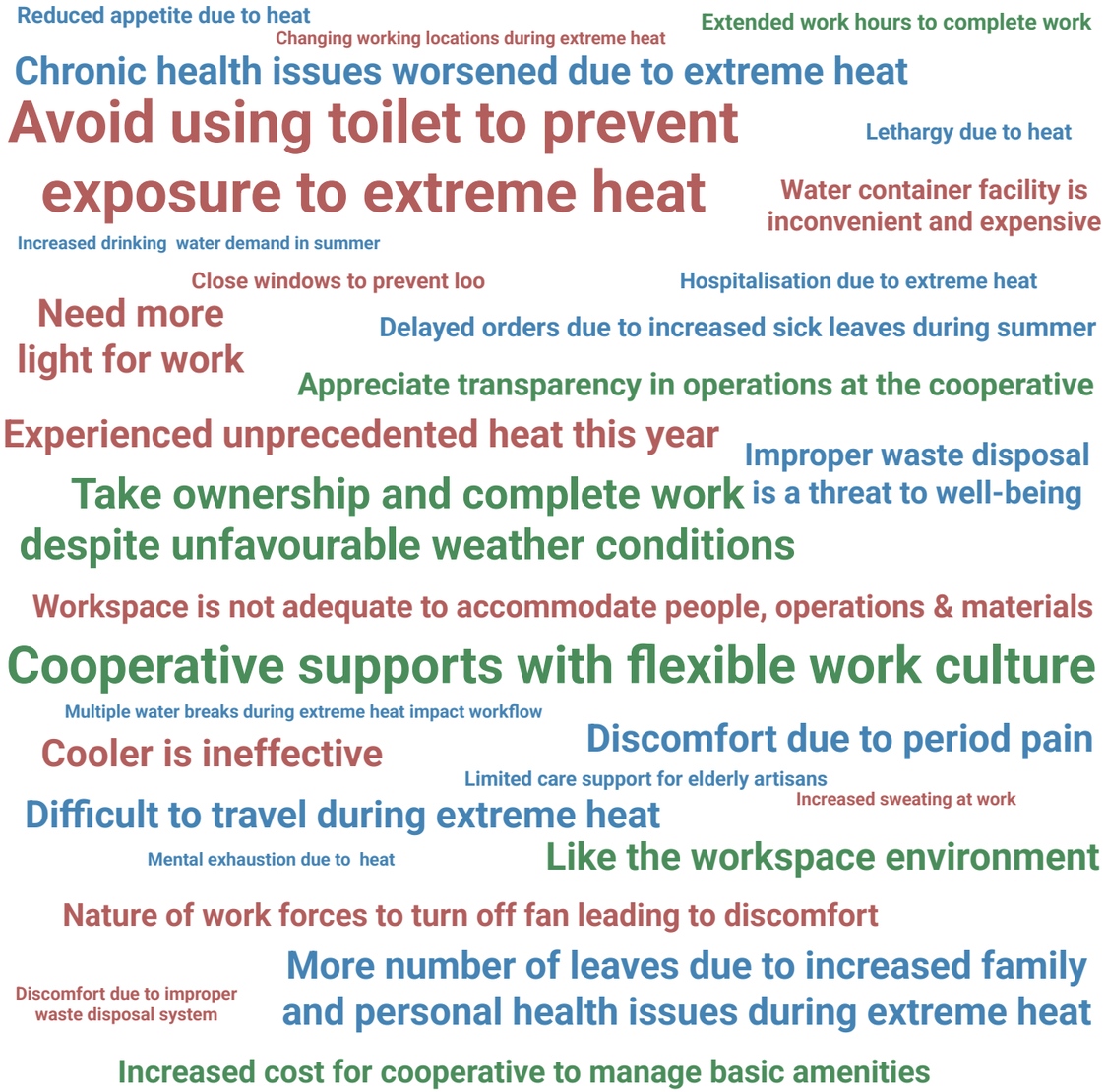
Three themes have emerged from the analysis of the qualitative data

Theme 1: Workspace design and amenities

Theme 2: Health Issues and care work

Theme 3: Working environment

The word cloud on the right visually represents key excerpts from the interviews, with each color corresponding to a specific theme. The size of each phrase reflects the frequency of its occurrence, with larger text indicating a higher prevalence of that particular code.



Findings from SEWA ni Haveli

Built environment of the workspace and the nature of work aggravates the impact of extreme heat on artisans, limiting their ability to work.

Extreme heat adversely affects artisans' health, forcing them to take leaves, which impacts their livelihoods and also disrupts the cooperative's operations.

Built environment

Cooling in the workspace is ineffective due to poor placement of fans and cooler. Additionally, insufficient lighting forces artisans to keep windows open, allowing hot, dry winds inside. The small workspace worsens ventilation issues, especially when crowded with visitors, orders, or materials. As a result, artisans experience both heat and poor air circulation, making the environment uncomfortable.

Nature of work

Artisans at the Abodana workspace face additional heat-related issues while performing tasks like cloth cutting, which require the fabric to be in place. To avoid disruption, they often turn off fans and coolers, leading to increased sweating and discomfort on hot days.

Impact on health

Chronic health conditions such as migraine and high blood pressure are exacerbated by prolonged exposure to heat, both at the workspace and during commute. Artisans who live nearby walk, while others rely on two-wheelers or auto-rickshaws, which offer little protection from the heat. As a result, they experience symptoms like fever, dehydration, vomiting, headaches, and lethargy, leading to frequent hospitalisations during summers.

Impact on livelihoods

Artisans avoid taking leave due to financial necessity, but when they are forced to, it results in a loss of income. Delays in order delivery, when women artisans try to avoid extreme heat, not only impacts the artisans' livelihoods but also pose a risk to the cooperative's overall functioning.

The cooperative model fosters sensitivity and support amongst its member- workers, but business pressures persist due to resource constraints.

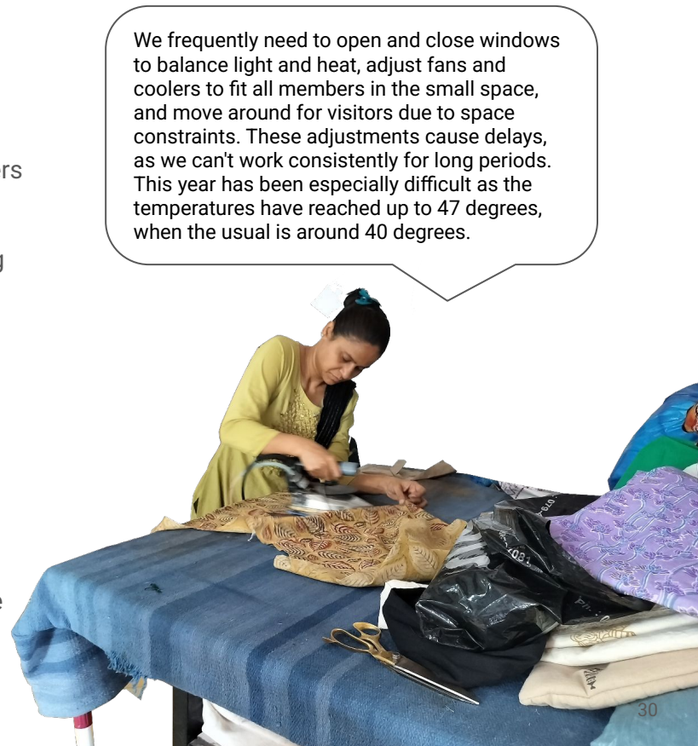
The member-workers spend a significant amount of time in making adjustments to the workspace to adapt to extreme heat conditions.

Flexible work conditions

Recognizing the burden of care work that many women face at home, the managing members at Abodana allow flexible work arrangements. Women sometimes take orders home or adjust their work hours to balance their responsibilities. This flexibility enables artisans to continue working while managing their personal obligations, and makes the workspace experience enjoyable and collaborative for all.

Meeting timelines

The leaders in Abodana understand the importance of timely order delivery for the cooperative and certain members frequently put in extra hours, even in extreme heat, to prevent any delays. They recognize that the cooperative cannot afford setbacks and take ownership of their work to ensure smooth operations.



03

Abodana Workspace - Artisans' Homes

Artisans' Homes

Abodana cooperative relies on a network of home-based artisans for its production processes. These range from young unmarried women, to women with young children and those over the age of 50.

Home- based workers (as defined by WIEGO) are those who produce goods or services in or near their homes for local, domestic or global markets.

Abodana's home-based artisans are given piece work and are paid based on the number and type of pieces they complete. The cooperative allocates pieces based on the skill and time availability of the artisans, which means they have to work with a rotating group.

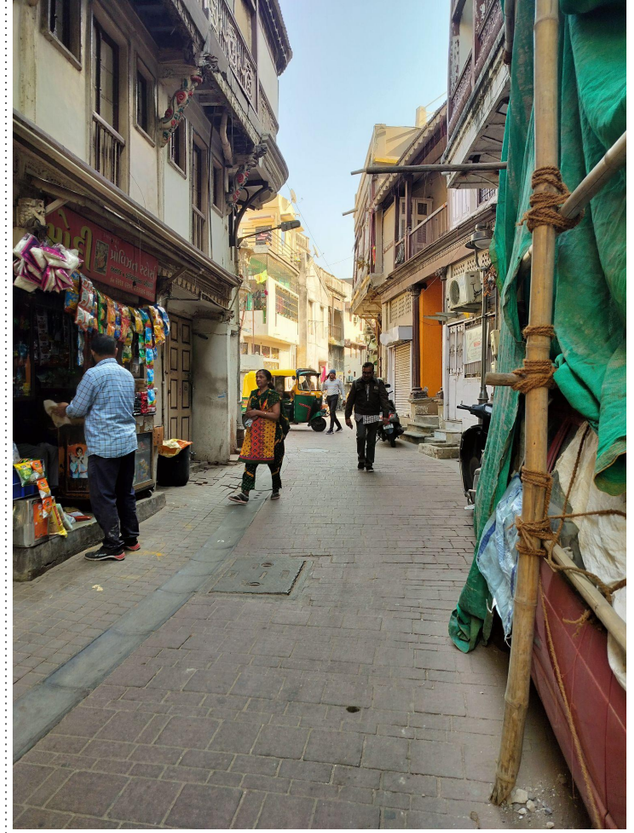
Many of these artisans also depend on alternate sources of income through home-based work like mehendi art, and provision of tiffin services.

The key highlights on the right use colour coding as per themes identified on page 27.

I am not bothered much with the heat, it doesn't affect my work. My job itself involves working in high temperatures—I prepare tiffins in the kitchen every morning, so I'm used to it. A change in the climate doesn't make me feel uneasy or tired—it doesn't affect me so much, I am used to it.....

During the early and late hours of the day, I'm usually occupied with household chores. This is why, I work on Abodana orders in the afternoon—about three to four hours. The natural light during this time creates a comfortable environment, and since most of the family members are away, I also have the mental and physical space to focus on my craft.

Artisans’ Homes & Neighbourhoods



Findings from Artisans' Homes

Artisans face an increased burden of paid and unpaid labour including care work during the summer months. The early and late hours of the day are spent on household chores, care work, or other income generation work (like meal preparation for tiffin service).

Normalising climate extremes
While artisans felt they had experienced changes in the normal climate of the city, with higher temperatures, and extended summers, many did not acknowledge or articulate rising heat as a risk or deterrent to their work. They remarked on their ability to 'manage' work as they are accustomed to experiencing high temperatures. Coupled with limited health awareness, this approach puts them at risk of heat illness.

With age, climate impact on health compound with other existing conditions, putting artisans at a higher risk, affecting their quality of life and ability to work.

Negotiating comfort
On days with extreme temperature, artisans work in the evening or later at night when the temperatures are more comfortable. They compromise on comfort, work hours and productivity during the day by avoiding use of cooling devices to save costs on electricity. These are reserved for the night when their families use the cooling (cooler/ AC) facility together. Working at night requires reliance on artificial, and often inadequate lighting which causes eye strain. With all family members in the same room, artisans do not have the physical or creative headspace required for their work.

Artisans compromise on their comfort and ability to work, by restricting use of cooling implements in efforts to save costs on electricity.

Location-based inequities
Abodana's home-based artisans are located in both inner city and outer city settlements (see figure 2). They face varied vulnerabilities based on where their homes and workspaces are located.

Challenges of irregular work, low payment, and transportation costs persist. Despite these challenges, artisans value the sense of sisterhood and mutual support within Abodana.

Poor access to amenities
Disruption to drinking water and electricity supply was varied for artisans living in different neighborhoods. Challenges in regularity and quantity of supply of these amenities, for instance, were more pronounced for artisans located in Vadaj–an area where Ahmedabad's largest slum settlements are located. In summer, the municipality's evening water supply often fails, despite a twice-daily schedule. Power cuts, are also more frequent during peak summer.

Artisans in Dhal ni Pol have more spacious, ventilated homes due to the vernacular architecture in the area. Contrastingly, those right outside the Pol live in cramped, dilapidated ghettoised settlements. These artisans were from a religious minority community (muslims) and reported having limited housing options in the city because of their identity.

Multimodal transport
Artisans located further away who don't have their own vehicles, have to rely on a combination of transportation (rickshaws, buses, and walking) to deliver completed orders.The 'transfer penalties' of moving from one form of transport to the next include added expenses, artisans' time, and risk of exposure to excess heat, in transit. This deters artisans from travelling for delivery, and taking new orders on hot days.

Our findings reveal how existing vulnerabilities in and around artisans' homes are compounded by the challenges of extreme heat. These existing vulnerabilities, which are particularly relevant for women artisans, are key determinants of their heightened susceptibility to various climate-related risks.

03

Way Ahead

Way Ahead

This study contributes to the empirical knowledge at the intersection of climate change, gender, and informal work in India. It employs a multidisciplinary approach to explore the relationship between the spatial environment of an artisan's workspace and the vulnerabilities of the informal economy during extreme heat, highlighting its impact on artisans' livelihoods.

Through the study of Abodana Mandali, the study provided a first-hand understanding of the needs of informal women handicraft artisans. Going forward, a seasonal analysis will be conducted to understand the lives and livelihoods of women artisans during periods of extreme monsoon and winter conditions.

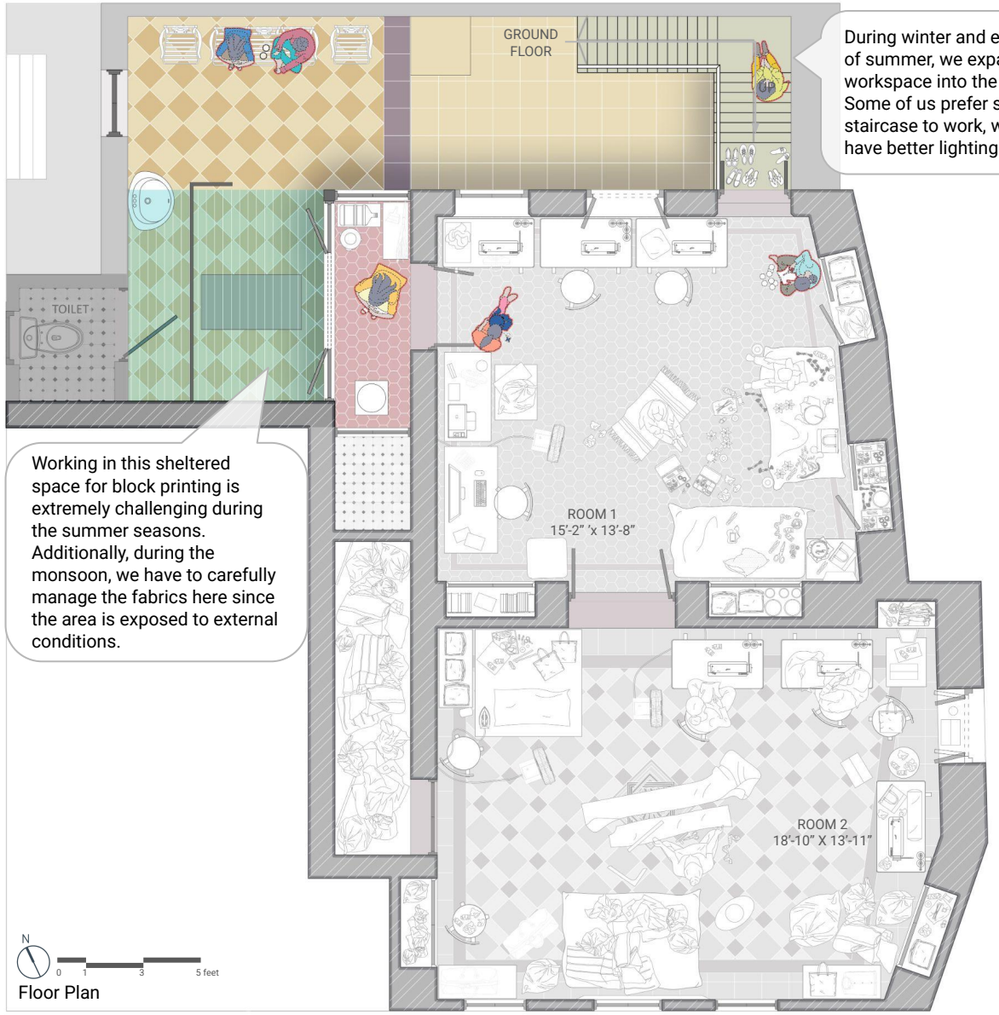
Insights from this study will aid the Federation in developing business strategies which account for climate risks that impact the women's collective enterprises. The first step will be to share the findings with the members of the Abodana Mandali to enable co-creation of solutions suitable to their needs.

Further, through consultations with multiple stakeholders engaged with artisans–including government, policy makers, and other artisan collectives and cooperatives –we hope to co-design a bottom-up strategy to address challenges highlighted in the report, and implement actions for climate adaptation.

This pilot study gathers three key insights - spatial components necessary for artisans' comfort, impact of extreme heat on work and key adaptation strategies adopted by women artisans to cope with extreme heat.

The evolving workspace of Abodana through different seasons - monsoon and winter.

Seasonal experiences



Floor Plan

During winter and early months of summer, we expand our workspace into the outer areas. Some of us prefer sitting on the staircase to work, where we have better lighting conditions.

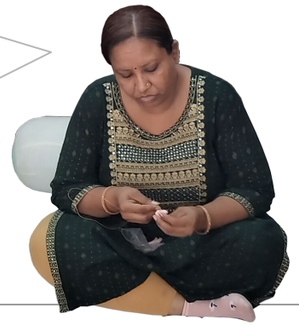
Working in this sheltered space for block printing is extremely challenging during the summer seasons. Additionally, during the monsoon, we have to carefully manage the fabrics here since the area is exposed to external conditions.

During summers, both we and our family members frequently fall ill, compelling us to take an increased number of leaves. Moreover, the intense heat sometimes prevents us from working effectively after lunch, necessitating longer breaks to manage the heat.

We need to closely monitor the monsoon rains. At the first sight of clouds, we quickly close all windows and doors to protect the fabrics from water damage.

During winters, we don't need to use the toilet as frequently. This lets us work for longer periods without interruption. However, accessing the toilet becomes a challenge when it rains.

During winters, we do not need to drink water as frequently. This reduces the need for water bottles, and we have fewer struggles with the delivery person to bring them upstairs.



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