



SPATIAL HETEROGENEITY AND TEMPORAL DYNAMICS OF WOMEN'S PARTICIPATION IN NATIONAL RURAL LIVELIHOOD MISSION

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RESEARCH ARTICLE



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Abstract

The expansion of Self-Help Groups (SHGs) under the National Rural Livelihood Mission (NRLM) has played a significant role in enhancing women's participation in rural livelihoods. In a socio-economically vulnerable region like Purulia Sadar subdivision, this study analyses the spatial and temporal patterns of women's engagement at the Gram Panchayat level. The assessment is based on three key dimensions—participation level, growth level, and disequilibrium—constructed to capture regional variation and imbalance in SHG activities. The findings reveal marked spatial heterogeneity, with higher participation and growth observed in economically stressed and drought-prone areas, where SHGs function as an important livelihood alternative. At the same time, the presence of disequilibrium indicates uneven distribution of programme benefits across regions. These variations are largely influenced by differences in access to credit, skill development opportunities, and institutional support. The study highlights that while NRLM has contributed to improving women's economic engagement, addressing regional imbalances is essential for ensuring more inclusive and sustainable outcomes.

Keywords: *National Rural Livelihood Mission, Self-help Groups, Purulia, Women participation, Rural women*

Introduction

Gender equality and women's empowerment are now central to global development agendas. The journey toward eliminating gender disparities and securing women's liberation has been ongoing for decades. Furthermore, empowering women is widely recognized as a fundamental requirement for achieving sustainable development (Duflo, 2012; Bayeh, 2016). Promoting gender equality and empowering women is both a vital goal and a pathway to building a more prosperous, peaceful, inclusive, and sustainable world. The United Nations has convened four major conferences addressing women's issues, with the fourth—widely known as the Beijing Platform for Action—marking a significant milestone. This landmark event highlighted twelve key areas of concern for women and envisioned a world where every woman and girls have the freedom to make her own choices and live with dignity (UN Women, 2018). Achieving gender equality and empowering all women and girls is mentioned as a specific aim to be accomplished by 2030 in the Sustainable Development Goals.

Women's entrepreneurship has occurred as a major driver of inclusive financial growth, particularly in rural regions of developing countries (Cardella et al., 2020; Goyal et al., 2022; Ogundana et al., 2021). Over the last two decades, a growing body of literature has highlighted the transformative role of Self-Help Groups (SHGs) in empowering rural women both economically and socially (Fithria et al., 2023; Greaney et al., 2016). The Sustainable Development Goals identify the achievement of gender equality and the empowerment of all women and girls as a distinct target to be fulfilled by the year 2030. The Sustainable Development Goals identify the achievement of gender equality and the empowerment of all women and girls as a distinct target to be fulfilled by the year 2030 (Women and Health, 2021). Women's empowerment is shaped by various factors, including economic independence, mobility, access to education, and the ability to participate in household decision-making (Nayak and Mahanta 2017; Abbas et al. 2021). Therefore, enhancing women's economic empowerment and realizing the wide-ranging benefits of their increased voluntary participation in NREGA can be regarded as one of the most valued outcomes of this employment-oriented initiative. The daily wage rate and women's participation, the number of working-days,

the amount of work provided by the government, etc. have increased at a remarkable rate across the country in the last few years. With active participation, women are widening their income, which leads to improving their social voice and control over their life (Singh and Datta 2019). A greater percentage of women employed by the NREGA program reported about a significant increase in their status in the community and improvement in their living standard. According to many of them, earlier they “had to depend on their husband’s income for any kind of expenses”, but now with some cash in their hands, they feel empowered and better economic independence, in their capacity as earning members of the family (Sarma, 2021; A. Mishra, 2023). Women have the right to live freely and with dignity. An additional crucial instrument for promoting development and lowering poverty is the empowerment of women. Women who are empowered enhance the health and productivity of whole communities and families as well as the chances for the following generation. The National Rural Livelihoods Mission (NRLM) has been central to these efforts. Launched by the Government of India, NRLM aims to build institutional platforms for the rural poor, with a particular focus on women from disadvantaged backgrounds. One of its core strategies is the facilitation and strengthening of SHGs, which receive support through bank linkages, capacity-building initiatives, and livelihood promotion programs. Empirical studies and program evaluations consistently underscore the positive impacts of NRLM-supported SHGs on household income, financial decision-making, and social capital formation. 11.80 lakh SHGs have been formed with 1.2 crore local women in collaboration with National Rural Livelihood Mission (NRLM) under West Bengal State Rural Livelihood Mission (WBSRLM) (as on December 2023). Also 40,178 Upasanghas, 3,339 Sanghas and 296 block level Mahasanghas have been formed.

The present study aims to evaluate the Spatio-temporal variation in women’s participation across different Gram Panchayats in selected blocks of Purulia district. It focuses on examining how the level and nature of women’s involvement in rural development initiatives have changed over time and space. By analyzing trends at the Gram Panchayat level, the study seeks to identify regional disparities and patterns of empowerment.

Background of the Study

The districts of Purulia, Bankura, Birbhum, and West Medinipur represent the westernmost parts of West Bengal and are located in areas susceptible to drought (Senapati et al., 2021), where drought and water insufficiency are pretty widespread (Nag, 1998). The “Dry-land areas of West Bengal” have been identified as these four districts because of their soil properties, as outlined in the State Plan of West Bengal, along with their tendency for droughts and a long-standing history of water shortages (Bahadur et al., 2011; Acharya & Nag, 2013). The region in question, noted for its susceptibility to drought, accounts for 47% of the district’s overall land area. (Mahato, 2012). In contrast, the main source of income for the district’s residents is agriculture. Almost 70% depend on it for their livelihoods. Roughly 9% of the district’s inhabitants are involved in agricultural work, with cultivators making up 17.68% and marginal farmers representing 7.39% of the total population. About 14.1% of the land, or 88,327.62 hectares, is irrigated. Additionally, a large portion of the population faces significant social and financial challenges due to the district’s water shortages and instances of drought.

In addition, the district has a substantial amount of Barren land, and the process of land deterioration is very dominant (Wasteland Atlas 2010). In this region, these barren areas are referred to as “tarn” or “gora.” Consequently, there is a lack of appropriate land for farming in this area, with only a few plots suitable for cultivation. This has led to a migration culture emerging in the region due to poverty, which is exacerbated by the scarcity of water (Black et al., 2011). In addition to ongoing drought and famine in the area, the short duration of crop growth is attributed to the dry sub-humid climate and the lack of moisture-rich soil. Geographically, this region lies within the Precambrian Chhota Nagpur Gneissic Complex (CGC) of the Singhbhum Craton. The landscape is mainly characterized by granitic gneiss and pegmatite rocks, whereas phyllite and mica schist formations are primarily confined to the southern and southeastern sections of the district. As per the Department of Land Resources, the regions most severely impacted by drought include the blocks of Jaipur, Baghmundi, Balarampur, Purulia I and II, Raghunathpur I and II, Neturia, Hura, Bandwan, Barabazar, Manbazar I and II, Para, Arsha, and Kashipur (Bera et al. 2021a, b, c).

Methods and Methodology

Study Area

Purulia, a district in West Bengal that lacks development and is mainly inhabited by rural communities, is presently experiencing a slow economic transformation (Roy & Jana, 2015; Mishra, 2017). The distribution of the population in the district is irregular, and the primary sector acts as the core economic base. Analyzing the employment configuration of an area distinctly reflects its economic conditions. Shifts in the mode of subsistence have a considerable effect on alterations in the employment structure (Roy & Jana, 2015; Bhattacharyya & Vauqueline, 2013). Men and women in the Purulia region are employed in a variety of wage-based occupations. When they struggle to meet their basic needs, wages might be given in cash or in the form of a small fraction of the crops. Previously, a large segment of the population was involved in farming. However, in some blocks of the district, this proportion gradually decreased by 2011. Consequently, the decline is noticeable in the Neturia, Raghunathpur-I & II, Purulia-I & II, Balarampur, Para, and Santuri blocks. Therefore, the Purulia district’s Arsha, Hura, Balarampur, Purulia-I, and Purulia-II blocks which are made up of 42 Gram panchayats are the subject of our study (Figure 1). This study at the gram panchayat or micro level.

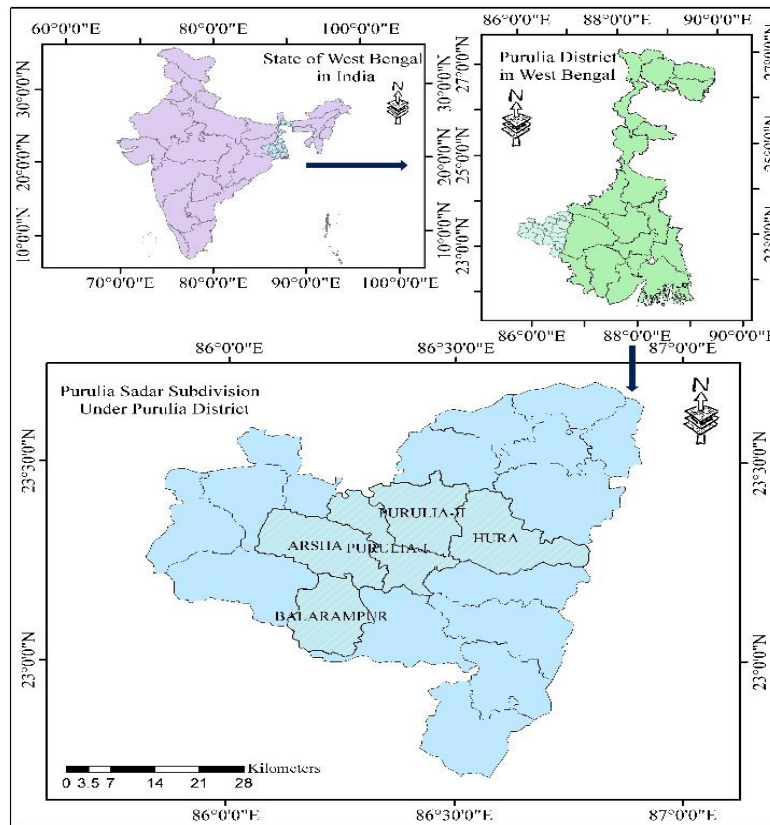


Figure 1: Study area map

Data use

In this study Purulia-Sadar subdivision one of major sub division selected in Purulia district. There are five blocks and 42-gram panchayats that come under the Purulia Sadar sub division. The present study is based on secondary data gathered from the ministry of Rural development’s analytical reports. A cross-sectional study is done by gather data self-help group (NRLM) in women engagement for every financial year. The report includes all the necessary information, such as pre-NRLM, NRLM, Total SHG’s and Total members. Other- part this study has been used sourced from the Census of India (2001 and 2011), which provides demographic information, including the total population and gender-wise distribution across Gram panchayat.

Methodology

The years selected for the analysis are 2013-2024. One such period, pre-NRLM and NRLM i.e. 1. 4. 2013 and the two-time frames 2020 and 2024 have been selected. Therefore, to indicate the percentage of rural women’s participation rate in pre-NRLM and NRLM, the women population has been projected. The base population has been taken as Census of India 2001 and 2011, from which the population projection is calculated.

Population projected: $P_t = P_0 e^{rt}$ Eq. (1)

Where, P_t = Current year population, P_0 =Base year population, e = growth rate, r = Time intervals (In years), t =base of the natural logarithm

This study employs a quantitative approach to classify 42 Gram Panchayats based on the Disequilibrium Score (DS), which measures the disparity between women’s participation rank and growth rank in MGNREGA across three time points: 2013, 2020, and 2024. The classification is derived through a multi-step ranking and quartile-based categorization method (Figure 2).

Measurement of Average Participation Rank

This study aims to analyze the participation dynamics in self-help groups (SHGs) under the National Rural Livelihoods Mission (NRLM) across different financial years by assessing both absolute participation levels and growth patterns over time. The dataset consists of participation amounts for $i = 1, 2, \dots, 42$ Gram Panchayats (GPs) across three financial years, $j = 2013, 2020, 2024$. This study employs a quantitative approach to classify 42 Gram Panchayats based on the Disequilibrium Score (DS), which measures the disparity between women’s participation rank and growth rank in MGNREGA across three time points: 2013, 2020, and 2024. The methodology is structured into two key analytical components: ranking based on participation amounts and ranking based on growth rates. The classification is derived through a multi-step ranking and quartile-based categorization method. For each year (2013, 2020, and 2024), Gram Panchayats were ranked in descending order according to

their total number of women participants in NRLM (SHGs). The ranks were then averaged over the three years to obtain the Average Participation Rank for each Panchayat:

$$APR_i = \frac{\sum R_{it}}{3} \dots \dots \dots \text{Eq. 1}$$

Where, APR_i is the denote the average rank of Gram Panchayat i and R_i is the rank of Gram Panchayat i in year t . This provides a single consolidated ranking score representing the long-term participation trend of each GP.

Measurement of Annual Growth Rate

To evaluate the temporal change in participation, the annual growth rate of women’s participation was estimated for two distinct periods: 2013–2020 and 2020–2024. The growth rate for Gram Panchayat i from year t_1 to t_2 is computed as follows

$$GR_{t_1,t_2,i} = \frac{P_{t_2,i} - P_{t_1,i}}{P_{t_1,i}} \times 100 \dots \dots \dots \text{Eq. 2}$$

Here, $GR_{t_1,t_2,i}$ represents the percentage growth rate of panchayat ‘ i ’ between years t_1 and t_2 and $P_{t,i}$ represent the participation quantity in year ‘ t ’. These growth rates provide information into how participation in SHGs has evolved over time, identifying Gram Panchayats that have experienced rapid increases or declines in participation levels.

Once the growth rates are estimated for both periods, we rank the Gram Panchayats in ascending order based on their growth rate values. Let $G_{i,2013 \rightarrow 2020}$ and $G_{i,2020 \rightarrow 2024}$ denote the ranks assigned to Gram Panchayat i based on the growth rates for the respective periods. These ranks reflect the relative performance of each Gram Panchayat in terms of participation growth over time. To obtain an overall measure of growth performance, we compute the average growth rank for each Gram Panchayat as follows:

$$AGR_i = \frac{R_{G_{1,i}} + R_{G_{2,i}}}{2} \dots \dots \dots \text{Eq. 3}$$

Here, AGR_i represents the average ranking of Gram Panchayat ‘ i ’ based on its participation growth across the two periods (2013-2020 and 2020-2024). $R_{G_{1,i}}$ and $R_{G_{2,i}}$ are the growth rate rank of two distinct periods.

This measure provides a consolidated indicator of the long-term growth trajectory of each Gram Panchayat. Through this comprehensive ranking framework, we systematically evaluate both the absolute engagement levels and the dynamic growth patterns of NRLM participation across different Gram Panchayats. The average participation rank provides insights into long-term participation trends, while the growth rank average captures the pace at which participation has increased over time. Together, these indicators enable us to identify high-performing Gram Panchayats with both strong engagement and sustained growth, as well as those with relatively lower participation and slower progress.

To assess the relative performance of each Panchayat in terms of participation and growth, the Disequilibrium Score (DS) was computed as the difference between APR_i and AGR_i

$$DS_i = APR_i - AGR_i \dots \dots \dots \text{Eq. 4}$$

Here, DS_i is the Disequilibrium Score of i th Gram-Panchayat. This score captures the imbalance between participation level and growth dynamics, with positive values indicating declining participation despite a historically high rank and negative values signaling improvement in participation despite a lower historical rank. For instance, a Stable High Performer (e.g., Panchayat A) with an APR of 10 and an AGR of 9 results in a DS of 1, signifying consistently high participation with steady growth. An Emerging Performer (e.g., Panchayat B) with a historically low APR of 25 but a strong AGR of 10 leads to a DS of 15, indicating a positive trajectory requiring further support. Conversely, a Stagnating Panchayat (e.g., Panchayat C) with a high APR of 5 but a low AGR of 20 has a DS of -15, highlighting declining participation. A Critical Low Performer (e.g., Panchayat D) with both low APR (30) and AGR (28) results in a DS of 2, reflecting persistently weak participation and the need for urgent policy intervention.

After the estimation of DS values, these values are categorized into four distinct performance classes based on quartile thresholds to assess the participation trends of Gram Panchayats in MGNREGA. Stable High Performers include Panchayats with DS values between the second and third quartiles ($Q2 < DS \leq Q3$), indicating consistently high participation with steady growth. Emerging Performers are those with DS values below the first quartile ($DS < Q1$), representing low past participation but strong recent growth, suggesting the need for further support. Stagnating Panchayats have DS values above the third quartile ($DS > Q3$), signifying historically high participation but declining growth. Critical Low Performers fall between the first and second quartiles ($Q1 \leq DS < Q2$), indicating persistently low participation and weak growth, necessitating urgent policy interventions. This quartile-based classification method was used to analyse the Disequilibrium Score (DS) of 42 Gram Panchayats, computed as the difference between Participation Rank Score and Growth Rank Score. The DS distribution was divided into four categories based on quartile values: Q1 (-10.96), Q2 (0.085), and Q3 (11.165). This classification enables targeted strategies to enhance women’s participation in NRLM-SHG.

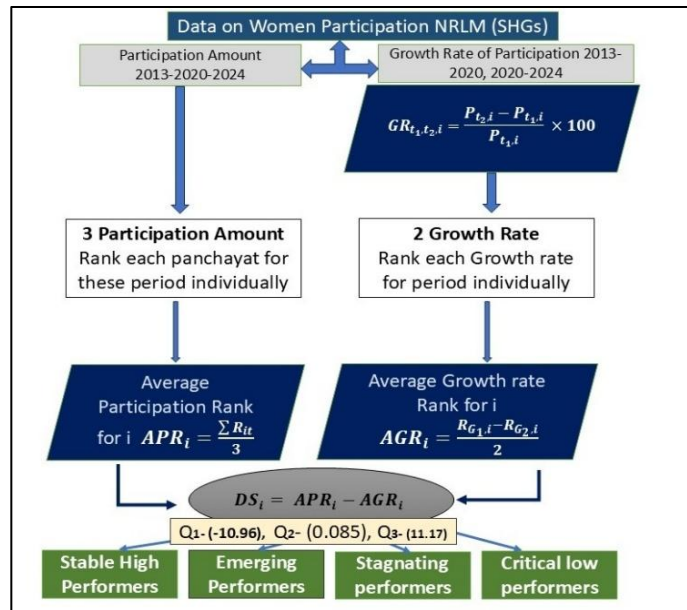


Figure 2: Methodological Flow Diagram

Result

At the national level, the expansion of the Self-Help Group (SHG) network under the National Rural Livelihood Mission (NRLM) reflects a significant transformation in rural women’s participation and financial inclusion. Approximately 67.9 million women have been mobilized into SHGs, demonstrating the extensive outreach and institutional strength of the programme. Notably, around 56% of these households belong to Scheduled Castes, Scheduled Tribes, and minority communities, highlighting its inclusive approach towards marginalized sections of society. In addition, the growing financial integration of SHGs is evident from the substantial volume of bank linkages, deposits, and credit flow, which has strengthened the economic base of rural women (World Bank, 2020; NABARD, 2020). Against this broader national backdrop, the present study examines the spatial heterogeneity and temporal dynamics of women’s participation at the Gram Panchayat level in Purulia Sadar subdivision.

Spatio-temporal variation in women’s participation in NRLM (SHGs) across different Gram Panchayats

In Figure 3 provides a visual representation of the SHGs numbers of Purulia Sadar Sub Division. The graph shows the highest number of SHGs that improved in 2017 in each block. Overall, in the last thirteen years (2010-2023), Hura block has the highest percentage of 24.36%, followed by Arsha (23.72%), Balarampur (18.24%), Purulia-I (16.91%), and Purulia-II (14.47%). In addition, the situation has improved in 2015, where Arsha block has a total of 19.93%, Purulia-I 16.75%. But since 2019, the number of SHGs operating in study blocks has been continuously decreasing. This situation has continued to decline in 2020 and 2021 as well. During this period, the covid-pandemic has affected the work of various people in the society. We know that any hazards disrupt the work-oriented efforts of people. This is a reflection of that. Since 2022, i.e. 2023, SHGs have again trended upwards in every block.

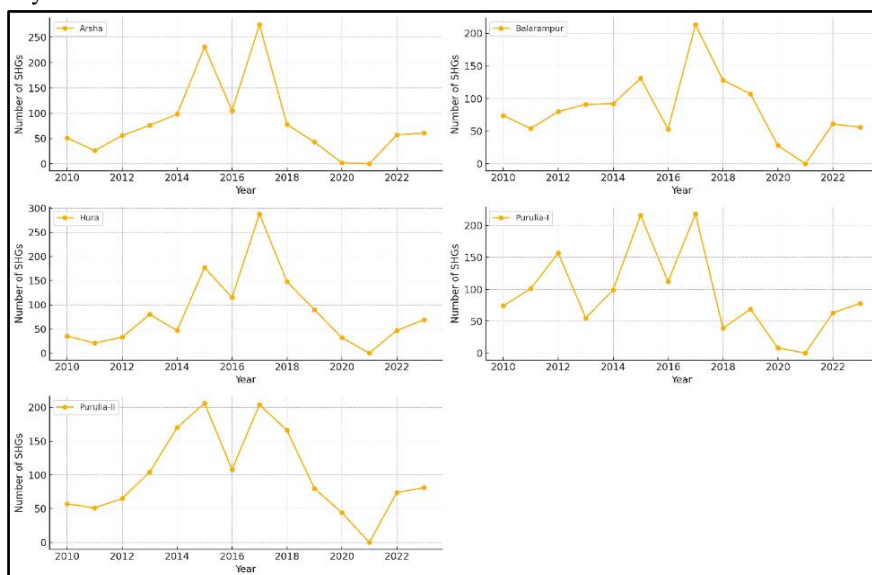


Figure 3: Number of SHGs promoted in Purulia Sadar subdivision, 2010-2023

The highest percentage of households in 2017 have been mobilized to join SHGs. As per the graph, Hura block has the highest number of households included in SHGs, with a percentage of 24.63%, followed by Purulia-II block (19.80%), Balarampur (17.93%). Arsha has the lowest percentage of 7.27% of total households that were mobilized to join SHGs. On the other hand, among the study blocks in 2014, Arsha block had 22.79% households mobilized in SHGs, which is the highest compared to other blocks. After this Purulia -II 13.02%. After 2020, the total number of households joining SHGs has decreased by lakhs in each block. Comparatively, the growth rate of household mobilization in Purulia-II block is only 0.69%, followed by Balarampur block with only 2.52%, Hura with 3.14%, and Purulia-II with 3.27%. In 2022 and 2023, women in other rural families are coming forward for SHGs. After all household mobilized for 2022 and 2023 have started increasing again, with the average percentage for the two years being 2.80% in Hura block, followed by the highest percentage of 3.32% in Purulia-I, Purulia-II, Balarampur.

Participation of Rural Women in SHG’s in different Gram panchayat, Purulia Sadar-Subdivision

The SHGs movement was initiated very belatedly in west Bengal. It started slowly but picked up speed over time and is now affecting the rural economy (Sarkar and Mallick, 2019). The analysis was conducted to assess the trends in women’s participation in NRLMs (Self-Help Groups) in 2013, 2020 and 2024 and the changes in their participation over time. Participation rates are calculated as the proportion of female SHG members out of the total female population, and based on these rates, each Gram Panchayat is assigned a rank score. The rank scores are standardized to enable a comparative analysis across the three time periods.

Table 1: Average rank score in Participation of women in NRLM (SHGs)

Gram Panchayat	Participation average rank score	Gram Panchayat	Participation average rank score	Gram Panchayat	Participation average rank score
Agoya narra	24.33	Darda	14.67	Keshargarh	25.00
Arsha	24.00	Dimdiha	32.67	Ladhurka	13.67
Balarampur	10.33	Durku	36.33	Lagda	2.67
Baraurma	14.00	Garafusra	33.33	Lakhanpur	29.33
Bela	35.67	Genrua	20.67	Manara	8.67
Beldih	37.00	Ghatbera	34.00	Manguria lalpur	12.00
Belma	19.00	Ghonga	41.00	Mankiary	17.67
Bhandar puarachipida	21.67	Golamara	10.67	Pindra	16.33
Bhangra	40.00	Hensla	16.00	Puara	32.67
Chakoltore	29.00	Hetgugui	33.00	Raghabpur	7.33
Charra dumdumi	28.33	Hura	19.00	Rakhera Bispuria	6.33
Chatuhansha	39.00	Hutmura	7.33	Sirkabad	15.33
Chatumadar	1.33	Jabarrah	15.67	Sonajuri	16.67
Daldali	16.33	Kalabani	17.00	Tentlow	28.00

Source: Author Estimation

Table 1 indicates that the Chatumadar gram panchayat (1.33) has the lowest average rank score, indicating the highest level of women’s participation in NRLM. And Other notable high-performing GPs include the Lagda with an average rank score 2.67. Conversely the Gram Panchayats with the lowest levels of women’s participation include Ghonga (41.00), which holds the highest average rank score, indicating the poorest performance.

The classification of women’s participation in NRLM(SHG) is based on rank scores (Figure 4), where lower rank scores indicate higher participation rates. (Figure 2) illustrates that the Very high participation where rank scores between 1.33 and 10.67 is observed in Gram Panchayats such as Chatumadar, Rakhera Bispuria, Lagda, and Hutmura, reflecting the highest levels of women’s involvement. High participation where rank scores between 10.67 and 19.00 is seen in Balarampur, Belma, Daldali, and Tentlow, showing significant engagement in these gram panchyats. Moderate participation where rank scores between 19.00 and 25.00 is evident in Agoya Narra and Bhandar Puara Chipida, indicating a balanced level of involvement. Low participation where rank scores between 25.00 and 34.00) is characterized by regions with relatively lower, but still notable, levels of participation. Finally, very low participation (rank scores between 34.00 and 41.00) is observed in areas like Bhangra, Chatuhansha, and So, reflecting the lowest levels of women’s engagement in the NRLM. Among the 42 Gram Panchayats, 19.04% exhibit the highest level of women’s participation in NRLM, showcasing the regions with the most active involvement. In contrast, 11.90% of the Gram Panchayats reflect the lowest participation levels, highlighting areas with considerably lower engagement from women.

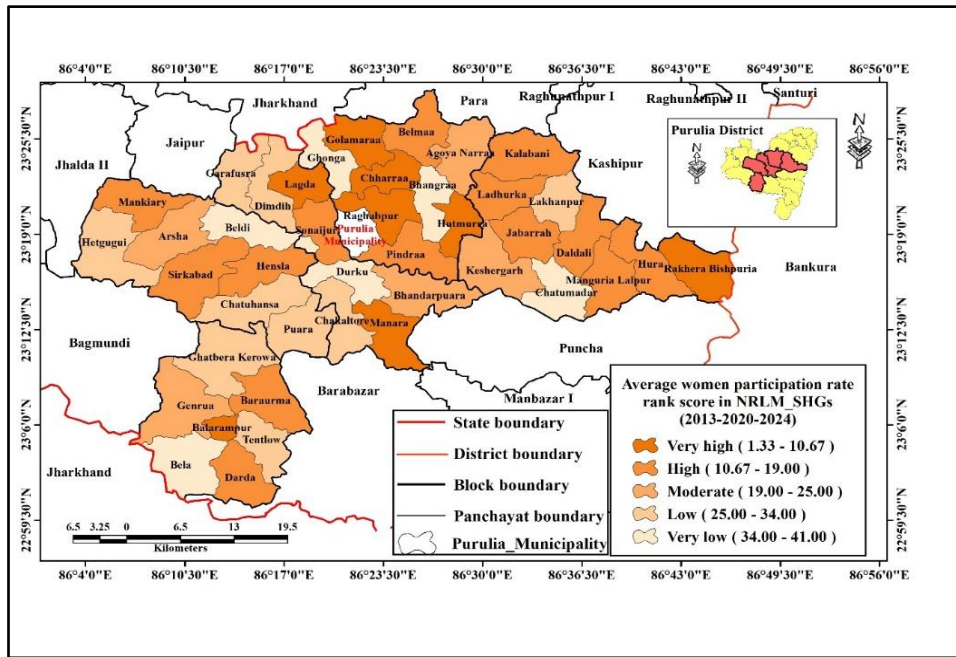


Figure 4: Spatial variations of women participation in NRLM SHGs

The study explores the temporal pattern of women’s participation in NRLM (Self-Help Groups) by examining the growth rate of rank scores in two distinct periods: 2013-2020 and 2020-2024. This analysis seeks to understand how women’s engagement in NRLM has evolved over time. A lower average rank score signifies a higher growth rate, indicating greater improvement in participation, whereas a higher average rank score corresponds to a slower growth rate. Bhangra Gram Panchayat demonstrates the lowest average rank score of 3.5, suggesting the highest growth in women’s participation. In contrast, Arsha and Mankiary Gram Panchayats exhibit the highest average rank scores of 39.5, reflecting the lowest growth rates.

The growth rate of women’s participation in NRLM (Self-Help Groups) has been analyzed and categorized into five distinct classes based on rank scores, Figure 5 reflecting the regional variations in progress. The Very High Growth Rate category, with scores ranging between 3.50 to 7.00, accounts for 9.52% of the total Gram Panchayats and includes areas such as Bhangra, Hutmura, Lagda, and Manguria Lalpur, indicating significant advancements in women’s participation in these regions. The High Growth Rate category 7.00 to 15.50 encompasses a substantial number of Gram Panchayats, signifying consistent improvements in participation levels across a broader area. The Moderate Growth Rate category, defined by scores of 15.50 to 21.50, includes Belma, Charrah Dumdumi, Chatuhansha, Daldali, Darda, Garafushra, Hetgugui, and Manara, representing regions with steady but less pronounced growth compared to higher-performing areas. On the other hand, the Very Low Growth Rate category, marked by scores ranging from 28.80 to 39.50, constitutes 19.04% of the total Gram Panchayats. This class includes Arsha, Balarampur, Baraurma, Genrue, Golamara, Henshla, Keshagarh, and Mankiary, highlighting areas where participation growth has been minimal.

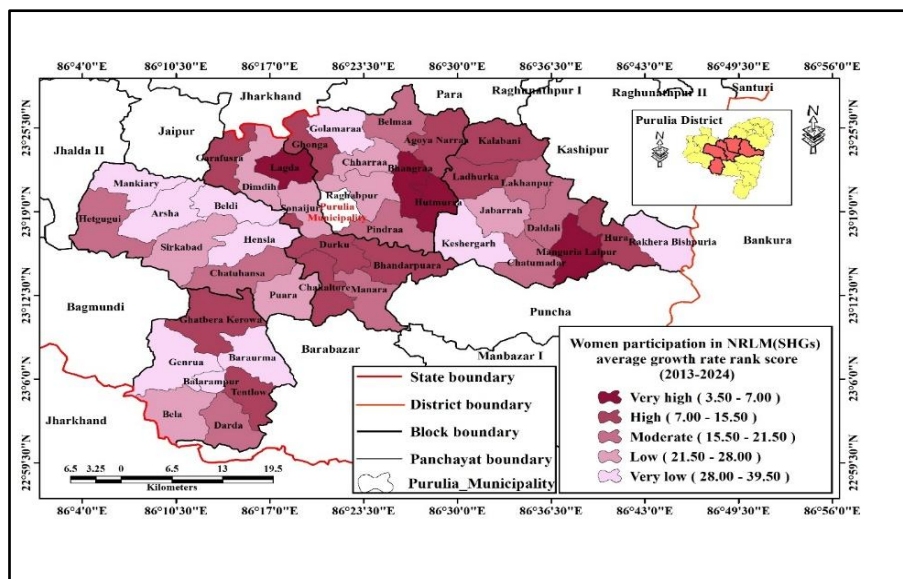


Figure 5: Trend and Average Growth Rate of SHG Participation at Panchayat Level

The observed spatial variation in women's participation can be largely attributed to differences in socio-economic conditions, livelihood opportunities, and institutional accessibility across regions. In relatively backward and drought-prone areas, higher participation in SHGs is often driven by necessity, as women tend to rely more on collective financial mechanisms due to limited alternative sources of income and employment. In contrast (Bisai, 2017), regions with comparatively better economic conditions and infrastructural facilities exhibit lower dependence on SHGs, as households have access to diversified livelihood options. Additionally, factors such as literacy levels, awareness, effectiveness of local governance, and the presence of non-governmental organizations significantly influence the degree of participation (Rahman & Tasnim, 2023). The uneven distribution of these enabling conditions contributes to the persistent spatial disparities in SHG engagement, thereby reinforcing the need for region-specific policy interventions. This uneven distribution further indicates a condition of spatial disequilibrium, where disparities in socio-economic and institutional factors continue to shape women's participation patterns. The coexistence of high and low participation zones highlights a condition of spatial disequilibrium, driven by structural inequalities and differential development trajectories. Despite overall growth, temporal fluctuations suggest a state of dynamic disequilibrium influenced by external shocks and policy implementation gaps. The National Rural Livelihood Mission (NRLM) is a flagship governmental programme with an ambitious objective of uplifting rural poor households by enabling them to adopt sustainable and reliable livelihood opportunities. The programme primarily focuses on improving the living conditions of rural women, as their economic empowerment is crucial for bringing marginalized populations into the mainstream of society. By organizing the rural poor into Self-Help Groups (SHGs), NRLM facilitates collective action, enhances their capacities, and promotes inclusive development. Furthermore, the programme plays a significant role in strengthening women's self-esteem and self-confidence, thereby contributing to their overall socio-economic empowerment and long-term resilience (Brody et al., 2015).

The analysis based on the disequilibrium score reveals distinct variations in the performance of Gram Panchayats within Purulia Sadar subdivision. It is observed that Gram Panchayats such as Arsha, Balarampur, Hensla, Sirkabad, Chatumadar, Golamara, and Genrua exhibit relatively higher levels of women's participation in SHGs under NRLM. This enhanced engagement can be attributed to stronger bank linkage mechanisms in these areas, which facilitate easier access to institutional credit and promote regular group activities (Pathak et al., 2024; Singh & Rauta, 2024). Additionally, a comparatively higher proportion of literate rural women and a significant presence of Scheduled Category populations contribute to greater inclusivity and collective participation. The relatively lower proportion of main workers in these regions indicates limited formal employment opportunities, which, in turn, compels women to seek alternative livelihood strategies through SHGs. As a result, participation in NRLM emerges not only as an economic necessity but also as a pathway for self-reliance. In the context of Purulia, where rural women have traditionally been confined to domestic roles, active involvement in SHG meetings and multiple income-generating activities reflects a gradual shift towards economic independence and social empowerment (Tripathy et al., 2024). This pattern aligns with broader observations that SHG-based interventions significantly enhance women's participation and financial inclusion in rural areas (The Economic Times, 2026). In contrast, several other Gram Panchayats exhibit lower levels of participation, highlighting the persistence of spatial disequilibrium in the implementation and outcomes of the programme. These areas are often characterized by weaker institutional support, limited access to credit facilities, lower awareness levels, and inadequate skill development opportunities. Poor market linkage and infrastructural constraints further restrict the sustainability of SHG-based activities, thereby reducing women's active involvement. This uneven distribution of enabling factors creates a disparity in participation levels across regions.

In the context of Purulia, where rural livelihoods are largely dependent on climate-sensitive agriculture and women have traditionally been confined to domestic roles, participation in SHGs reflects a significant adaptive response to economic vulnerability (Pundir et al., 2025). Women are increasingly engaging in regular group meetings and diversified livelihood activities in an effort to achieve self-reliance and financial stability. This transformation not only enhances their economic condition but also strengthens their self-confidence and social position. Such findings are consistent with broader policy perspectives, which emphasize large-scale financial inclusion and women's empowerment through initiatives like NRLM (The Economic Times, 2026). Thus, the observed disequilibrium underscores the need for targeted, region-specific interventions to ensure more balanced and inclusive development outcomes.

Conclusion

The study highlights significant spatial heterogeneity and disequilibrium in women's participation under NRLM across Gram Panchayats in Purulia Sadar subdivision. The findings indicate that participation is largely influenced by factors such as access to credit, skill development opportunities, institutional support, and local socio-economic conditions. Higher engagement in economically vulnerable and drought-prone areas reflects the role of SHGs as an adaptive livelihood strategy. At the same time, disparities across regions point to uneven implementation and accessibility of programme benefits. The study underscores the importance of targeted, region-specific interventions to reduce these imbalances. Strengthening financial inclusion, capacity building, and market linkages can further enhance the effectiveness of NRLM in promoting sustainable rural women's empowerment.

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