

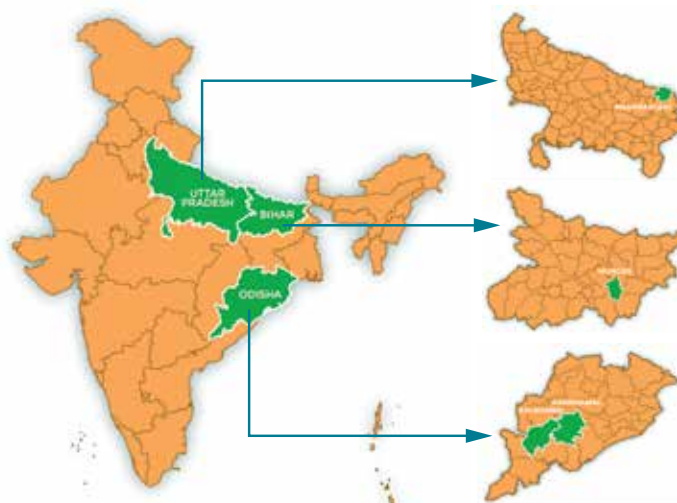
# TARINA District Fact Sheet for Women’s Empowerment in Agriculture

## INTRODUCTION

This fact sheet presents multilevel data on the status of women’s empowerment in agriculture across four districts of India. Data for this fact sheet was collected as part of the Tata–Cornell Institute’s TARINA program in India (see box to right). According to FAO (2011), women make up 33% of the economic agricultural work force in India, with the sector being the most important source of employment and income for women. They, however, face a gender gap with respect to their access to agricultural inputs and productive resources like credit, and to their ability to control income from agricultural activities. Enhancing women’s empowerment in agriculture, while of intrinsic importance, also has instrumental value. Empowerment can influence nutritional outcomes for women’s households via their ability to influence the choice of crops cultivated, their ability to influence the purchase of foods, and their ability to give time to food preparation and childcare activities relative to time spent on agricultural activities.

## THE TARINA PROGRAM

The Technical Assistance and Research for Indian Nutrition and Agriculture (TARINA) is an initiative led by the Tata–Cornell Institute for Agriculture and Nutrition (TCI) at Cornell University. The TARINA Baseline Survey (TBS) was conducted in 2017. It collected extensive village-, household-, and individual-level metrics across 3,600 households in the four program districts: (see Fig. 1): Munger (Bihar), Maharajganj (Uttar Pradesh), Kalahandi, and Kandhamal (Odisha). Data on household-level agricultural practices, seasonal food availability and access, and WASH (water, sanitation, and hygiene) were supplemented with individual-level dietary diversity for women, food frequency, IYCF (Infant and young child feeding), and anthropometry for women and children under 5.



**Figure 1. TARINA field locations: States and districts**

The TARINA baseline survey collected data on women’s empowerment in agriculture, women’s access to resources, and women’s seasonal participation in agricultural activities for the three agricultural seasons: Kharif (monsoon), Rabi (winter), and Zaid (summer). In the next section, we briefly describe the various individual-, household-, and village-level indicators that are used as measures of empowerment for this fact sheet.

## INDICATORS

### WOMEN'S EMPOWERMENT IN AGRICULTURE INDEX

Women's empowerment in the Agriculture Index (WEAI) is based on sharper data for India

The Women's Empowerment in Agriculture Index (WEAI) is a multidimensional index that measures women's empowerment, agency, and inclusion in the agriculture sector (Alkire et al. 2013). It is a direct aggregate measure, which is constructed as a weighted sum of two subindices: (1) the 5 Domains of Empowerment (5DE) subindex that measures women's empowerment in five domains (see below); and (2) the Gender Parity Index (GPI) that measures gender parity in empowerment within households. In this fact sheet, we present results on the 5DE scores at the district-level that focuses on the following 6 subindicators under 5 domains:

1. Production: Input in productive decisions
2. Resources: Ownership of assets, and access to and decisions on credit
3. Income: Control over use of income
4. Leadership: Group membership
5. Time: Leisure

We use a sharper set of indicators to construct each of the subindicators. This is based on our experience of adapting and implementing the WEAI in multiple field locations in India. Details of how the indicators were modified are discussed in the recommendations section of this fact sheet, in which we call for improved and context-specific metrics for measuring women's empowerment.

### WOMEN'S PARTICIPATION IN AGRICULTURAL ACTIVITIES

Although agriculture is the main source of employment for the majority of women in rural India, there are variations (based on crop type and season) in the agricultural activities performed by men and women. To identify the main areas of agricultural work undertaken by women, we measure women's participation in different activities, related to agricultural production by season, as follows:

Proportion of women who participated in each of the following activities: Land preparation, weeding, planting,

transplanting. This information was collected for each of three seasons: Kharif (monsoon), Rabi (winter), and Zaid (summer).

In order to account for women's integration in local markets, as buyers and sellers, we account for women's participation in, and control over, income from various market-related activities:

1. The proportion of women who have at least some input in decisions related to buying seeds and selling produce, by season;
2. The proportion of women who have at least some input in decisions related to purchasing food, obtaining agriculture loans, buying/selling kitchen garden produce, buying/selling livestock, and buying/selling crops; and
3. The proportion of women who have at least some control over income generated from nonagricultural and agricultural loans, sale of kitchen garden produce, buying/selling livestock as well as sale of crops.

In order to measure women's time poverty, we look at women's time use in the following agricultural activities—land preparation, planting, transplanting, weeding, spraying, harvesting, and selling of produce. This measurement allows us to identify those areas of agricultural production in which women are spending the most time, and use those areas as points of intervention for reducing women's drudgery in the field. We measure time use as the number of man days (1 man day = 8 hours) spent working in disaggregated agricultural activities, by season.

We also focus on women's participation in the labor force, since income from such work can influence women's empowerment as well as other outcomes like improved nutrition. We measure labor force participation in terms of the proportion of women working as agricultural and nonagricultural labor in each district.

### WOMEN'S ACCESS TO PRODUCTIVE RESOURCES

Access to productive resources enables women to explore further employment opportunities and participate in household- as well as community-level decision-making,

thereby contributing to their overall economic and social environment. This is measured by:

- Proportion of women who have land entitlements and bank accounts, own agricultural land, and are members of any group.

## VILLAGE-LEVEL EXPOSURE INDICATORS

Village-level data help us to analyze women's access to services and political participation, which gives us insight into empowerment of women at community- and broader levels. The measures are:

- Proportion of villages with a female sarpanch (head of the Gram Panchayat) and female farmer groups/producer group(s); and
- Proportion of villages where women farmers have access to extension services through the government extension system and through NGOs/other nongovernmental platforms.



## TARINA WEAI RESULTS

In this section, we present results on the WEAI. The 5DE subindex scores for each district are below the 0.80 threshold, indicating that women are disempowered, on average, in agriculture across districts. The district 5DE score is highest for Munger (0.66) and lowest for Maharajganj (0.51). More than 80% of the women in each district are disempowered in agriculture (Fig. 2). On average, women in Munger are disempowered in 40% of the domains and in 50% of the domains in the remaining three districts.

The key drivers of women's disempowerment in agriculture are lack of group membership, ownership of assets, and decisions related to credit (Fig. 3). The proportion of women who reported adequacy in the three subindicators is very low across districts (Fig. 4).

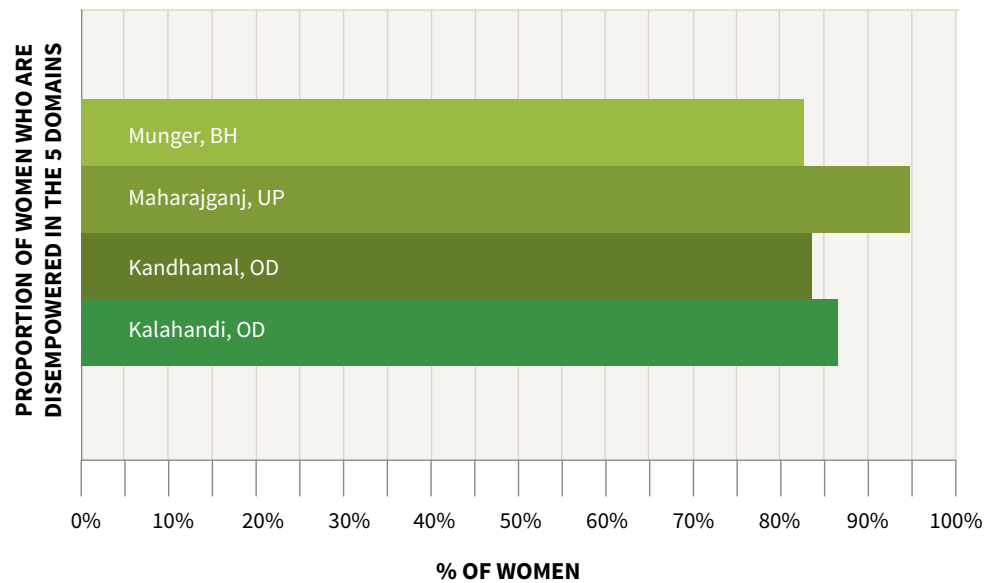


Fig. 2: Proportion of disempowered women in each district

Maharajganj, UP, has the highest proportion of disempowered women (Fig. 2)

The 3 subindicators that contribute most to women's disempowerment are (Fig. 3 and Fig. 4):

- Member of self-help group (SHG)
- Ownership of assets
- Decision on credit

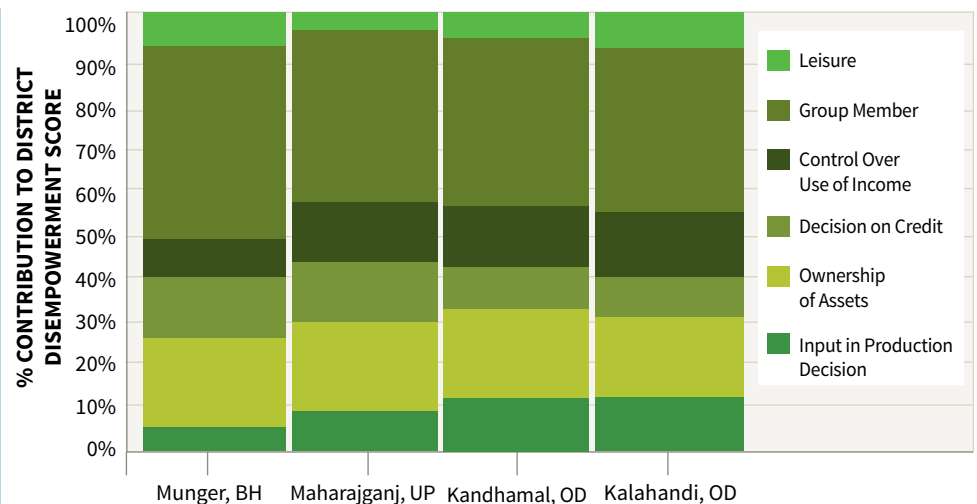
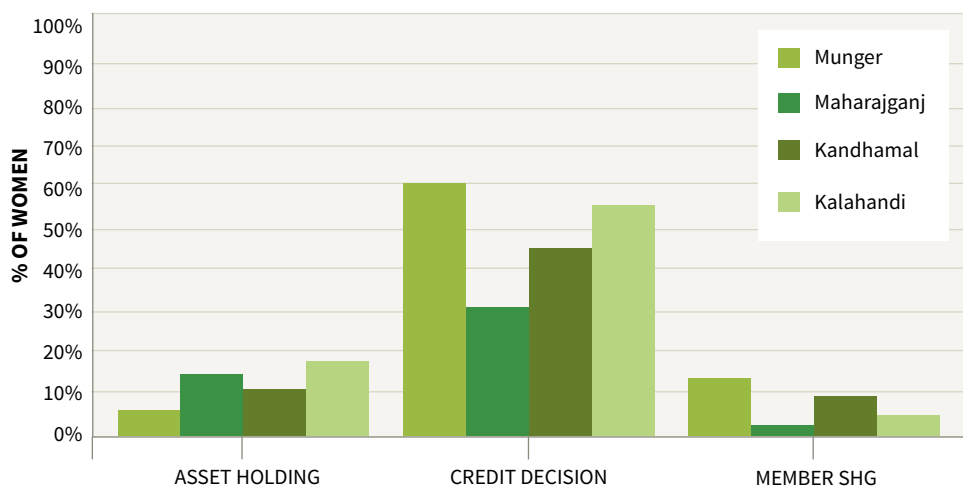


Fig. 3: Percentage contribution of each subindicator to district disempowerment score



- Less than 15% of women, on average, are sole/joint owners of agricultural land
- Around 50% of women have at least some input in credit decisions
- Less than 10% of women are members of SHGs related to agriculture and nutrition

Fig. 4: Self-reported levels of Adequacy\* in areas that contribute the most to disempowerment

\* Asset-holding: Women who are sole/joint owners of agricultural land

\* Credit decision: Women who have at least some input in decisions related to agricultural credit

\* Member, SHG: Women who belong to an SHG that undertakes activities around agricultural livelihoods, provision of seeds, etc., and information on health and nutrition.

## WOMEN'S PARTICIPATION IN AGRICULTURAL ACTIVITIES

In this section we discuss women's participation and time use in various agricultural activities. Women's participation in agricultural activities varies by season (Fig. 5), with the predominant activity being transplanting in the Kharif season and weeding in the Rabi season. In general, women's participation rates in market-related activities, like sale of produce and purchase of seeds, is very low (Fig. 6).

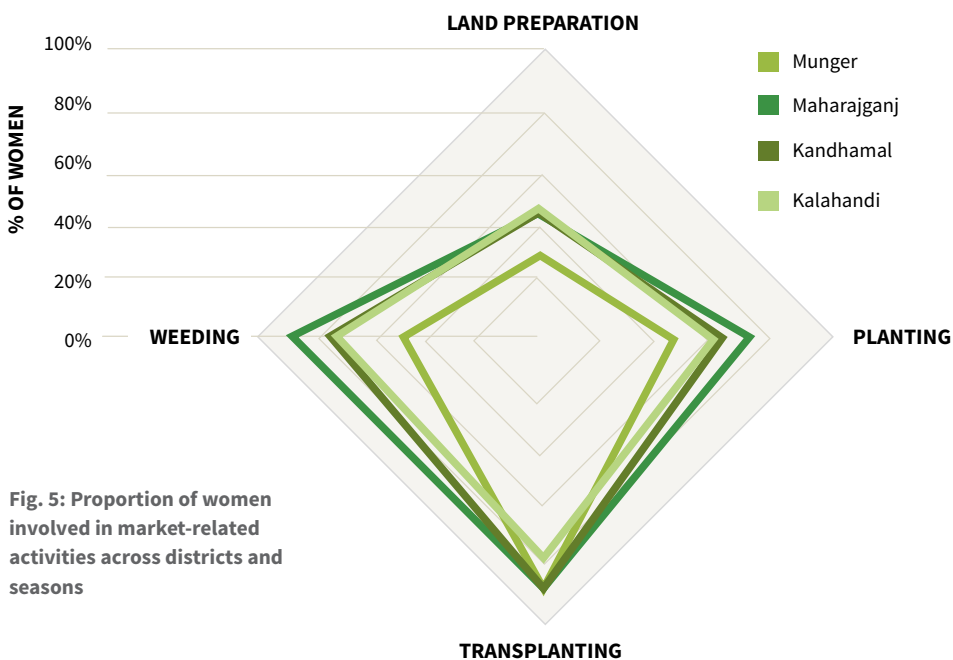


Fig. 5: Proportion of women involved in market-related activities across districts and seasons

### Women's participation in production activities

Most women (84%) are involved in transplanting across all districts in Kharif (Fig. 5). In winter, most women (50%) contribute to weeding and transplanting

The least women are involved in land preparation both in monsoon (42%), and in winter (35%)

- Less than 10% women in Bihar are involved in sale of produce in the two seasons
- The proportion of women involved in purchase of seeds is greater than those involved in the sale of produce, across all districts and seasons

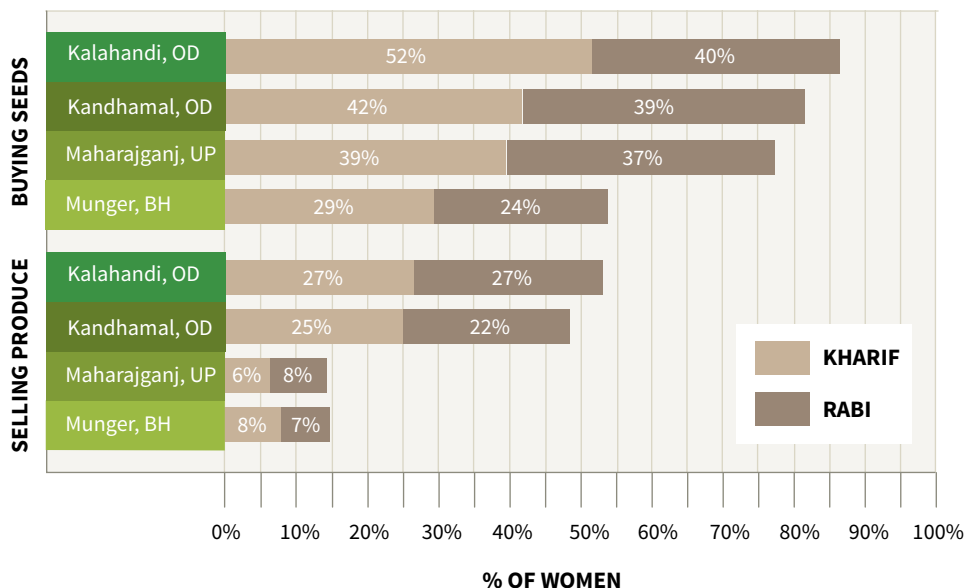


Fig. 6: Proportion of women involved in market-related activities across districts and seasons

A look at the extent to which women have input in market-related decisions indicates that of the women who participated in these activities, most of them have at least some input (Fig. 7). On average, women in Odisha have greater control over income (graph not shown) than women in Bihar and UP. Women in UP have the least control over use of income in all market-related activities.

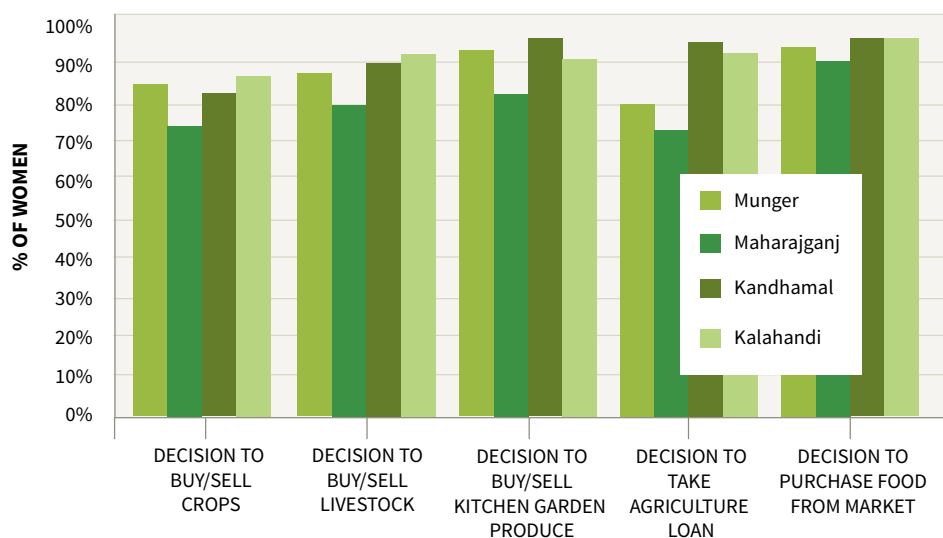


Fig. 7: Women's input in decisions for market-related activities

- Women in UP participate the least in market-related decisions
- Women across all districts are more involved in decisions regarding purchasing food, than selling or buying crops



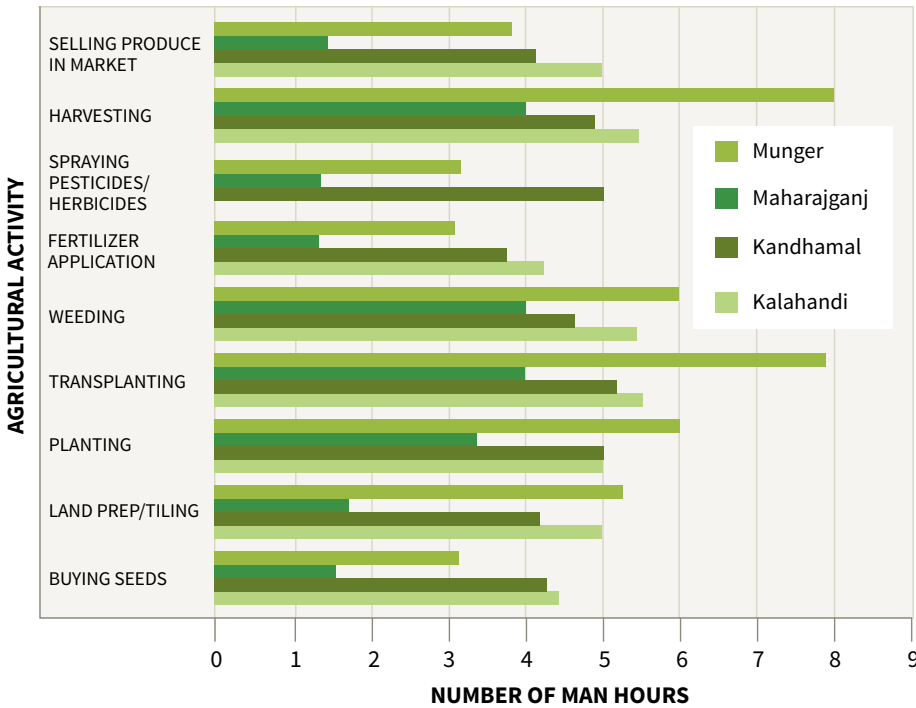


Fig. 8: Women's average time use in agriculture activities during Kharif

Our results on seasonal agricultural time-use indicate low averages by specific production activities (Fig. 8).

- Women in Munger, UP, spend the most time (around 8 hours) on harvesting and transplanting.
- On average, women spend less than 5 hours selling produce, with women in Munger, UP, only spending 1.5 hours.
- On average, women across all districts are least involved in spraying and fertilizer application.

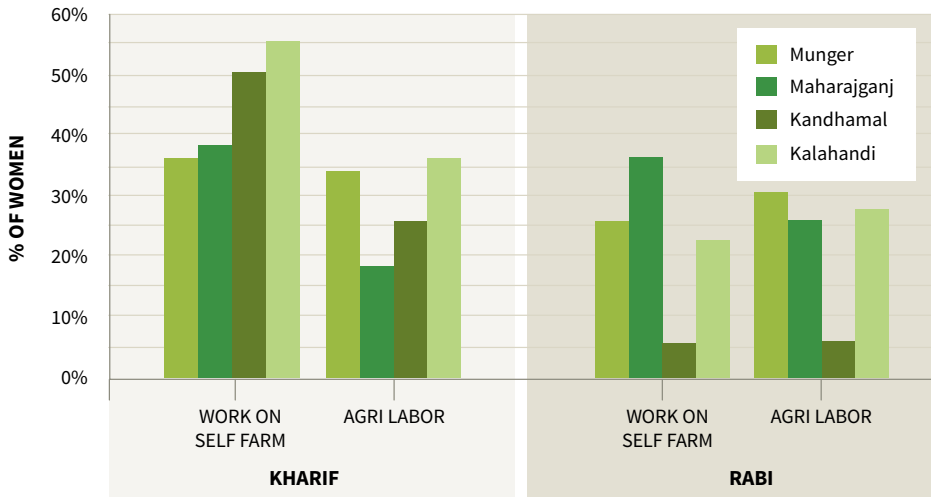


Fig. 9: Women's participation in self-farm and agriculture labor

Fig. 9 and Fig. 10 highlight women's participation rates in agricultural and nonagricultural wage labor, across all districts.

- Less than 9% of women are employed in agricultural labor during summer in 3 out of 4 districts (Fig. 9)
- In Kharif, a greater proportion of women work as labor on their own farms, compared to working as agricultural wage laborers (Fig. 9)
- Women in Maharajganj, UP, participate the least in nonfarm labor (Fig. 10)

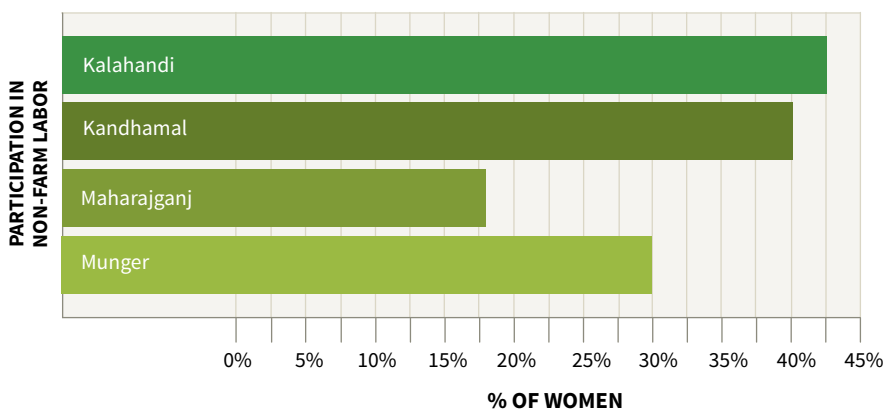
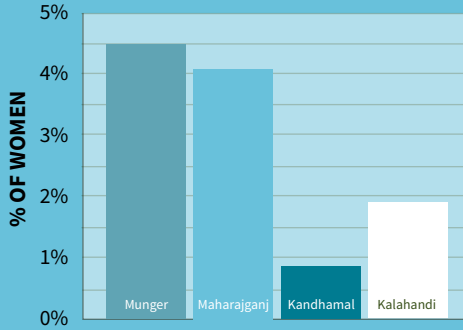


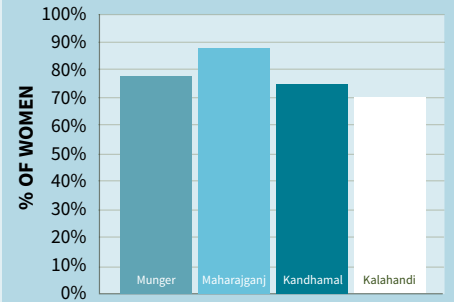
Fig. 10: Women's participation in nonfarm labor

## WOMEN'S ACCESS TO RESOURCES



**LESS THAN 5% OF WOMEN HAVE LAND ENTITLEMENTS**

Fig. 11: Percentage of women with land entitlements



**AROUND 80% WOMEN HAVE BANK ACCOUNTS IN THEIR NAMES**

Fig. 12: Percentage of women who own bank accounts

**LESS THAN 2 OUT OF 10 WOMEN OWN AGRICULTURAL LAND**

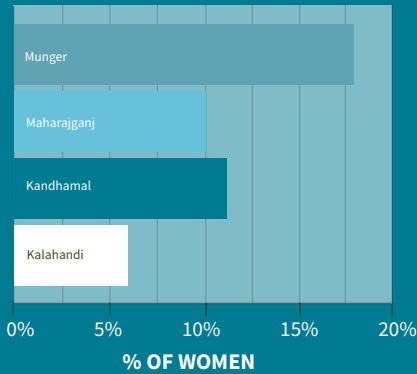


Fig. 13: Percentage women who own agricultural land



**AROUND 1 IN 5 WOMEN BELONG TO A WOMEN'S GROUP, ON AVERAGE**

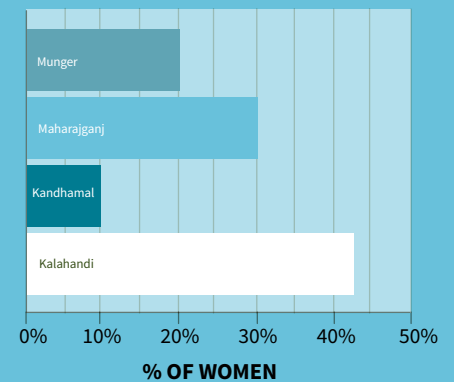


Fig. 14: Percentage of women who are a member of any group



## VILLAGE-LEVEL EXPOSURE INDICATORS FOR EMPOWERMENT

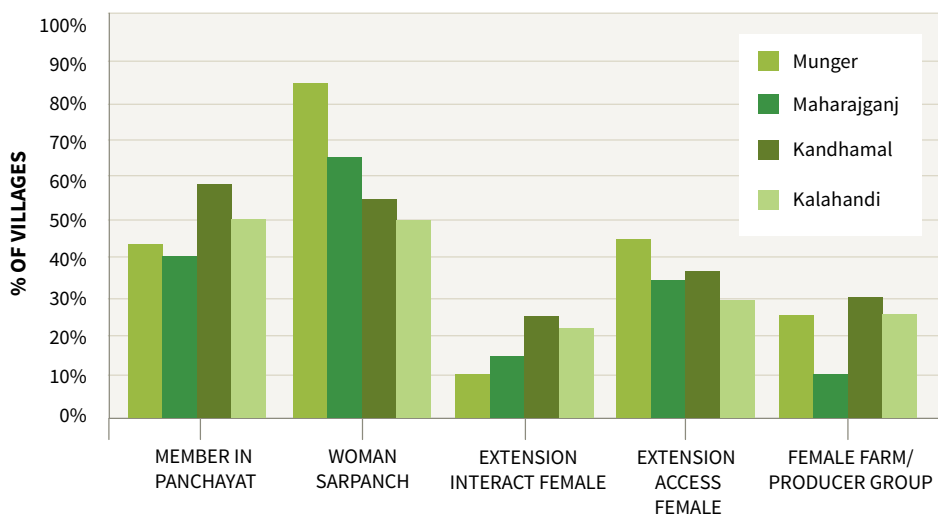


Fig. 15: Women's participation and access to resources - village level

- At least 50% of villages have a woman Sarpanch (Fig. 15)
- On average, in only 17% of villages do women have access to extension service interactions with females
- Overall, women in villages of Maharajganj, UP, have the least participation rates and access to resources, as compared to the other three districts

## KEY FINDINGS

1. At least 80% of women in all four districts are disempowered, on average, in 40% of the domains in agriculture.
2. The key drivers of women's disempowerment are lack of memberships in SHGs involved in agriculture and nutrition, asset ownership, and decisions on credit.
3. In all four districts, 50% or more of the women are involved in major agricultural activities, such as weeding, transplanting, and planting in Kharif and Rabi seasons. Less than 1 in 3 women are involved in market-related activities like the sale of crops.
4. A greater proportion of women across all districts have input in decisions regarding the purchasing of food from the market, than in the sale of produce from farming, livestock, kitchen gardens, and forest produce.
5. Seventy percent or more women in each district reported to have at least some control over the use of income from market-related activities, with women in UP having the least control.
6. More women in each district work on own-farms (40% on average) than as agricultural laborers in the Kharif season. Women's participation as agricultural laborers in Rabi is lowest at 20%.
7. Across all districts, 1 in 5 women belong to a women's group, and 80% of women have bank accounts in their name. Less than 2 out of 10 women own agricultural land.
8. Around 47.5% of the villages have women in their gram panchayats, and around 64% of the villages have a woman as the Sarpanch of a gram panchayat. Female farmer and producer groups are present in 30% or less of the villages in all four districts.
9. The staff of government extension services interact with women in less than 20% of the villages in Munger and Maharajganj.
10. Across all districts, in a greater proportion of villages, women rely on nongovernment extension platforms, compared to government extension systems.

## RECOMMENDATIONS

### ADDRESSING THE KEY DRIVERS OF WOMEN'S DISEMPOWERMENT IN AGRICULTURE

#### INCREASING WOMEN'S PARTICIPATION IN SHGs RELATED TO AGRICULTURE AND NUTRITION

Women's self-help groups can be used as platforms for providing women with information on best practices for cultivation and access to inputs and technology, as well as access to extension services. Moreover, such agriculture-related activities of SHGs can be layered with a nutrition lens that integrates behavior change communication around production and consumption diversification.

#### INCREASING OWNERSHIP OF ASSETS

The key agricultural asset we account for in the WEAI is women's land ownership. Ensuring legally binding property rights over land can be instrumental in allowing women to influence production decisions, use of the produce (sale consumption), and control over any associated income.

#### GREATER CONTRIBUTION TO CREDIT DECISIONS

Enabling women to have input in obtaining agricultural loans and control over the use of the loans can influence the extent to which women indirectly have input in decisions related to agricultural production and purchase activities.

### INCREASING WOMEN'S PARTICIPATION IN MARKETS

#### LINKING WOMEN TO LOCAL MARKETS AS BUYERS AND SELLERS

Women participate least in activities like sale or purchase of produce from farming, livestock production, or kitchen gardens. Linking women to local markets as sellers can increase their income-earning potential and increase their control over the use of that income. This can be achieved by investing in rural infrastructure like roads and transportation, as well as by developing gender-inclusive value chains. Women's ability to participate in local markets as buyers of food can influence their ability to access a diverse, nutritious basket of foods with potential to improve nutritional outcomes for themselves and their family members.

### BETTER METRICS FOR MEASURING EMPOWERMENT

#### NEED FOR SHARPER DATA TO MEASURE EMPOWERMENT

In this fact sheet, we highlight the need for better metrics to assess the level of women's empowerment in agriculture. Collection of multilevel data (individual-, household-, and village- level) allows us to compare complementary measures of ownership and access in a better way.

Specifically, for the WEAI we use sharper indicators to construct the index. This is based on our experience of adapting and implementing the index in various field locations across India. In making such changes to the WEAI, we emphasize the need to base the index on site-specific notions of access, ownership, and control over resources. Some examples of how we modify the WEAI for an Indian context are:

1. Ownership of assets: We focus on ownership of agricultural land, since that is a tangible property right that can be determined based on legally binding titles. We exclude assets like livestock and consumer durables that are more akin to household-level public goods in that it is difficult for a respondent to ascertain who in the household owns the assets.
2. Participation in production activities: We disaggregate production activities into constituent activities, since in India men and women participate in different subsets of production activities, depending on the crop and season.
3. Time use: We disaggregate agricultural time use by season and by specific agricultural activities. This is done to capture seasonal variations in women's participation in the different production activities. Such variation is not captured by a traditional 24-hour recall method.

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The data analysis and content development for the district fact sheet were carried out by Dr. Soumya Gupta, Vidya Vemireddy and Dr. Dhiraj Singh

This paper/report was written as part of the Technical Assistance and Research for Indian Nutrition and Agriculture (TARINA) program. TARINA is being implemented in three states of India by Tata Cornell Institute (TCI) of the Cornell University with financial support from the Bill & Melinda Gates Foundation.





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