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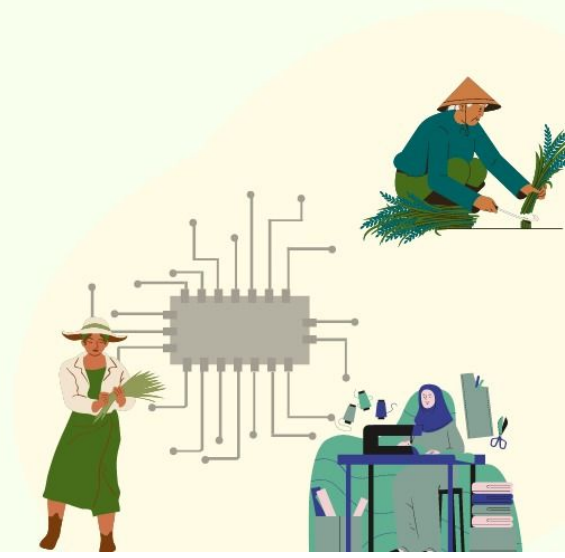
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Baseline Survey Findings Report

SEWA Cooperative Federation

IT for Change
September 2022



SEWA Cooperative Federation Baseline Survey Report

Authors: Ranjitha Kumar, Anuradha Ganapathy and Sakhi Shah

September 2022



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SEWA Cooperative Federation Baseline Survey Report

1. Background

Women's economic empowerment requires the creation of decent, quality work opportunities with fair pay, and an increase in women's decision-making power.¹ Realizing this vision in a country like India is not possible without a focus on closing the gender gaps in the agriculture sector, which employs 80% of all economically active women in the country.² Women comprise 33% of the agricultural labor force and 48% of self-employed farmers, with rural women producing 60-70% of food (Ibid). Yet, only 13% of the women own land,³ and a majority of them are concentrated in the low-value sections of the supply chain, with their work often not being recognized or remunerated. Additionally, existing social and cultural norms have perpetuated gender disparities in agriculture – women farmers are paid significantly lower than their male counterparts, they are often excluded from participating in market-facing roles, key decision-making processes, training, and extension work, and their access to institutional credit remains restricted due to agriculture policies that fail to recognize them as “farmers”.⁴ Closing this gender gap, therefore, becomes essential in order to accelerate the pace of growth in the agriculture sector.

Within agriculture, technologies, platforms, and data are being increasingly seen as a pathway to strengthen agricultural livelihoods and secure economic empowerment of marginal and small farmers.⁵ Therefore, the question of what role can digital technologies play in the lives of women, particularly those working in the informal economy, including agriculture, is one that has received considerable attention in recent years. While it is recognized that digital technologies have the potential to create new avenues for women's economic empowerment, the severe gender gap in access to technology can intensify the existing inequalities in earnings, access to information, markets, credit, and so on.⁶ For example, studies have demonstrated that women farmers on digital platforms are not able to attain the same productivity gains as their male counterparts due to problems related to tenure security, informal institutional constraints, and intra-household dynamics.⁷ Women's lower access to the internet combined with little or no agricultural training, credit, and land, is known to directly affect farm yields (Ibid). Even when women have purchasing capacity, socio-cultural norms

¹ <https://www.oxfamindia.org/sites/default/files/bp-an-economy-that-works-for-women-020317-en.pdf>

² <https://www.oxfamindia.org/women-empowerment-india-farmers>

³ <https://www.oxfamindia.org/women-empowerment-india-farmers>

⁴ <https://idronline.org/giving-women-farmers-access-to-technology-agriculture/>

⁵ [https://itforchange.net/sites/default/files/2022-](https://itforchange.net/sites/default/files/2022-08/Concept%20note_%20The%20Digital%20Ecosystem%20Opportunity%20for%20Indian%20Agriculture_.pdf)

[08/Concept%20note_%20The%20Digital%20Ecosystem%20Opportunity%20for%20Indian%20Agriculture_.pdf](https://itforchange.net/sites/default/files/2022-08/Concept%20note_%20The%20Digital%20Ecosystem%20Opportunity%20for%20Indian%20Agriculture_.pdf)

⁶ https://sewabharatresearch.org/wp-content/uploads/2020/10/Digital-assets-consultation-report_UNHLP_SEWA-BHARAT_2.pdf

⁷ <https://itforchange.net/sites/default/files/add/ThinkPiece-Digitally-Restructured-Value-Chains-Reshaping-Labor-Futures-Women-Global-South.pdf>

and patriarchal mindsets create barriers to using digital tools, as a result of which female farmers also lag in digital skills to effectively use digital platforms.⁸

Within this context, with a view to provide pathways for economic empowerment of women in the digital economy, IT for Change, as part of its project titled “Centering Women in the Digital Economy” entered into a knowledge partnership with SEWA Cooperative Federation in 2020.

The partnership aims to do the following:

1. Support social enterprises/worker cooperatives in developing, testing, and refining scalable platform models in agriculture and service work to enable their women worker constituencies to participate in the platform economy on empowering terms.
2. Distil techno-institutional design principles of platform models that can further the economic rights and wellbeing of informal sector women workers in the platform economy.
3. Document inclusive platform models as a robust evidence base for concerted policy action – national and global – at the intersections of gender and the future of work.

As part of this partnership, IT for Change and SEWA are working on a four-year intervention that involves developing, piloting, testing, and refining an agri-tech platform with women farmers who are members of agricultural cooperatives set up by SEWA in Kheda and Tapi districts of Gujarat, India. The key milestones of this intervention include conducting a baseline survey for needs analysis, developing platform prototypes at each site through participatory design exercises, key informant interviews at each stage to inform technical and institutional design, platform incubation, and roll-out.

2. About SEWA Cooperative Federation⁹

SEWA works to support and strengthen women’s cooperatives, with a vision to achieve full employment and self-reliance for informal sector women workers. SEWA Cooperative Federation is the apex organization of SEWA. Since its inception in 1992, the Federation has organized 300,000 women into over 100 primary cooperatives/collectives, across six sectors: Agriculture & Allied Activities, Artisans, Credit & Thrift, Services, Social Security Services, and Trade. It works to help cooperatives sustain financial viability while representing their interests at national and international levels.

⁸ https://sewabharatresearch.org/wp-content/uploads/2020/10/Digital-assets-consultation-report_UNHLP_SEWA-BHARAT_2.pdf

⁹ This section has been reproduced from the SEWA website- <https://www.sewafederation.org/our-services/>

The services provided by SEWA Federation fall under five broad categories:

Capacity Building	Consulting	Marketing and Business Development	Digital Inclusion	Communication
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SEWA is committed to investing in technology and platforms that are designed for the needs of informal sector workers who work in resource-constrained environments. Be it through the creation of platforms such as SEWA Lilotri that facilitates accessible B2C online marketing strategies, or SEWA Kalakruti, a marketing and sales platform designed for women artisans, or through its efforts to create a common digital platform to integrate data of its members from all trades, SEWA has a history of designing and developing technology solutions that are responsive to the specific challenges faced by informal workers – be it the small and marginal farmer, domestic worker, or artisan.

The current project is aligned to SEWA Federation’s vision of building a digital platform that will provide an integrated set of services from input advisory to market linkages and digital payments to women farmers. The platform will be supported by a range of institutional strengthening strategies, such as increasing the cooperative’s capacity to predict market prices for their crops, breaking dependency on extractive intermediaries, providing access to real-time insights on agriculture data, and establishing a database of production costs, supply needs, and regional disparities.

3. Baseline Research: Objectives and Methodology

In order to develop a platform prototype, a baseline research study was launched with the following objectives:

- Understand the context of women in agriculture in Tapi and Kheda districts.
- Understand women’s access to and use of digital technologies with respect to agriculture.
- Gain insights that could assist in the platform-building process and the co-design initiative.

The study adopted a participatory action research methodology which involved the following steps:

Diagnostic Meeting: In September 2021, IT for Change and SEWA held a meeting to understand the platform design envisaged for SEWA, as well as the proposed plans for the co-design and implementation process.

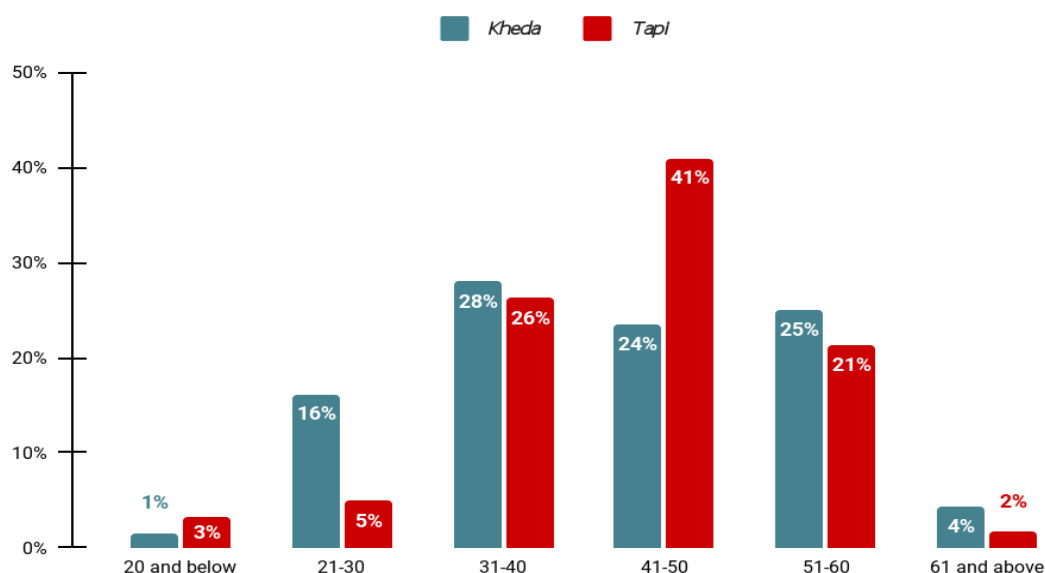
Survey: In December 2021, a quantitative survey was conducted with 129 women farmers (61 from Tapi and 68 from Kheda districts) in Gujarat. The survey questionnaire was prepared jointly by the IT for Change and SEWA teams keeping in mind the objectives outlined at the beginning of this section. The questionnaire was further honed through pilot surveys in both Tapi and Kheda. Grassroots

researchers from the SEWA team were trained to effectively administer the survey questionnaire. The data collected was entered onto an excel sheet, and then cleaned and analyzed.

Focus Group Discussions: In parallel with the survey roll-out, six-seven focus group discussions (FDGs) with women farmers covering a total of 60-90 women farmers were conducted in Tapi and Kheda. The FDGs covered qualitative explorations of the survey themes such as access to digital technologies, income and expenditure habits, financial inclusion, household decision-making processes, etc.

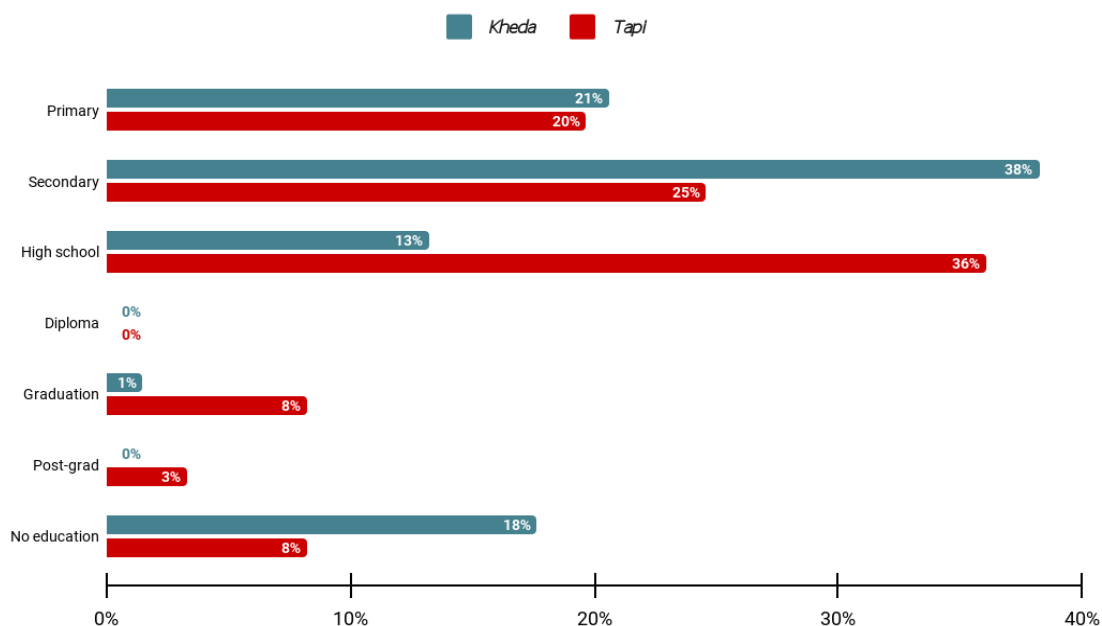
4. Key Demographic Insights

1. Women farmers in Kheda and Tapi are more likely to be middle-aged, with access only to secondary and high school education



Age of survey participants in Kheda and Tapi

Although the mean age across Kheda and Tapi is 43 years, there are significant variations in the distribution of the sample across age categories. In Kheda, the sample surveyed is distributed normally across the age categories – the age of over 80% of the sample is between 31-60 years. But in Tapi, a disproportionately large (41%) amount of the population is in the 41-50 age cohort.

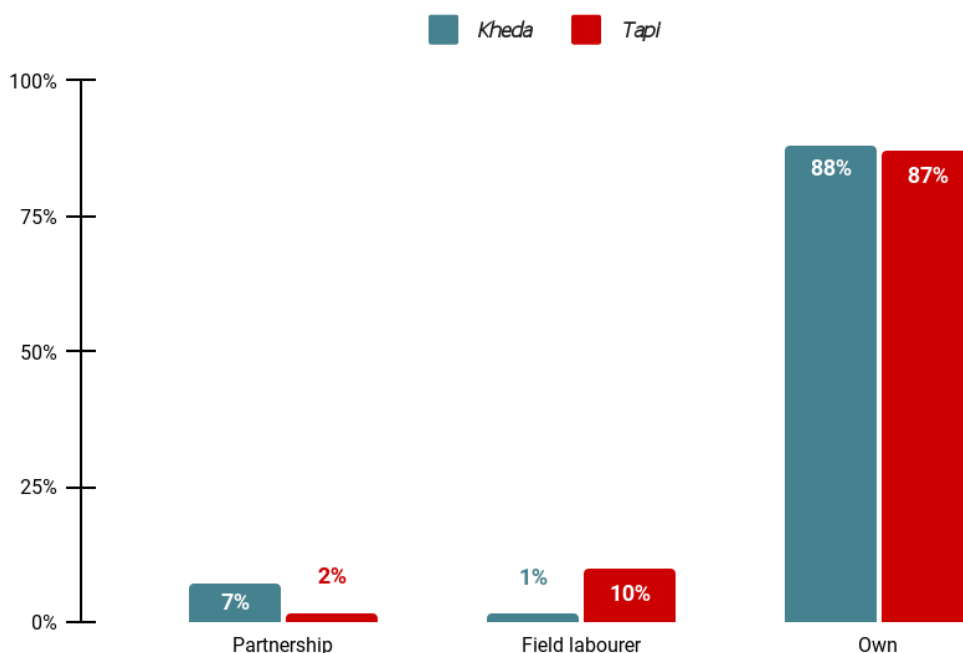


Education levels of the respondents from Kheda and Tapi

In Tapi, significantly more women have successfully completed 12th grade as compared to Kheda (13%), where 36% of the sample possess a high school diploma. About 8% of the women surveyed in Tapi have an undergraduate degree versus only 1% in Kheda, with 3% of the former being postgraduates. Additionally, the percentage of respondents who have no formal education is also higher in Kheda (18%) compared to Tapi (8%). A majority of the women sampled in Kheda have only completed their secondary education (32%).

In context, this may also be a factor of age; as previously reported, the age distribution of Tapi's sample indicates that almost half the sample is aged between 41-50, completing high school and university might simply be a function of more time.

2. Almost all women farmers surveyed are marginal and small farmers – Over 80% of farmers own land smaller than one hectare



Status of land ownership in Kheda and Tapi

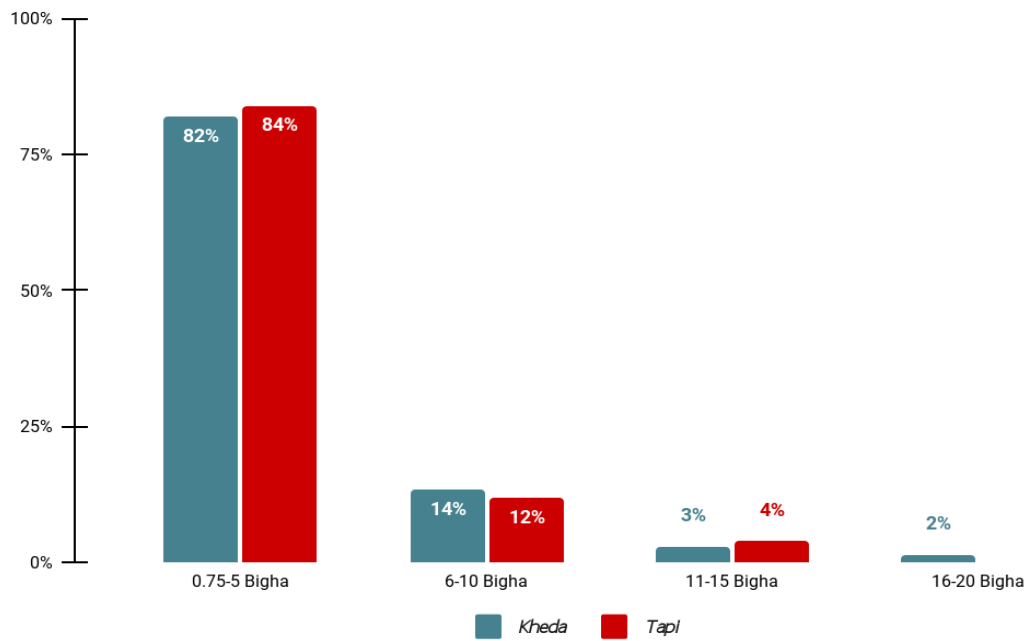
Almost 88% of the women in Kheda reported that they practice agriculture on their own land i.e., land which belongs to them/someone in the household. Furthermore, only 7% said they own land through a crop-sharing partnership, where they lease their land for cultivation, and profits are shared between the owners and the operators.

About 87% of the women surveyed in Tapi also practice agriculture on land they or their family owns. However, 10% of the survey participants do not own their own land and are field laborers.

Though the majority of our survey participants own their own land, most of them are marginal land owners. Almost 82% of participants Kheda and 84% of Tapi respondents do not own more than five Bighas of land, which is roughly about seven hectares¹⁰ (a farmer is considered a marginal land owner if their operational land holding is one hectare and below).¹¹ Additionally, the remaining farmers in Tapi are small farmers, with all of them owning land that is equal to or less than two hectares. Only 2% of farmers surveyed in Kheda have land that is more than two hectares, considered to be semi-medium farmers.

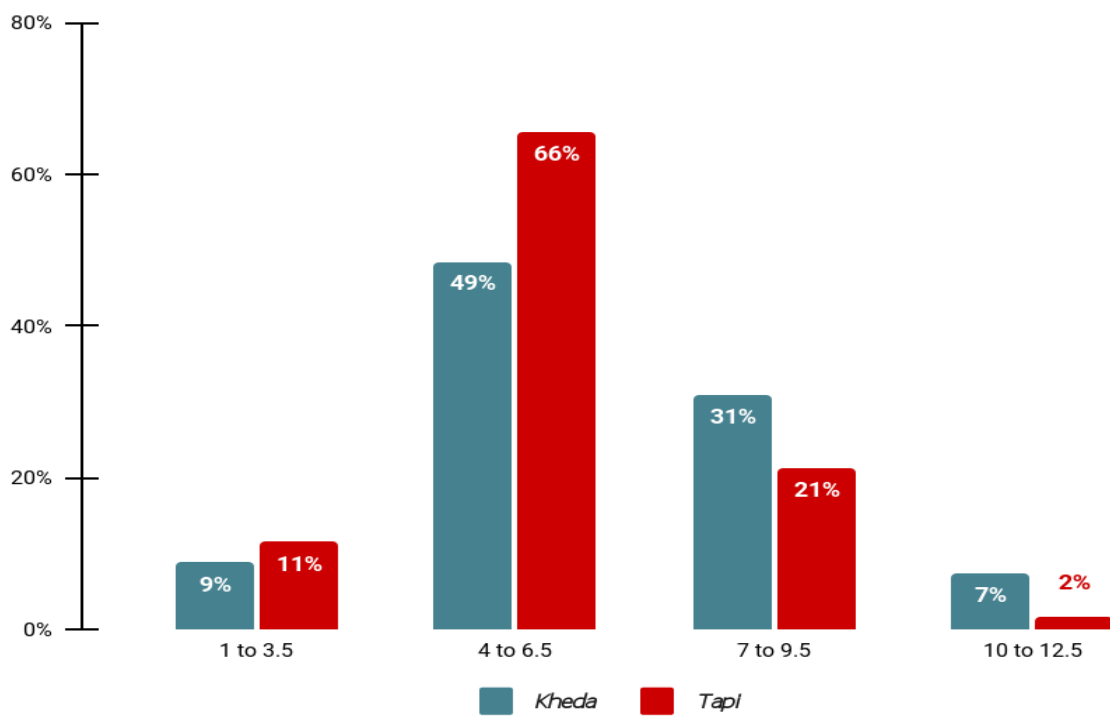
¹⁰ Since Bigha is not an SI unit, there are several regional variations on how a Bigha is measured; on an average, 1 Bigha is considered to be 6,700 square meters.

¹¹ <https://pib.gov.in/Pressreleaseshare.aspx?PRID=1562687>



Land size in Bighas

3. Most women farmers spend 6.5 hours a day on agricultural work, making it their principle activity based on a major-time criterion

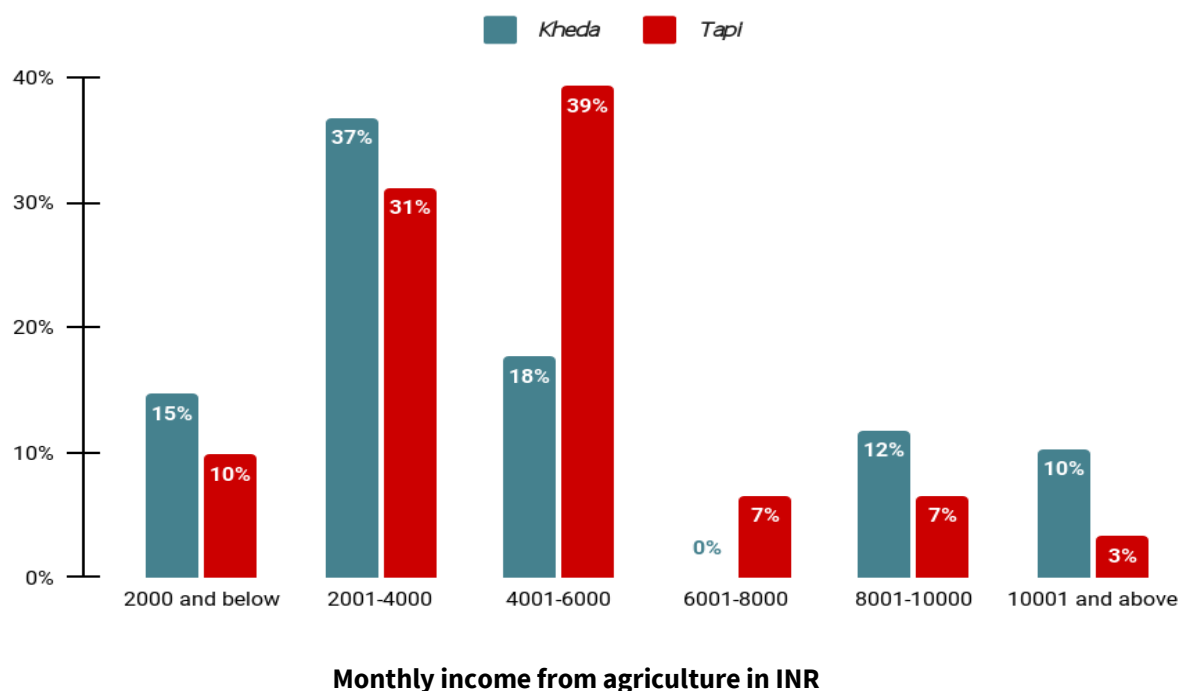


Hours spent daily on agricultural work

Both in Kheda and Tapi, a majority of women farmers spend anywhere between 4-6.5 hours on agricultural work. In Kheda, over 1/4th of the women surveyed spend 7-9.5 hours in agricultural work, with 7% reporting to have spent more than 10 hours. Similarly, in Tapi, 21% of the women surveyed spend up to 9.5 hours of their day in agriculture. Most women practice agriculture for at least 6.5 hours in a day, a major time criterion would then classify all these women as farmers.

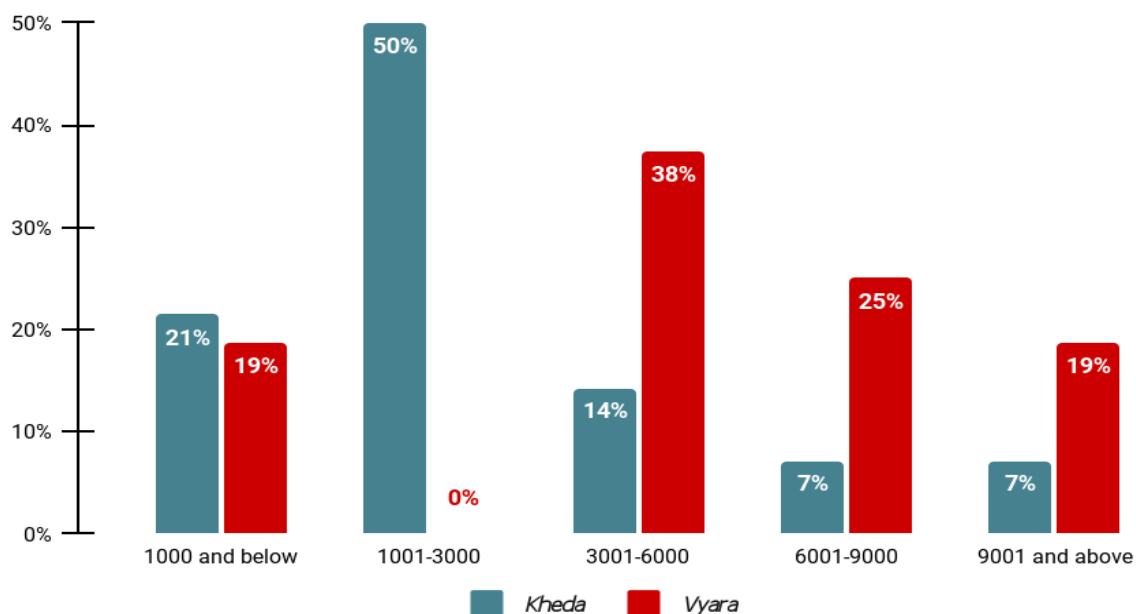
Furthermore, only 14 out of the 68 women surveyed in Kheda as well as 14 out of the 61 women surveyed in Tapi engage in productive, income-generating activity outside of agriculture. On an average, a woman farmer who has taken up non-agricultural income generating activity works for 2.4 hours a day in Kheda. Women in Tapi take up more extensive non-agricultural activities, where 14 out of the 61 surveyed women farmers spend 5.5 hours per day, on an average, on non-agricultural activities.

4. Despite contributing a significant amount to the household income, women farmers do not see themselves as workers

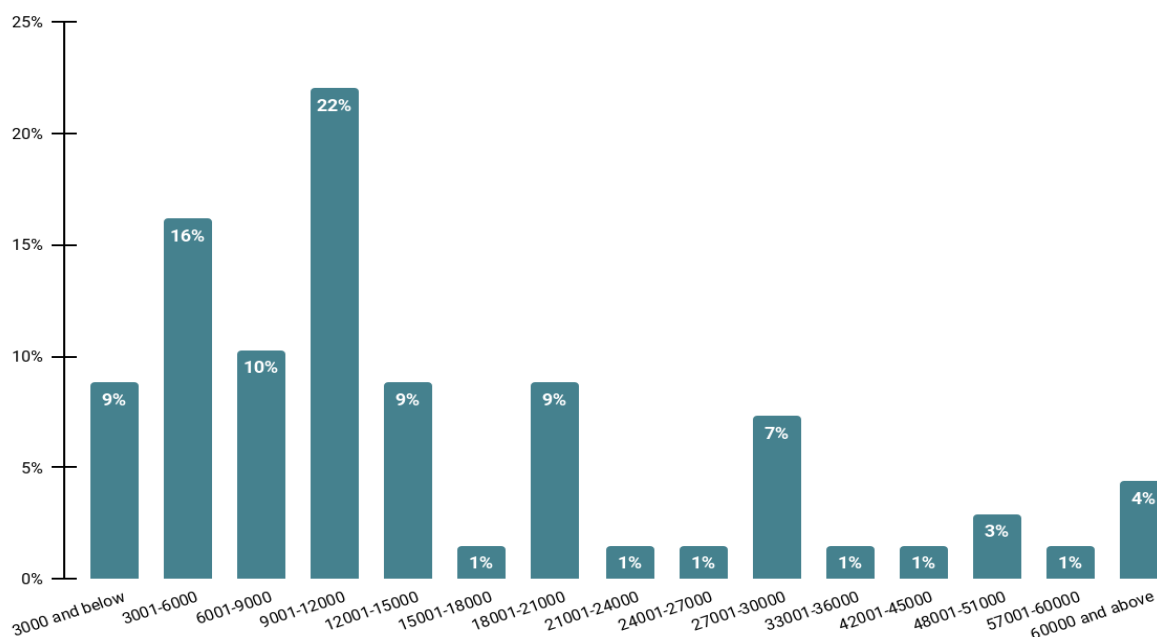


For 37% of women in Kheda and 31% of women in Tapi, personal monthly income generated from agriculture ranges from Rs. 2,001 to Rs. 4,000. About 39% of women surveyed in Tapi earn between Rs. 4,001 to Rs 6,000 from agriculture per month, in contrast to only 18% of women in Kheda. However, the survey in Kheda also reports that 12% of the sample earns between Rs. 8001 to Rs. 10,000, with 10% earning above Rs. 10,001; in contrast, only 7% of women sampled in Tapi earn between Rs. 8001-10000, and an even lesser proportion (3%) earn above Rs 10,001 per month. This income distribution in Kheda

could be indicative of several factors, including and not limited to land size, access to markets and APMCs, as well as crops grown.



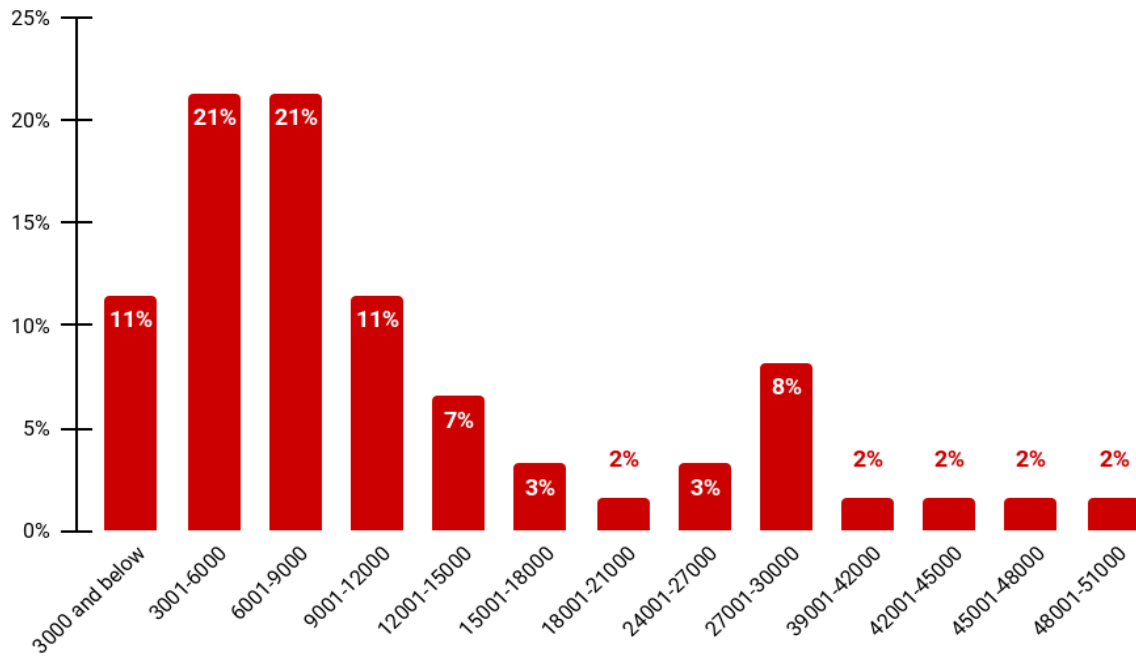
Monthly income from non-agricultural activities in INR



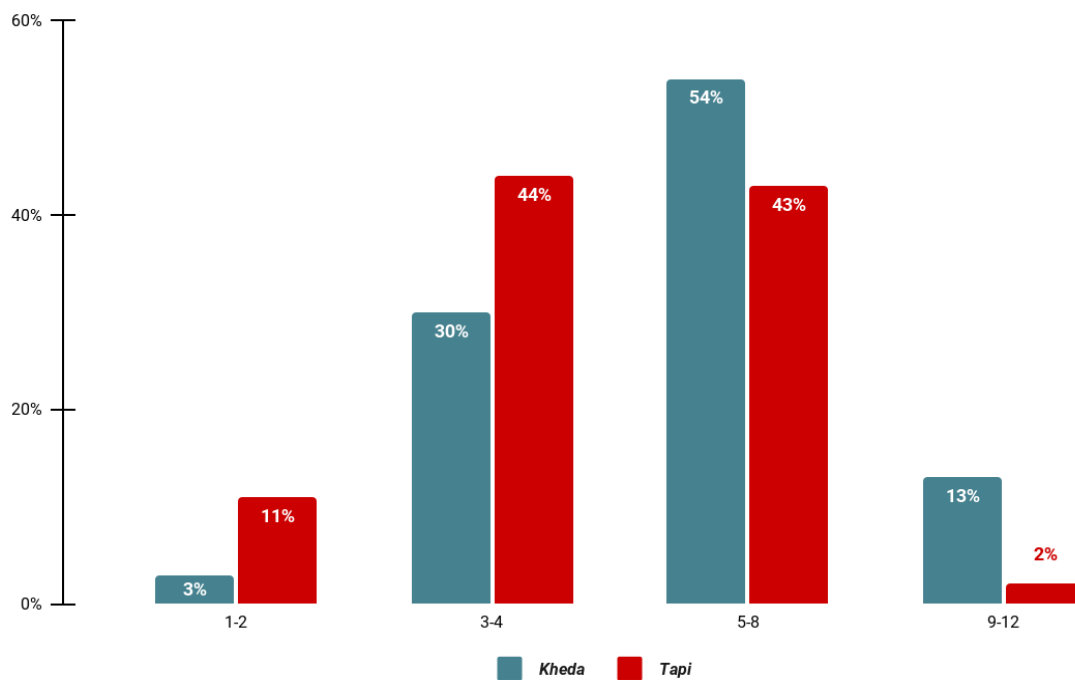
Monthly household income in Kheda in INR

In Tapi, 42% of the respondents said their household income is between Rs. 3001 to Rs. 9000, while in Kheda, most of the respondents (22%) said that their income bracket is between Rs. 9001 to Rs. 12,000. In Tapi, we see women contribute as much as 67% (on average) to the household income, and in Kheda they contribute around 38% (on average). Thus, the contribution made by women farmers to the

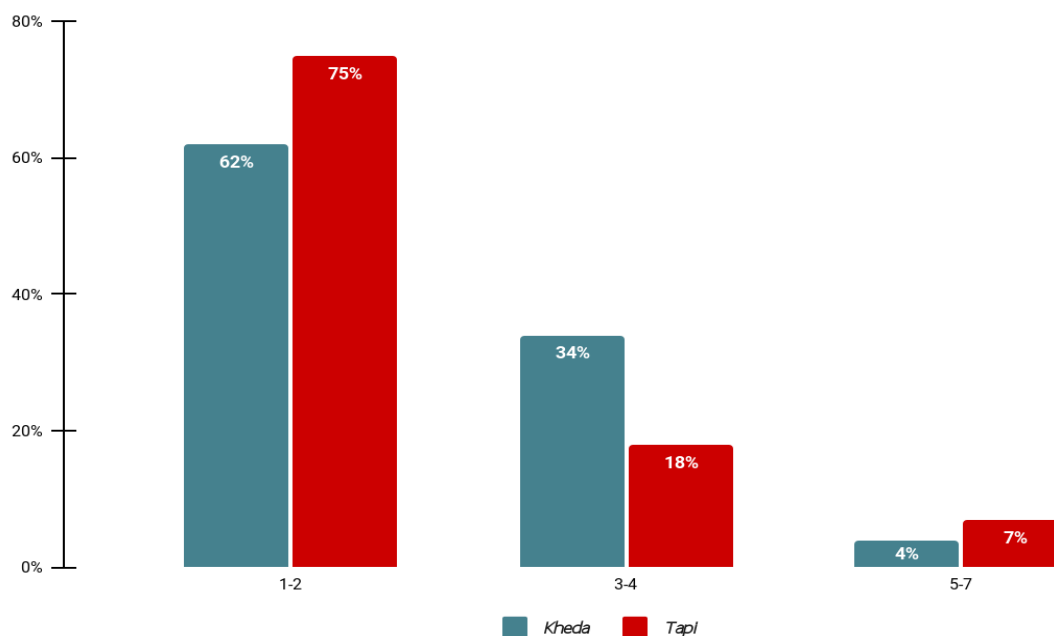
household income is significant, making them the primary earners in several homes. Furthermore, 62% of households in Kheda and 75% of households in Tapi have only one-two earning members, indicating that the primary income in most households in these villages is the earnings from the cultivation and sale of produce.



Monthly household income in Tapi in INR



Number of members in a household



Number of earning members in a household

In a series of FGDs conducted by ITfC and SEWA, several of the women farmers who participated did not consider themselves as farmers or workers, despite contributing significantly to the household income, or being the only earning member. They attributed that status and categorization only to their male counterparts (spouse, brother, son, etc.) and to those members who are salaried workers. These gendered perceptions of work and what an “ideal farmer” looks like have significant implications. As the proportion of men moving out of agriculture¹² increases at a rapid pace, the number of hours women spend on the farm has also gone up; however, landless women farmers and women contract workers are still employed as casual/seasonal workers. As more women enter commercial agriculture in precarious positions, the agricultural sector takes advantage of women’s limited employment options (in part due to their status as non-farmers, and in part as a result of the reproductive labor expected of women) or their preference for seasonal work. The agricultural sector becomes a site for the exploitation of women’s “disposable” labor.¹³ This in turn, further reinforces the way women farmers perceive themselves and their own labor.

A digital co-design intervention must be aware of these underlying sociological processes that emerge within any certain agrarian political economy in India. Any intervention, therefore, must focus not only

¹² [More women work in Gujarat farms as men leave for greener pastures](#)

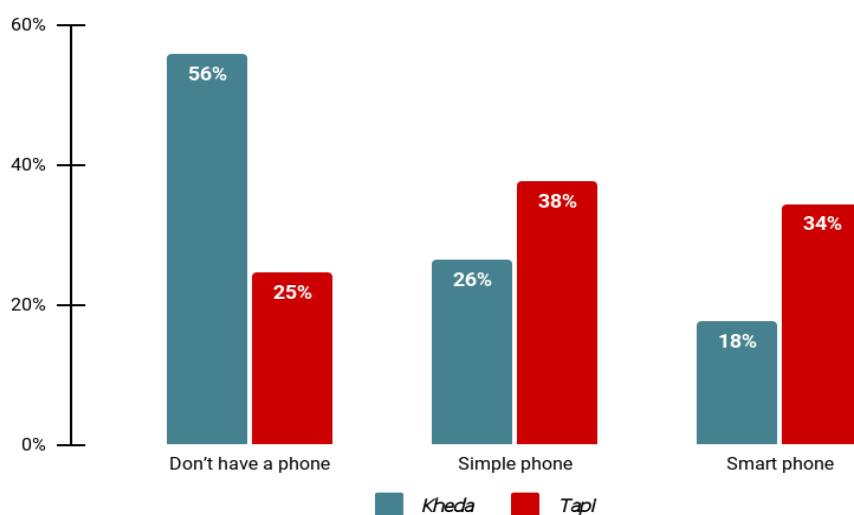
¹³ Nozomi Kawarazuka et al. (2022, June). Myths about the feminization of agriculture: Implications for global food security. *Global Food Security*, Vol. 33. <https://www.sciencedirect.com/science/article/pii/S221191242200025#cebib0010>.

on women farmers' ability to participate in a digital marketplace, but also on the patriarchal structures that mediate the terms of their participation.

5. Women and Access to Digital Technologies

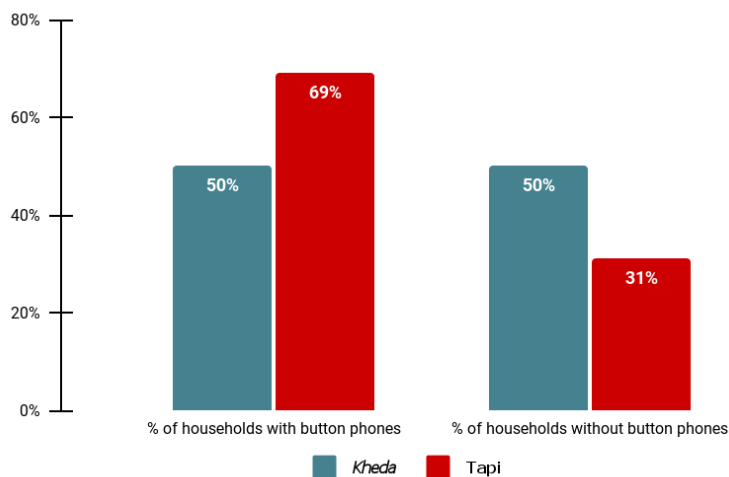
1. Even though 80% of households own smartphones, only about half the women farmers in Kheda own a personal device

Out of the 68 women surveyed in Kheda, 38 don't own either a simple phone or a smartphone – which is 56% of the cohort. At the same time, 26% of the cohort said they have a simple phone, and 18% – 12 women farmers – have a smartphone. More women have access to phones in Tapi compared to Kheda, where the percentage of women who own simple phones (38%) was similar to that of those who own smartphones (34%). However, 25% of women do not own a phone at all.

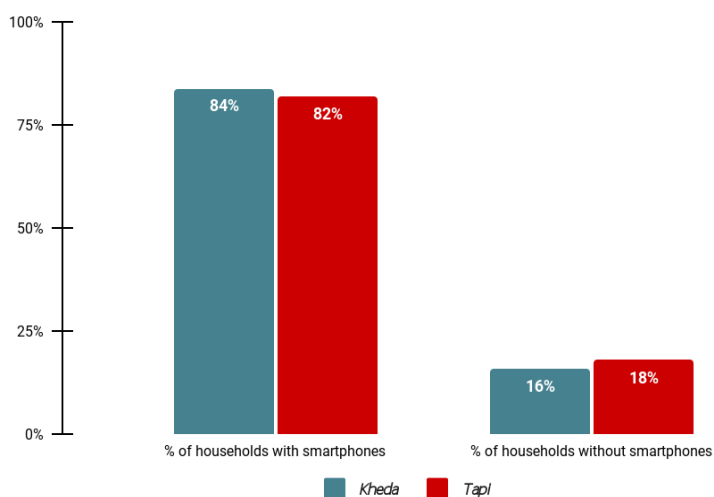


Status of phone ownership

Access to digital technologies is also mediated by household phone ownership. When asked about phone usage and ownership at a household level, it was revealed that 50% of households in Kheda and 31% of homes in Tapi do not own a button phone.



Household ownership of button phones



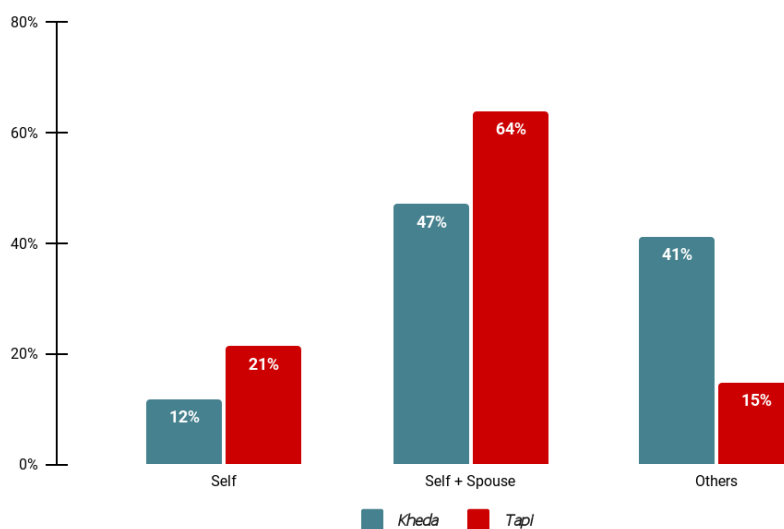
Household ownership of smartphones

About 84% of women in Kheda and 82% of women in Tapi have reported that at least one member in their household owns a smartphone. This is indicative of a larger problem that is specific to women and women farmers – despite being the main contributors to the household income (on an average), women often do not gain access to productive resources that can enhance their personal freedom, or offer them avenues to increase production output and gain access to markets. Of the 23 women who own smartphones in Tapi, all of them have access to the internet. In Kheda, 11 out of the 12 women who own smartphones have access to the internet. However, almost all women expressed concerns over internet connectivity and the quality of the available connectivity – the latter drops significantly during rainy days. FGDs revealed that for women who do have access to phones (both simple and smartphone), their usage of the phone is minimal and restricted to social media usage. The survey findings revealed that social media platforms are the most used in Kheda, where 77% of women

reported that they use their smartphones either for social media or to watch videos online. Similarly, women in Tapi use their smartphones primarily for personal messaging, followed by social media. Since most women do not have access to a personal smartphone, they also do not have access to the internet beyond the basic capabilities of a button phone with potential internet. This not only systematically excludes them from an emerging digital economy, but also access to state-mediated services such as government and financial schemes. FGDs and key informant interviews with women revealed that many women without a phone of their own use smartphones belonging to their children/spouse, albeit for attending calls. Though a more systematic exploration of this phenomenon is needed, this kind of mediated and restricted access to the internet may be driven or heightened by gendered inequalities. The nature of surveillance that women face while using their own smartphones, as well as phones of others in the household – as briefly reported in the FGDs – must be explored prior to designing an intervention that presumes free and open access to the internet.

6. Women and their Economic Position in the Household

1. Decision-making in the household follows gendered norms, however, more women report participating in decision-making processes, making joint decision-making the dominant practice.



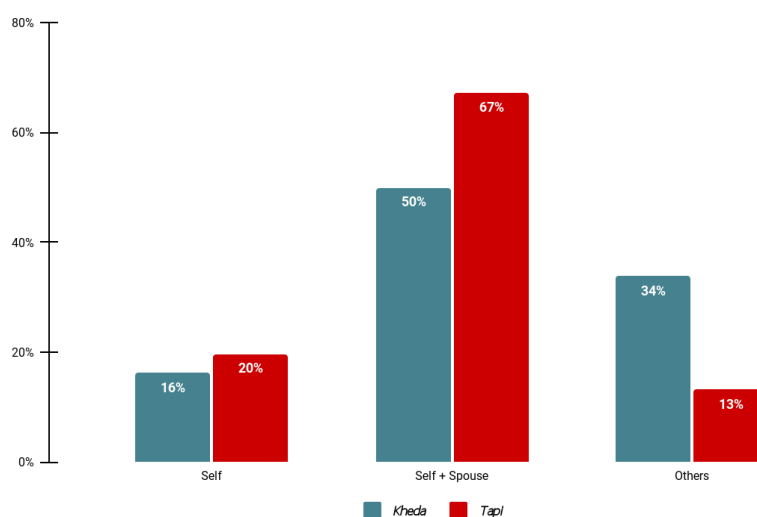
In your household, who makes decisions regarding agriculture?

Both, the survey findings and in-person conversations, reveal a shift towards joint decision-making in the household when it comes to agriculture as well as finance-related decisions. In Kheda, 47% of the cohort said they make a joint decision, while 12% of women make their own agricultural decisions. About 41% of women indicated that their family members make decisions for them; out of the 'other'

responses (where agricultural decisions were made by in-laws, brothers, and other household members), 45% of the women farmers surveyed said that their husbands alone make such decisions.

In Tapi, more women farmers are making agricultural decisions: 21% of surveyed farmers reveal that they make their own decisions regarding agriculture, and 64% make a joint decision. Out of the nine women who indicated that decision-making rests in the hands of their family, 67% of them said that their in-laws make decisions.

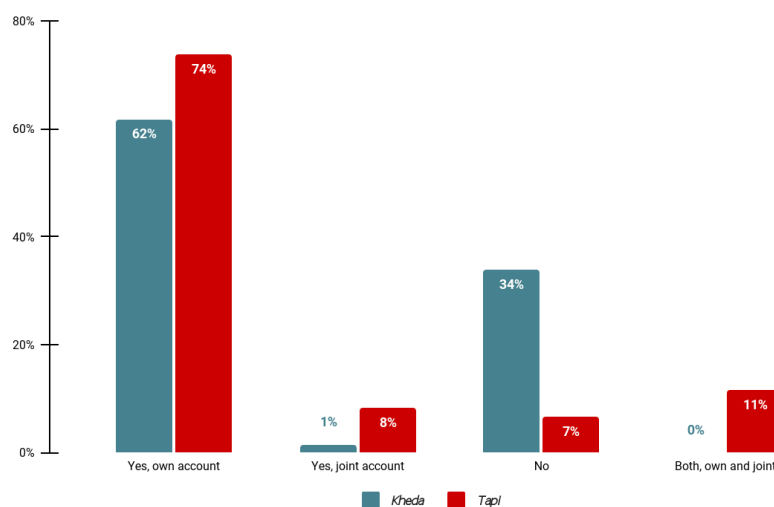
Almost 50% of the women in Kheda make financial decisions jointly with their spouses, and 16% make these decisions by themselves. However, 34% of the sample, i.e., 23 women, do not get to make financial decisions for their households; out of 23 women, 52% of them indicate that their spouses have sole discretion in making household financial decisions.



In your household, who makes financial decisions?

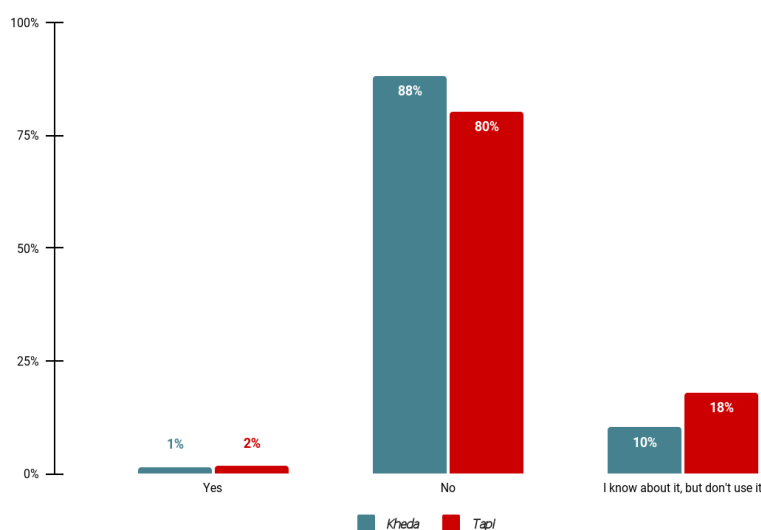
In a continuation of the trend we reported with regards to agricultural decision-making, Tapi also has more women contributing to financial planning. As much as 67% of women farmers reported that financial decisions are usually a joint endeavor between themselves and their spouses; 20% of women surveyed reported that household financial decisions are managed by themselves. Only 8 out of the 61 women surveyed do not have any kind of financial control; either their husbands, siblings, or in-laws make decisions on their behalf.

2. Though women farmers have access to basic banking services, cash payments continue to be the favored medium of transaction



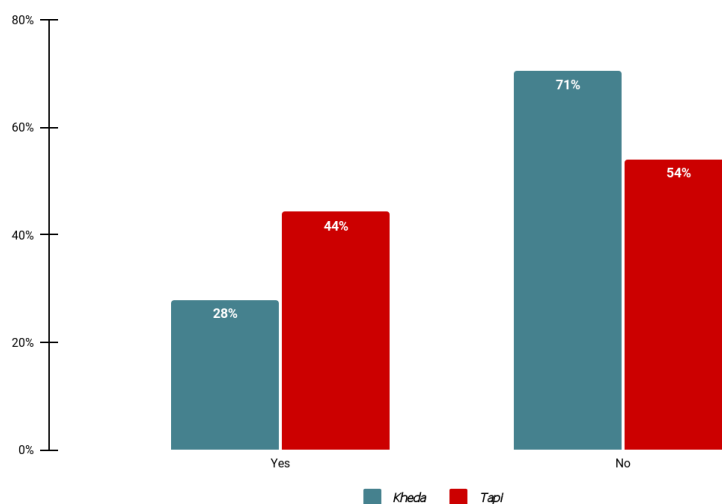
Do you have a savings account in your name?

Both in Kheda and Tapi, over 60% of women have their own savings account. Only 1% of women in Kheda and 8% of women in Tapi own a joint account with their spouses. However, 34% of women surveyed in Kheda do not have access to a savings account, either individually, or through joint control; while only 4 women farmers in Tapi do not have access to banking services. Access to a savings account is pertinent for women farmers because it serves as a measure of ownership and control over financial resources. Furthermore, it not only ensures their money is safely kept, but it is a key factor in enabling their participation in a digital economy.



Usage of e-payments among women farmers in Kheda and Tapi

The ability to participate in the digital economy can also be significantly enhanced through familiarity with digital banking/payment tools, which is significantly lower for the women surveyed. Only 1% of women in Kheda and 2% in Tapi use e-payments. About 10% and 18% of women farmers in Kheda and Tapi, respectively, are aware of e-payments, but do not use them. Almost, 88% of the women surveyed in Kheda and 80% of the women surveyed in Tapi do not use e-payments, making it an unpopular method of transaction. Further exploration is required to understand why women farmers are not using e-payments – whether it is a matter of access, lack of training, or poor service quality.



Has any member of your household taken any loans?

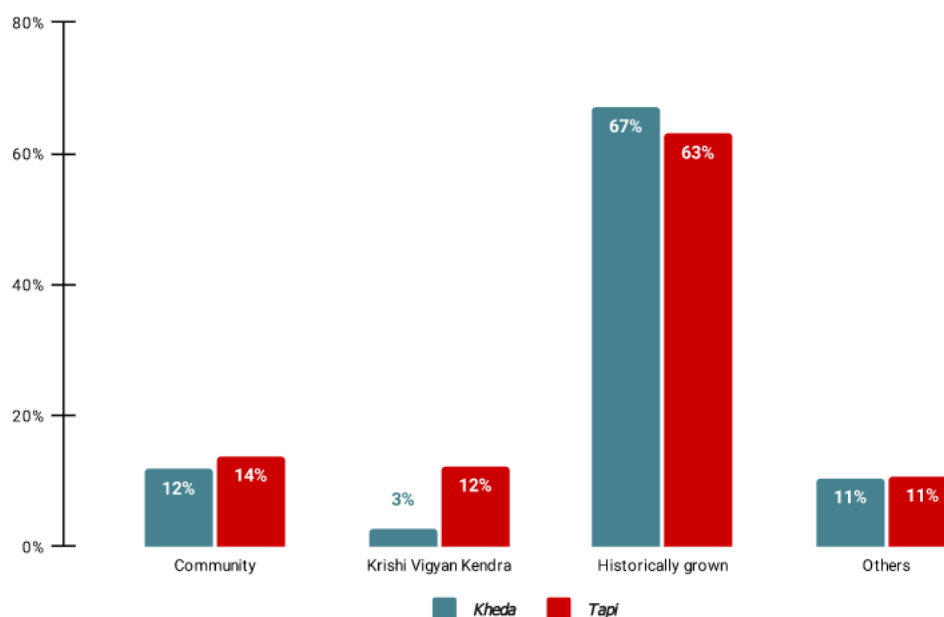
When asked whether any member of their household has taken any loans, 71% of women in Kheda said ‘no’, along with 54% of women in Tapi. About 44% of women in Tapi, however, have taken a loan, compared to the 28% of the women surveyed in Kheda. Access to cost-effective and low interest loans are generally seen as hallmarks of financial inclusion. Though it may be appropriate to conclude that women in Tapi have better access to financial services, it would be misguided to assume that loan taking is simply a function of financial freedom; several other variables, such as household size, income level, and instances of precarity that individual women may have faced during a financial year mediate the decision to take a loan.

Almost 53% of women who have taken a loan in Kheda have borrowed money for agricultural purposes; similarly, 39% of women in Tapi also report similar reasons for borrowing money. Beyond agriculture, most other reasons for taking a loan are agriculture-allied – building a borewell or buying livestock. Most women who have borrowed money have done so to support their primary source of livelihood; a further exploration of borrowing activity is necessary to understand whether the income they generate from agriculture is insufficient and hence, they are required to borrow capital to continue agricultural production. More importantly, a follow-up study must also determine how many

women borrow from informal financial institutes such as moneylenders, and why they choose to do the same.

7. Agricultural Production: Themes and Challenges

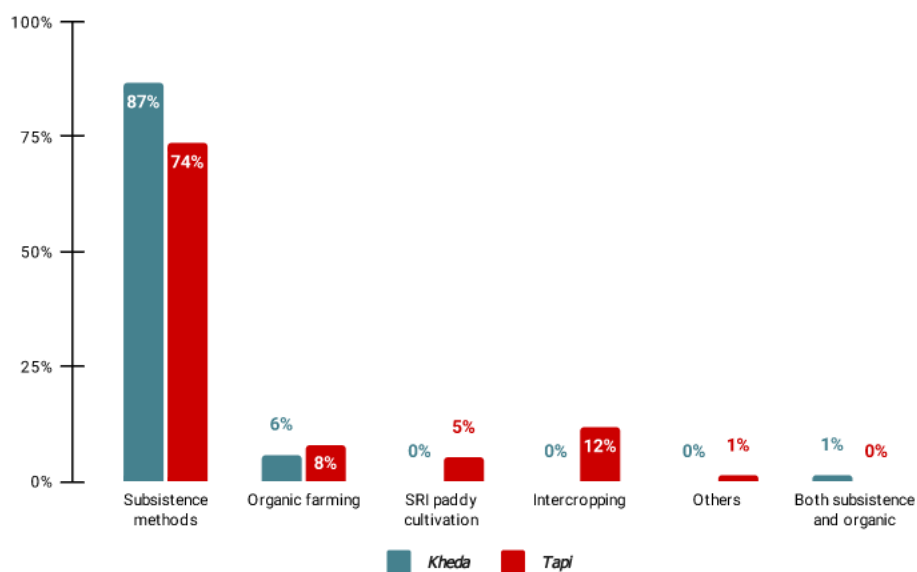
1. The farming community in both Kheda and Tapi prefer to use subsistence techniques to cultivate



How do you choose which crops to cultivate?

Results from the baseline survey showed that the agricultural communities in both Kheda and Tapi prefer to use subsistence and historical cultivation techniques. When asked about seed selection for their next cycle of crops, 67% of women in Kheda and 63% of women in Tapi preferred to follow the choices their communities have historically made in order to cultivate. Only nine women farmers in Kheda and Tapi preferred to rely on community knowledge. Very few farmers relied on Krishi Vigyan Kendras, which are local agricultural units that disseminate empirical and practical knowledge on agricultural practices to local communities.

Why women prefer to rely on historical knowledge to determine their agricultural output despite the presence of institutional and community-based hubs of knowledge is something that can be explored during the co-design labs.

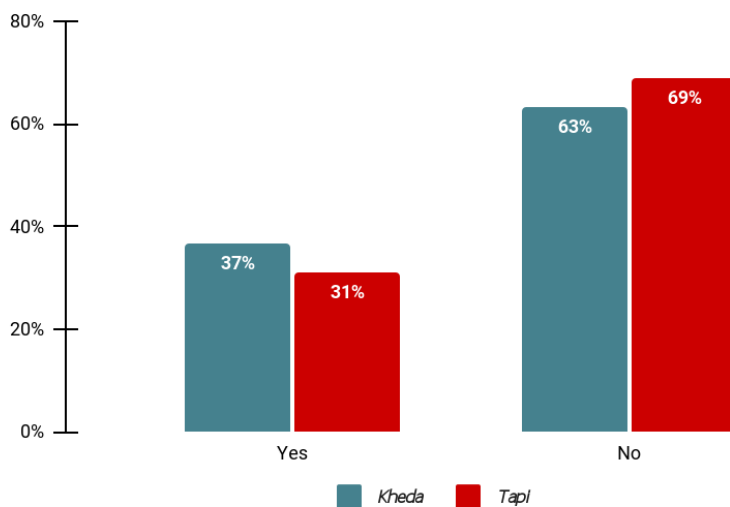


How do you cultivate your crops?

Apart from seed selection, most women farmers in Kheda and Tapi also prefer to use subsistence methods to cultivate their crops. In Kheda, 87% of women continue to use subsistence techniques in agricultural production; this number remains similar in Tapi, where 74% prefer to use methods that their households have used historically to grow crops. However, women in Tapi also engaged in other forms of agriculture – 12% have adopted intercropping methods, while 8% have taken up organic farming.

The continued reliance on subsistence techniques over more commercial forms of agriculture in both villages is an important narrative to explore. Subsistence techniques may work the best for small and marginal farmers; perhaps the cost of input needed for production is lesser, or yields better agricultural output. Conversely, the communities surveyed may not have the tools or training to transition to another method of farming, or may be unwilling to do so, despite a potential increase in agricultural output. It is important to determine why farmers in Kheda and Tapi prefer to use subsistence techniques at several stages of the agricultural production process prior to designing an intervention.

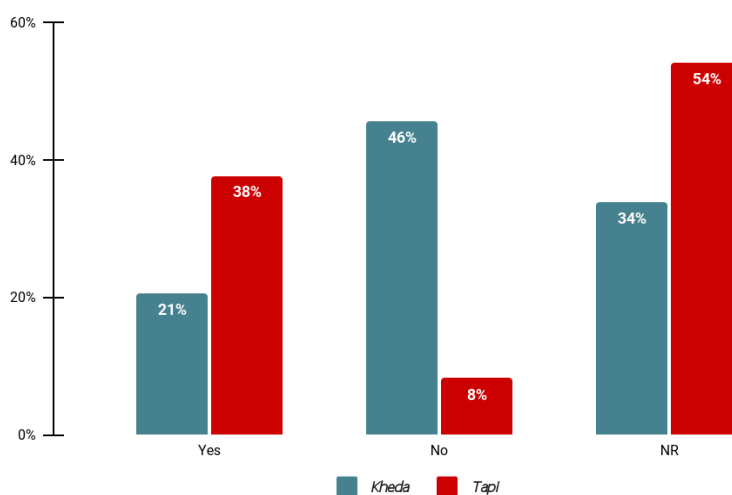
2. While some women farmers are interested in learning about alternative techniques, many don't see it as necessary



Do you think soil testing is beneficial?

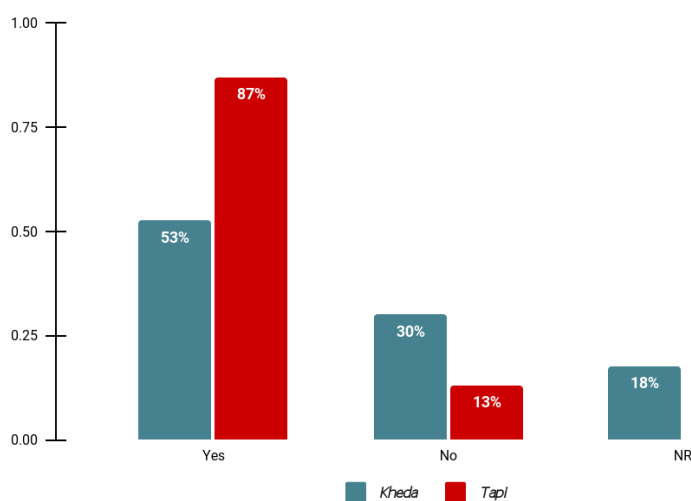
Women farmers demonstrated a mixed response with respect to using modern agriculture techniques. Only 37% of women in Kheda and 31% of women in Tapi believe that soil testing is beneficial for them; almost 70% of respondents in Tapi and 63% of women in Kheda did not think it was a necessary process to improve their agricultural output and maintain soil health.

When asked about reasons for their lack of interest in soil testing, a majority of the participants indicated that they were unaware of the benefits of soil testing and what it entails in terms of changes they were to make to their own agricultural practices.



Are you interested in learning new methods of cultivation?

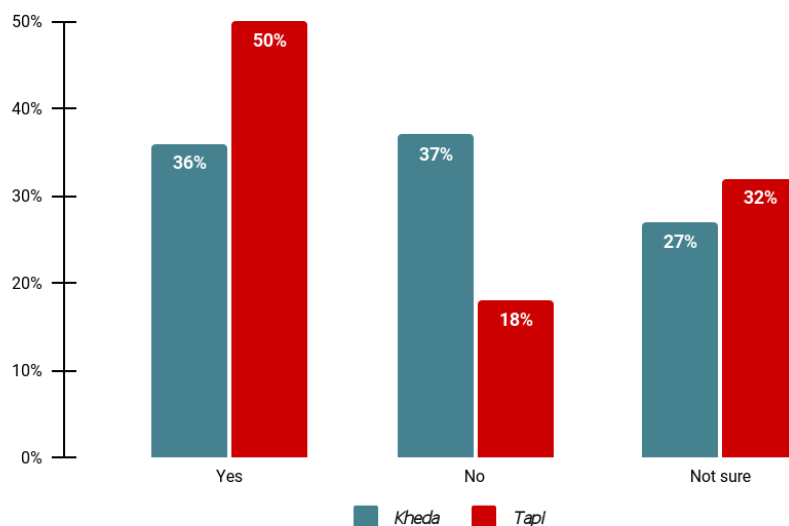
When asked about adopting commercial techniques in other parts of their production process, a similar trend was observed. Only 21% of women in Kheda were willing to learn new methods of cultivation, whereas 46% of women were unwilling to adopt different techniques. Women farmers in Tapi were more open to learning new techniques: 38% responded with an affirmative, as opposed to just five women farmers who were unhappy adopting commercial techniques. However, a majority of women across both communities did not respond to this question, indicating that they were either unsure of the implications of modifying existing cultivation techniques, or were unaware of commercial techniques to make a decision.



Are you interested in seed selection training?

As there was clear disinterest driven by a lack of awareness of commercial techniques, the baseline survey also wanted to understand whether women farmers were willing to undergo additional training at two key steps of the agricultural production process: seed selection and tool and equipment usage. A positive response might indicate that a continued interest in subsistence techniques is not merely a result of disinterest in other methods of production, but rather due to a lack of awareness and access to information.

Interestingly, many of the respondents were open to receiving seed selection training – 87% of women in Tapi expressed interest in undergoing seed selection training. In Kheda, about half the women were willing to attend training sessions; 30% of women, however, were not interested, and 18% of women did not respond to the question.



Would you like to be trained on tool and equipment selection?

Similarly, more women in Tapi (50%) were open to receiving training on tools and equipment usage; only 18% of women were unwilling to attend training, and 32% of women were unsure. In Kheda, 37% of women were not interested in tools and equipment training, and a similar number of women (36%) were.

The baseline survey reveals the heterogeneous nature of the sample. There is familiarity and comfort with practicing subsistence techniques. Though some women across the two districts were open to attending training sessions that might offer modifications to their current agricultural practices, several women were not interested.

It is important to observe and measure these phenomena – disinterest in commercial techniques and a mixed interest in receiving training on these techniques – in context. As highlighted before, it is likely that subsistence and historical techniques may offer small and marginal farmers the best value, i.e., low cost of production along with reasonably high or sufficient output. Additionally, women farmers may also prefer to use subsistence techniques as a form of maintaining ecological safety and diversity. Disinterest in adopting more modern techniques may also be informed by past experiences. Therefore, a platform designed to fulfill the information needs of farmers must take into account the historical context that shapes these needs and must respond to the experiences that have worked for them.

8. Access to Markets

1. APMCs are the most popular markets in both Kheda and Tapi, despite significant challenges

It was found that a majority of the sample prefers to sell their produce at APMCs (Agricultural Produce Market Committee). In Tapi, out of 68 women surveyed, 22% of them use their produce for household consumption. Only 4% sell their produce within their villages. While none of the respondents in Kheda reported exporting their produce, 66% sell their produce at an APMC, while 15% sell their produce in a vegetable market. About 4.9% of the respondents also sell to a private trader, while roughly, 6% sell to their cooperative.

Similarly, the cohort surveyed in Kheda also indicates similar preferences; however, a higher percentage of them retain their produce for household consumption. Almost 41% of the sample cultivates for their own consumption, while 10% cultivates for their own consumption and for sale in their village. The survey revealed that the closest APMC, vegetable market, private traders, SEWA cooperative, processing companies, and exports were considered as points of sale. Of these points of sales, no respondents reported selling to processing companies, exporting, or selling to cooperatives. About 60% of the sample sold their produce at an APMC. Additionally, 63% of the sample also regularly sold their produce at the local vegetable markets. Only 4.4% (or 3 individuals) of the respondents shared that they sell through private traders.

However, selling at APMCs is not without challenges. Most women report that APMCs are too far away, and are difficult to reach from their homes and fields. The average and median distance to the APMC markets from Tapi is 24 kms; similarly, in Kheda, the average distance between the respondents' fields and an APMC is 18 kms. In Tapi, the most frequently reported problem is low market rates (27%), followed by difficulties in availing and paying for transportation (10%). A few respondents also shared that selling at the APMC is time-consuming. For travel to the APMC, respondents hire rickshaws or use two-wheelers, the average cost of transportation to an APMC in Tapi being Rs. 544.

In Kheda, about 15% of the respondents shared that they find the APMC to be located too far away and another 15% shared that transportation (including costs and ease of access to conveyance) poses a major challenge. Only 10% of the respondents used rickshaws to travel to the APMC and the average value of transportation costs was Rs. 1544.

Farmers face similar challenges in village markets, coupled with low market rates. In Tapi, the average distance to this point of sale (vegetable market) is 12 kms. All respondents who reported that they sell in vegetable markets, cited low market rates as a challenge with the point of sale. However, they incur lower costs; most of them use a bike and spend Rs. 200 (on average) to reach the village market.

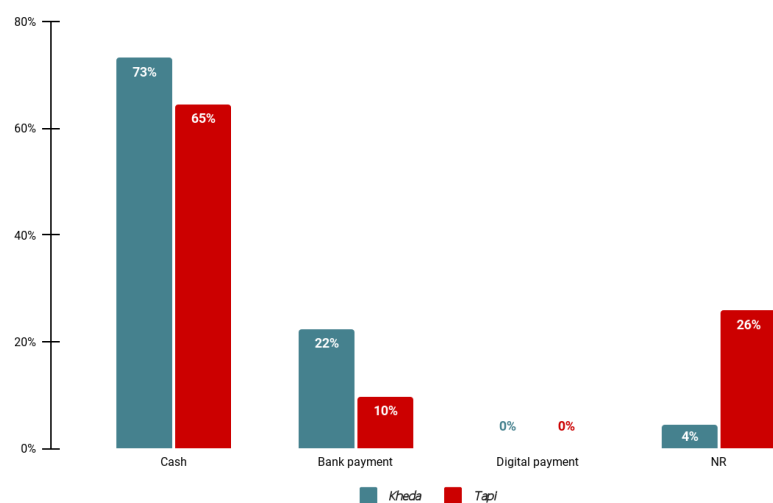
In Kheda, 63% of the sample sells their produce at vegetable markets as well, which on an average, is located 24 kms away from the village fields. Almost 14% of the respondents use a rickshaw, 13% use a bullock cart, and 4.4 % use a tractor to reach this market. The average cost of travel was reported to be Rs. 1,270, significantly higher than what farmers in Tapi spend to reach their market, as it is also much closer to the fields in the village. With issues regarding points of sales, 16% reported low market rates, 11% of the respondents shared that the distance between their fields and the point of sale is too long, while 7% complained of transportation issues (cost and availability). Only 8% shared that they face no problems with respect to selling.

2. Women farmers continue to rely on informal networks to receive information about price, as well as rely on middle men to reach the market

In Tapi, 55% of the women sampled get information about price from neighbors, while 37% find out after visiting the market. About 16% of the women farmers surveyed consult government officials (KVKs and gram sevaks). Only 3% learn about market conditions via WhatsApp or SMSs and 6% get the information from the local news.

Similarly, 62% of women farmers surveyed in Kheda rely on neighbors or other farmers for market information, while 32% rely on family members' visits to the market. About 4.41% of the women farmers gather market information from local news. Only 1 individual from a sample of 68, sources information from WhatsApp messages or SMSs.

Therefore, it does appear that informal knowledge sources play a key role, possibly due to ease of obtaining it or “trust” in familial sources – themes that may be useful to explore during the co-design workshops.



What payment method did you use while selling your produce?

Additionally, women across both districts continue to rely on middlemen to make a sale. About 35% of the sample in Tapi reported that they rely on middlemen to sell their produce. Around 82% of the respondents are paid as soon as the sale is completed, while 8% of the respondents are paid either within one month from the date of sale or more than the month. As expected, most transactions rely on cash (61%). Only 22% of respondents in Kheda and 10% in Tapi use bank transfers. There were no payments that occurred digitally, pointing to poor access to online financial/banking services.

Moreover, 90% of women in Tapi were not listed as beneficiaries on government schemes. In Kheda, 21% of women shared that they are beneficiaries of government schemes. Of those who are beneficiaries, 43% (~9%) are registered under Pradhan Mantri Kisan Yojana, 14% (~3%) receive government subsidies, and 21% (~4.4%) are beneficiaries under a housing scheme. However, close to 80% of women in Kheda are not registered against any kind of government scheme.

9. Summary and Recommendations

The challenges identified in the previous section suggest that although access to digital services and technologies are important precursors to building a more gender equitable digital economy, several material aspects of agriculture as well as markets and their allied processes will ultimately determine the needs of women farmers and the kind of digital technologies they require.

A majority of the women farmers surveyed were the primary breadwinners of their households, with agricultural activity contributing the most to household income. Additionally, most farmers also reported being able to make household level decisions jointly with their husbands. However, most of them do not identify themselves as primary breadwinners – and this could be key to why women farmers continue to practice agriculture the way they do. Most women farmers continue to use traditional and subsistence forms of cultivation, and several of them were not willing to adopt alternative techniques, despite being offered the opportunity to be trained. Though some farmers admitted that their lack of knowledge is the reason behind their current cultivation techniques, the same cannot be said for the rest of the farmers, who, despite being aware of commercial techniques, chose to practice subsistence agriculture.

And finally, women's engagement with digital tools and technologies is embedded within gender unequal household structures, with ownership, access, and productive uses of digital technologies mediated by socio-cultural norms, which makes the application of digital pathways as a tool of economic empowerment a highly complex task. Designing gender-responsive strategies that take into account the needs of the most marginalized populations, therefore, requires one to be constantly sensitive to “whose” needs (small and marginal women farmers), “what” these needs are (preserving

historical knowledge/learning new methods), “why” they exist (historical context/gendered imbalances), and “how” they can be met (context-sensitive mediation).

On the basis of the above summary, the following are some recommendations for shaping the next steps in the intervention:

1. Institutional support mechanisms must move beyond a framework of productivity enhancement and marketization and respond to the context within which small and marginal women farmers operate. In particular, consideration must be given to the following:

- a. Gender-sensitive market linkage strategies that take into account women’s mobility constraints and time poverty.
- b. Exploring linkages not just with agri-specific government schemes and programs, but also broader livelihood and citizen entitlement schemes that can contribute to women’s economic wellbeing.
- c. Support for and recognition of diverse forms of knowledge – indigenous, local, experiential, as well as preserving traditional practices that may be important for the sustainability of the land or the community.
- d. Support for establishing community-based peer-to-peer networks for information dissemination.
- e. Support for enterprise development/livelihood generation opportunities.

2. The techno-design choices of the platform must account for potential imbalances that may arise from the introduction of digital mediation on account of the digital gender divide or existing digital inequalities. These choices must address the following:

- a. Allow for human mediation, given that women’s device ownership as well as overall engagement with digital technologies is limited.
- b. Prioritize discoverability as well as favorable price determination strategies
- c. Support for building data and information capacities of women farmer cooperatives.
- d. Enhance financial resilience of farmers, for e.g., credit for inputs, immediacy of payments, etc.

Techno-design of the Platform (Inputs from SEWA team)

Designing for accessibility: The average age of the respondents was 44 years in Tapi and 43 years in Kheda, respectively, and included women of 70 years as well. This means that the platform needs to be accessible for older users. Moreover, the elderly also suffer from age-related impairments such as declining vision, reduced motor control, and limited cognitive abilities. Hence, a web-based system should follow Web Content Accessibility Guidelines (WCAG) and can also include integration with text-

to-speech and speech-to-text. Any print and digital media need to incorporate large fonts and visuals and easily recognizable icons.

- a. Designing for ease of use: Since the women have limited education and their medium of communication is primarily Gujarati, the interfaces need to account for language and translation and the default language can be set as Gujarati. Most respondents with a smartphone were familiar with WhatsApp. Therefore, low-tech options may also be leveraged.
- b. Designing for ease of learning: The overall design should be simplistic and have limited and focused features. It should have a simple onboarding process and easily recognizable visuals and icons. The user flow should be intuitive and it should be easy to learn.
- c. Designing for trust: Unnecessary information, especially related to finances, should not be asked unless we are giving some valuable service or insights based on them. The users should only be asked for data that is necessary and the purpose of the system and data collection should be explained clearly.
- d. Content of relevance to marginal and small farmers: The majority of the sample comprised marginal and small farmers. While district-level data for Tapi (UNDP Handbook, 2015) shows that the highest percentage of farmers fall in the medium category, the data for Kheda shows that the highest percentage lies in the small/marginal farmers category. Generally, small and medium farmers have poor access to credit, capital, irrigation solutions, crop insurance, and markets, which diminishes their earnings. Small landholdings don't allow for scale. The platform must address these challenges.
- e. Designing for resource constraints: Marginal women farmers face constraints in terms of money, time, energy, and infrastructure. Hence, the platform needs to be low-cost, easy to use, and require minimum time and effort by the farmers to create value. The experience of using the platform should not expect users to fill out lengthy questionnaires, input complex data, or have complex systems.
- f. Designing for graceful handling of unhappy paths and user failures: Often, we design platforms taking into account the happy paths. With an open-ended platform, the chances of user failure and the user not being able to navigate is high because of limited digital literacy. We need to design for graceful error handling. The farmers should not feel 'dumb' or 'frustrated' whenever they commit mistakes and instead, the user flow should account for gracefully handling their mistakes.
- g. Strengthening interaction within the community and supporting peer-to-peer communication: As seen from the data, often farmers reported making choices for growing crops and agricultural decisions based on what their peers around them are doing. Hence, they are more likely to adopt suggestions and advice given by their peers, rather than formal organizations.

Thus, the platform needs to support various knowledge sources – informal, local, and experiential, along with formal sources – to be effective and increase the adoption of newer agricultural practices. However, gatekeeping measures and human interventions might be required to combat the spread of misinformation and help conduct structured and productive conversations. Additionally, we also need to design for engagement of marginalized voices like women farmers who will have resource constraints and support their active participation.

- h. Supporting two-way communications: These farmers have limited digital literacy. Any platform that is designed (digital or non-digital) needs to support two-way communication to be more effective. The farmers need to be able to communicate back to the platform on demand. They should be able to leave their queries on the platform in case there is no help available immediately and they need to be answered in a reasonable time frame.
- i. Supporting asynchronous information sharing: As shown by the data, marginal women farmers are often busy working in the fields for up to 11 hours a day in addition to taking care of household chores. Therefore, we cannot heavily rely on synchronous methods of information sharing, like TV programs, as this might not fit into their schedules. Thus, we need to design for supporting asynchronous communication. Integrating smart bots, sharing pre-recorded sessions, and integrating frequently asked questions (FAQs) both in digital and physical form can help support asynchronous information sharing.
- j. Integrating security and safety needs of farmers: As seen from the data, the majority of the farmers don't have insurance for themselves or their cattle. Thus, when they are faced with calamities and unfortunate incidents like pest infestation, they suffer huge losses and have no fallback. Hence, there needs to be an integration of accessing and availing of the insurance schemes that can help cover these losses.
- k. Integrating feedback mechanisms for the farmers: Since we are dealing with a broad user base, we need to implement effective and simple feedback mechanisms like a simple yes/no or a 1-5 rating system that can easily be integrated with digital and IVR-based solutions. This would also make the farmers feel heard. Additionally, this would help the platform creators and researchers to capture direct user feedback and make it more effective.
- l. Capturing user behavior to help monitor and evaluate the effectiveness of the platform: As we are dealing with a broad user base, user statistics and usage data like the number of users, their demographics, locations, their pattern of accessing the platform can give important insights to understand the effectiveness of the platform. Digital platform solutions can easily capture user behavior by integrating user metrics that can help monitor the system.
- m. Integrating agricultural knowledge and information access: As shown by the data, often marginal women farmers cited lack of information and knowledge for not being able to adopt

newer agricultural practices. Hence, the platform needs to integrate and make relevant agricultural knowledge easily accessible. The user context like location, type of soil, crop, etc., needs to be taken into account to integrate an effective knowledge base.

- n. Integrating training and support for value processing and other agricultural activities: Women across both districts also expressed interest in various other agricultural-related training like learning how to use the equipment. Hence, integrating relevant agricultural-related training and support for value processing can prove useful for marginal women farmers.
- o. Assisting the farmers in fair price setting and grading of their produce: The women farmers reported not knowing how to grade their produce and using inefficient methods of setting the market price of their produce like talking to their peers. Currently, they do not have access to relevant data to make an informed decision on setting the price of their produce. The platform can integrate with a pricing service that can send them the latest market price information related to their quality/grade of produce and give them instructions on how to grade it. This can help them get a fair price for their product in the market.
- p. Integrating market linkages to enable farmers to sell their produce: Currently, farmers have to travel long distances with the least average distance being 11.66 kms. Moreover, transporting their produce across these distances is very expensive. The majority of the farmers cited the location and the cost of transportation as major challenges. Also, farmers in Kheda reported animal husbandry as a loss-making venture. Hence, it would be useful if the platform assists in market linkages where the product can be picked up nearer to their homes or help in creating a supply chain where they can sell directly to their consumers wherever applicable.
- q. Integrating cattle rearing support: As shown by data, the farmers also indulge in animal husbandry along with farming. Hence, it would be useful to integrate information and support for helping in cattle rearing and enabling market linkages for the same

10. Way Forward - Tracking Progress

In order to develop the platform prototype, a series of co-design workshops and techno-design labs will be held by SEWA, which IT for Change will participate in. The recommendations from this report will feed into these workshops. As the co-design processes and the prototype evolve, IT for Change will also plan and develop interventions that support the roll-out of the platform. These will be executed in stages over a 12-24-month time frame. On a quarterly basis, ITfC will conduct qualitative assessments in order to evaluate and monitor the progress of the study on the following parameters:

Access to and autonomy in using digital technologies	Access to improved livelihood opportunities	Enhanced information & data capacities
<p>a) Ease of UI navigation for women farmers, particularly those with limited literacy, digital fluency, and connectivity on personal gadgets</p> <p>b) Participation in/engagement with digitally mediated activities of the platform</p>	<p>a) Sensitivity of market linkage services to the gendered barriers that women face in market access (e.g., price, transportation, etc.)</p> <p>b) Access/usage and relevance of government schemes/credit schemes to women’s livelihood needs</p> <p>c) Resilient financial management practices (e.g., savings habits, credit usage)</p> <p>d) Enterprise development and sustainability</p>	<p>a) Relevance of and engagement with informational and training services provided by the platform cooperative</p> <p>b) Capacity of cooperatives to utilize data analytics for enterprise development</p>

