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Full report: Understanding Women's Role in Agriculture in the Eastern Gangetic Basin: The Macro and Micro Connections



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Understanding Women's Role in Agriculture in the Eastern Gangetic Basin: The Macro and Micro Connections

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Executive Summary

This research report aims to situate the role of women in agriculture in the Eastern Gangetic Basin (EGB) across time and space. This transboundary region spans across the plains of Bihar and West Bengal in India, and the north-western and south-eastern parts of Bangladesh and Nepal respectively. Despite fertile agriculture land and a high dependence on this sector, the region is characterized by low productivity, limited crop diversification, a high incidence of rural poverty and persistent poor political governance. Though the EGB shares similarities across country borders, there are a number of intra-regional dissimilarities, in terms of physical, agricultural and cultural contexts.

The existing literature on the EGB does not attempt to comprehensively understand women's role in agriculture unpacking the plurality within the region, and this report aims to bridge this gap. The primary objective of the study was to understand the magnitude, quality and trend of women's participation in rural work and agriculture in relation to men across the three constituent countries of the EGB, i.e. Bangladesh, India and Nepal. The study takes two approaches to achieve this objective: first, a quantitative one, based on household and individual-level data published by the governments of the three countries on labor and employment, and second, a predominantly qualitative one, based on an exploratory field survey in the three countries attempting to triangulate, complement and supplement the findings derived from the quantitative analysis.

India, Nepal and Bangladesh have their own statistical data sources that provide time series information on employment and unemployment which are often not comparable across the countries. The study highlights the different ways in which women's work is measured in the three countries, and reveals that Nepal among the three countries addresses the problem of invisibility of women's work better than the other two countries by adopting a more holistic definition of 'productive' work. This entails bringing crucial extra-domestic activities primarily carried out by rural women into the ambit of work, due to the accepted norms shaping the gender division of work in the region like collection of water, fuel and fodder. Notably, such activities are not only central to the welfare of the household but also intersect with outcomes of agricultural activities through multiple pathways. The statistical sources in India and

Bangladesh are less inclusive in what they consider to be work, and importantly this study has made suitable adjustments across countries to arrive at comparable measures for women's work wherever possible, and in other cases considered the nearest comparable measure.

This research has attempted to map the spatial variations in gender vulnerabilities at sub-regional levels in the EGB as a backdrop to understanding the changing gender roles in agriculture. In Bangladesh the gender gaps have been bridged successfully from a low base over time, and Nepal has achieved some improvements from a higher base the changes are not as impressive as that of Bangladesh. In the Indian part of the EGB, somewhat unexpectedly, the gender gaps have widened over time, which should be of considerable concern for the policymakers and civil society alike.

The work participation rates of women in the rural EGB demonstrate considerable regional variations, and diverging trends over a period of time, defying its relatively small size and the shared agricultural and economic characteristics of the basin. In terms of levels of work participation of women, Nepal has a high base, while Bangladesh and India started with a much lower base. Over time, both Nepal and Bangladesh have had a feminizing rural and agricultural workforce, the latter more sharply so. The Indian EGB, on the other hand, has defeminized steadily over the last 30 years, the trend showing some reversal only in the last three years ending with 2015. The Indian EGB also experienced an increasing rate of unemployment among women, far exceeding that of men, which suggests that a lot of the women that are going out of work are still seeking it. At the sub-regional level in the Indian EGB, the regional pattern of defeminization is somewhat counter-intuitive since in Bihar it has been particularly sharp, although it has all the potential characteristics that are typically linked with feminization like low agricultural income and male outmigration.

Though the analysis from the macro quantitative approach falls short of revealing the exact processes behind defeminization in India, it provides some useful pointers to reveal its character. First, poorer women have dropped out of work faster than women from better-off households, and this coupled with the high unemployment rates is indicative of a distress driven process, which also appears to be class specific. A seemingly parallel trend of a higher share of women engaged in fuel and fodder collection over time, and hence not being able to participate in work in the Indian EGB supports the distress-driven proposition. The qualitative field insights highlight defeminization processes such as land-use changes from agriculture to aquaculture, lack of opportunities for women in the latter, gender-specific displacement due to mechanization, the combined effects of remittances leading to marginal increases in household income and long and difficult working conditions for women, from examples in Bihar and West Bengal.

Bringing together the findings from the quantitative and qualitative analyses, it can be stated that the recent increase in participation of women in agriculture in Bangladesh as a response to long-term male migration challenges the social norms in the country and this could thus initiate a lasting change in the gender relations observed historically in Bangladesh. The stark improvement in gender gaps in multifaceted aspects in the last decade is very likely a

harbinger of this path. The feminization process in Nepal, in contrast, is a continuation of its societal historicity, unlikely to bring about deeper changes in the gender relations in the region from the way it is now. The inability to run the rural economy without women in a region that experienced years of traditional male outmigration, arguably shaped this historicity of social norms that found women working in the agricultural fields or their presence in public spaces acceptable. The relatively high gender gap in literacy rates in Nepal is a case in point, which indicates that the high participation of women in agriculture in Nepal is probably more functional than part of an all-encompassing pathway towards gender equity.

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Glossary

Agro-Ecological Region:	An agro-ecological region (AER) is the land unit on earth's surface, carved out of agro-climatic region by superimposing climate on landforms and soils, which are the modifiers of climate and length of growing period.
Casual labour:	A person who was casually engaged in others' farm or non-farm enterprises (both household and non-household) and, in return, received wages according to the terms of the daily or periodic work contract, was considered as a casual labour.
Common Property Resources:	Common property resources (environmental) are natural resources owned and managed collectively by a community or society rather than by individuals.
Current Daily Status Unemployment (CDS)	Here the reference period is each of the 7 days, preceding the date of survey in each of these days. It records the activity status of a person for each day of the 7 days preceding the survey i.e. persons who did not find work on a day or some days during the survey week. The Current daily status approach gives a composite or comprehensive measure of unemployment, i.e. it is a measure of chronic unemployment.
Current Weekly Status Unemployment (CWS)	Here the reference period is one week. A person is considered unemployed by Current Weekly Status, if he/she had not worked even for one hour during the week, but was seeking or was available for work. The estimates are made in terms of the average number of persons unemployed per week. The Current Weekly Status approach gives an idea about temporary unemployment (or chronic plus temporary unemployment) during the reference week.
Defeminization of agriculture:	The term 'Defeminization of agriculture' refers to decreasing participation of women in agricultural activities.
Feminization of agriculture:	The term 'Feminization of agriculture' refers to increasing participation of women in agricultural activities.
Labour Force participation Rate:	LFPR is defined as the number of persons/ person-days in the labour force (which includes both the employed and unemployed) per 100 persons /person-days
Patriarchal Society:	A patriarchal society consists of a male-dominated power structure throughout organized society and in individual relationships.
Regular wage/salaried employee:	These were persons who worked in others' farm or nonfarm enterprises (both household and non-household) and, in return, received salary or wages on a regular basis (i.e. not on the basis of daily or periodic renewal of work contract). This category included not only persons getting time wage but also persons receiving piece wage or salary and paid apprentices, both full time and part-time.
System of National Accounts (SNA)	System of National Accounts is the internationally agreed standard set of recommendations on how to compile measures of economic activity in accordance with established accounting conventions based on economic principles. The

recommendations are expressed in terms of a set of concepts, definitions, classifications and accounting rules that comprise the internationally agreed standard for measuring such items as gross domestic product (GDP), the most frequently quoted indicator of economic performance.

Unemployment Rate (UR):

UR is defined as the number of persons/person-days unemployed per 100 persons/person-days in the labour force.

Usual Principal Status

Usual Principal Status (PS) UPS approach relates to the activity status of a person during the 365 days preceding the date of survey.

Work Participation Rate:

WPR defined as the number of persons/person-days employed per 100 persons/person-days.

1 Introduction

1.1 Backdrop and Rationale of the study

With structural changes and neo-liberal globalization, the model of development for developing countries at large has an urban bias, with most of the investments coming to the large urban centres. This has had broadly two effects: 1. A relatively impoverished agricultural sector and 2. General outmigration, primarily male-selective to the urban centres in search of jobs. Following this, there is evidence of an increase in women's role in agriculture in many developing countries (Patnaik *et al* 2017; Kanchi 2010; Allen and Sachs 2007; Bhadra and Shah 2007; Lastarria-Cornhiel 2006; Upadhyay 2005; Deere 2005; Jiggins 1998; Jiggins 1986). This has been referred in many recent publications as the 'feminization of agriculture'. Traditionally, women have constituted an important part of the agricultural sector and until the last decade almost in all the South Asian countries, 70 per cent of the farm-related work was carried out by women. However, earlier women's participation in agricultural activities was not visible due to improper data collection methods. This invisibility, as explained by Hatton (2017) is due to socio-cultural, socio-legal and socio-spatial reasons, which includes among other things a gendered naturalization of skills, women working without pay for the family, and productive activities being carried out within the confines of the domestic spaces.

The policy attention in recent years in South Asia has led to an increased research interest in the area of increasing women's role in agriculture (Kelkar 2010; Kanchi 2010; Katz 2003). The dynamics of female work force participation in agriculture is a complex and regionally rooted question and has to be studied as within the socio-economic and cultural settings in which the women live.

The Eastern Gangetic Basin (EGB), is an agro-ecological region of interest to the Australian Centre for International Agricultural Research (ACIAR) and other many other donors such as the Bill and Melinda Gates Foundation, CGIAR and USAID for its unique characteristics. The EGB region has been identified by ACIAR as a poverty-climate hotspot of South Asia (ACIAR 2011). It is a transboundary region, that spans across Bihar and West Bengal plains, the north-western part of Bangladesh and the south-eastern part of Nepal. This is a region with fertile land, having high dependence on agriculture, but with low productivity, limited crop diversification, limited scope of non-agricultural activities, high incidence of rural poverty, marginalization, feudal exploitation, prominent patriarchal social structure and persistent poor political governance (Carter and Darbas 2014; Lahiri Dutt 2014). In spite of its similarities across country borders, there are a number of dissimilarities, both in terms of physical and agricultural characteristics as well as the cultural and gender spaces that it encompasses.

This report focuses on portraying and explaining the changing role of women in agriculture in the EGB. The rationale of the study stems from the fact there is a disconnect between the literature based on the secondary information and the one based on field surveys; the latter often assumes feminization as given and attempts to analyse its effects. This study, the first of its kind, brings together the secondary and primary information, the latter adding value

and complementing the generic patterns and trends of women's role in agriculture in EGB derived from the former source.

1.2 Review of Literature

This section provides a glimpse of the nature and focus of research and other studies in three countries (India, Nepal and Bangladesh) in the Eastern Gangetic Basin (EGB) in the area of rural women's work over time and space, and to point out the emerging issues, important research gaps that exist and finally the scope of the study. This review also serves another purpose, which is to identify the driving forces (both direct and proxy) behind women's increased or decreased participation in agricultural activities that a researcher of this field may use in the quest for more detailed information.

This review of literature focuses on two major areas:

- (1) Documentation of various indicators used by various scholars for tracking women role's in agriculture.
- (2) Evaluating the divergent trends of women's participation in agriculture in the Eastern Gangetic Basin (EGB) at both macro and micro-regional levels, and to find out the factors influencing the feminization and (de)feminization of agriculture.

1.2.1 Indicators to capture women's role in the agricultural sector

Feminization of agriculture in various research papers has been measured in numerous ways. However, it is very difficult to explain feminization in a single word or sentence. In broad terms, the process of relative increase in the incidence of women's participation in respect to the male counterpart in the agricultural sector, either as a cultivator or an agricultural wage labourer has been termed as the feminization of agriculture. To extend this further, an account of intensity of work is important too. Another way to determine the feminization of agriculture is to look into the gender specificity of tasks in agriculture; for example, if women are concentrated in activities that are associated with low wage rates or unpaid work, it may not signify a positive change, in spite of their higher participation in work. All the indicators used in the research to determine feminization of agriculture can be group under two broad categories (Brauw *et al* 2008) i.e. (a) women's participation in agricultural work (labour feminization) and (b) women's empowerment and decision making (managerial feminization). Different studies have used different indicators, sometimes multiple indicators to comprehend feminization/de-feminization of agriculture depending upon the purpose of the study. Slavchevska *et al* (2016) for instance, used four indicators to capture feminization of agriculture i.e. 1) whether more women work in agriculture over time and 2) relative to men, 3) whether they spend longer hours in agriculture, and 4) whether they are engaged in high-skilled work, either as managers of their own farms or in management positions in commercial farms.

As for the reasons of feminization, Kelkar (2010) believes that the model of feminization of agriculture in Asian countries is determined by two major factors. First, rural women are responsible for the integrated management of the natural resources to mitigate the basic need of the household, while women have less access to productive (land), technological (irrigation) and financial (credit) resources in comparison to men. As a result of it, women are pushed to the margins or peripheries (such as collection of common property resources from the wild plant areas, forests, or gardens) and provided with unpaid food-related care work (like storing, preparing, and serving food). Second, with the rise in migration among the male either to the urban centres or to the foreign countries, there found feminization of agriculture. Women have lesser opportunity to migrate to the cities for work in comparison to their male counterpart. Women are left behind to take care of agricultural activities, land, marketing and all other household activities. Thus, they bear the double burden of productive and reproductive work. On the other hand, Deere (2005) pointed out the methodological problems in analyzing women's work in rural areas. According to him the feminization of the agricultural sector could be the result of the under enumeration/under-reporting of women as unpaid family labour in the past, combined with their greater visibility as agricultural wage workers or own-account workers in the absence of their male counterpart in the current period.

Some scholars assume that women's participation in agriculture brings positive changes to the life, whereas another group (Tamang *et al* 2014; Maharjan *et al* 2012) perceive feminization of agriculture as a serious cause of social exclusion and injustice (Sandbergen 2018). Pattnaik *et al* (2017) state that 'the mere increase in number/ time/ activity of women in the agricultural field need not necessarily be called a 'feminization of agriculture', as it may only signify the addition of extra burden (double or triple), thus representing more of a disadvantage for women'.

The general acceptability of feminization (i.e. increased involvement of women in agriculture) in developing countries has led very few works to engage with the potential effects of defeminization. These effects would tend to depend on the causes of declining engagement of women in agriculture, which this study attempts to delve into.

In summary, to adequately cover the complexity of factors contributing to women's participation and roles in the agricultural sector this report has used the four indicators used by Slavchevsk *et al* (2016) along with Kelkar (2010) and Deere's (2005) model of feminisation factors. The methodology section (Chapter 2) of this report subsequently describes this in more detail.

1.2.2 Explanations for changes in women's participation in agriculture

The U-shaped hypothesis of Goldin (1995) argues that adult women's work participation rate exhibits a U-shape during the process of economic development. When the income levels are low with a labour intensive agriculture, women's participation in agriculture is high. The U-

shaped hypothesis further argues that as the income level rises due to technological development and expansion of the market, women's labour force participation rate declines. With the said development trajectory, the female education level improves along with an increase of women's value in the labour market after which the participation of women again declines. Many studies (Lahoti *et al* 2012; Neff *et al* 2012) have concluded that the U-shaped hypothesis can only partially explain the Indian context. In the case of Bangladesh, Rahman and Islam (2013) were unable to come to a definite conclusion of a U-shaped pattern between economic growth and women's employment.

The male-selective out-migration hypothesis has been well received in academic circles to explain the increasing women's participation in agriculture in both Nepal and Bangladesh. Many micro and macro level studies stated that distress-driven male selective migration is the sole reason for the female counterparts of the male migrant to participate in agriculture (Khan *et al* 2017; Tamang *et al* 2014; Maharjan *et al* 2013; Gartaula 2010). In South Asian countries, the literature suggests that women are participating in agricultural activities, not by choice but driven by poverty.

1.2.3 Feminization of agriculture: trends and factors

A considerable amount of research has already been done on the feminization of agriculture in the South Asian countries, including India, Bangladesh and Nepal. Among them, few are macro-level studies (based on national level data), others focus on specific regions (based on primary field survey). A number of studies use multiple data points in time to show the distribution of female labour force and a shift in their role in agriculture over the time period.

This section focuses on both macro and micro studies because even if macro-regional studies show evidence of feminization and defeminization, some micro-regional studies due to their purpose and methodological frame are unable to do so. It is, however, important to look into both levels of studies to get an understanding of what they collectively present. It is expected that employment share in the agricultural sector will decline for both men and women in the neo-liberal regime being experienced by the developing countries and a corresponding shift towards the non-agricultural sector (Lahiri-Dutt 2014). However, some believe that this process would be more gendered than otherwise expected with the men moving out of the agricultural sector and the role of the women in the agricultural sector expanding (Slavchevska *et al* 2016).

1.2.3.1 Eastern Gangetic Basin overview

Women in the EGB are not homogeneous, but are confronted with a wide range of regional disparities and socio-economic-cultural complexities. The number of studies on women participation in agriculture in the EGB as a macro-region is limited. Moreover, there are very few studies (Lahiri-Dutt 2014; Sugden *et al* 2014) that have focused on micro-level studies.

Given the similarities in the agro-climatic, physiographic and cultural terrain of the EGB region, the macro regions within it show different characteristics when women's role in agriculture is concerned.

Various studies have shown (Rahman 2000; Joshi 2000; Hossain *et al* 2004; Paudel *et al* 2009; Gartaula *et al* 2010; Jaim *et al* 2011; Neff *et al* 2012; Kannan and Raveendran 2012; Tamang *et al* 2014; Cunningham *et al* 2015; Pattnaik *et al* 2017; Mehrotra and Sinha 2017) that in the Gangetic Basin of Bangladesh and Nepal agriculture is feminizing, either because men move out of agriculture or because women are increasingly engaged in different types of allied agricultural activities; and at the same time, there has been a constant fall of female labour force participation in agriculture in the EGB of India (Bihar and West Bengal), which is quite in contrast to the general scenario of developing countries. This section provides a country specific overview on women's changing roles in agriculture.

1.2.3.2 India

A long-term analysis of Indian datasets shows fluctuating trends in the female labour force participation rate in rural India. It decreased between 1993 to 2000, then increased between 2000 to 2005, and finally declined again in the period 2005-2012. 39.9 per cent female labour force participation rate (**LFPR**) in 2012 in rural areas of India is the lowest since 1993 (Neff *et al* 2012). More interestingly, the rural female LFPR shows a higher fluctuation than that of men (Mehrotra and Sinha 2017; Sharma and Saha 2015; Abraham 2013; Lahoti and Swaminathan 2013; Chandrasekhar and Ghosh 2013; Kannan and Raveendran 2012; Neff *et al* 2012). A number of reasons have been documented for this trend ranging from increased attendance in educational institutions of women, higher income levels of households and an associated prosperity induced withdrawal, a structural shift away from agriculture, increased mechanization in agriculture as well as fall in the importance of animal husbandry and lower international demand for labour-intensive industries (Neff *et al* 2012). On the other hand, another group of researchers (Sanghi *et al* 2015; Mahapatra 2013; Neff *et al* 2012) have given importance to various supply side factors. They believe that in a culturally diverse country like India, socio-cultural and religious factors have a direct impact on women's participation in economic activities. It is noteworthy of mentioning that India is a vast country with significant regional variations, also reflected in the labour market outcomes for rural women.

It is evident in the literature that the LFPR among rural women is quite low in both the states of Bihar and West Bengal, reportedly only 11% and 22% in 2009-10 in comparison to the national average i.e. 40% (Neff *et al* 2012). Neff *et al* (2012) tried to explain the fact with variation in labour demand across the states. If one observes the scenario of the West Bengal plain as part of the EGB, the percentage of rural women agricultural workers remained almost same ever since independence. It appears that while there are female workers, the majority are in the non-farm sector in the year 2011-12, though in the year 1993-94, the situation was reversed (Neff *et al* 2012). There is an indication that due to demographic pressure leading to a fall in the land-man ratio, and the economic distress of the rural workforce, both male and

female have tilted in favour of the non-farm activities (Dutta and Ghoshal 2014 & 2015). From a combination of macro and micro studies in Bihar, it appears that while women's involvement in agricultural activities is more in comparison to the male members in the migrant households, their engagement in male-dominated works like seedbed preparation and land preparation is quite low (Singh *et al* 2013). There is an indication that the workload of the left-behind females of migrant households increased enormously due to the migration of male members in the family (Singh *et al* 2013). On the other hand, Sandbergen (2018) in his recent paper based on fieldwork in West Bengal stated a very different reason for de-feminization of agricultural wage labour in West Bengal. According to him the limited and decreasing access to (common) land, labour and capital in combination with the revived submissive attitude towards the women like lack of initiative for joint land rights for women, distinct gendered division of labour, increasing domestic work burden for women, less mobility, increasing dowry and domestic violence have caused dramatic de-feminization of agriculture.

There is evidence that though female work participation rate (WPR) in agriculture is quite low in both the states, the reasons are different. What is not clearly stated in the literature is that in spite of having high male selective out-migration that appears to be distress driven for the most part in Bihar, which factors that lead to a low rate of rural female work participation in agriculture in Bihar? Is it the socio-cultural and economic settings of the region that gives women the scope to participate in the nonfarm sector in West Bengal, while it restricts the mobility of rural women to the nonfarm sector in Bihar? It has been mentioned in the literature that the rural areas are not exclusively depended on the agricultural sector anymore these days especially in the states of Eastern India (Kumar 2009). Kumar, for instance, found that while the proportion of workforce dependent on agriculture has declined relatively less than the expected over time after the independence; while the share of national income originating from agriculture has dropped considerably. Of course, the rate of decline is not the same across all the states of Eastern India. Where in the case of West Bengal mostly the shifting of rural workforce away from agriculture witnessed a positive trend during both pre and post-reform period, other East Indian states including Bihar witnessed a shift of employment in the non-farm sector mostly during the post-reform period (Kumar 2009).

1.2.3.3 Bangladesh

Bangladesh is very different from all other South Asian countries due to the fact that agriculture provides limited scope for women's employment. Historically, it is the low land holding size and low agricultural productivity of the country that have led to low demand for labour in agriculture. However, from a combination of macro and micro studies in Bangladesh, it appears that women's participation in agriculture has increased in recent years, although their participation in crop production activities has reduced drastically (Jaim *et al* 2011). It is quite evident in the literature that women in agriculture in Bangladesh are mostly involved in the post-harvest processing of crops (Rahman 2000). On the other hand, it is also reported that participation of women in livestock and poultry production activities as well as in

homestead gardening has gradually increased to a considerable extent (Rahman 2013; Jaim *et al* 2011). This literature also reveals that in Bangladesh rural women following social norms like *purdah* find it socially more acceptable to engage in activities within the premises of the household rather than in the field for crop production activities, including home-based agricultural activities like livestock and poultry production as well as homestead gardening. Another explanation behind women's increasing representation in the agricultural sector from macro studies are that the recent rounds of the labour force survey (2006 and 2010) include livestock and poultry rearing as economic activities.

The rising share of employment in agriculture stands somewhat contradictory to expectation, especially when the declining share of agriculture's contribution to GDP is considered. The sharp increase of female labour force in the agricultural sector has, to some extent, been due to the change in definition and better enumeration (Rahman 2013). Another important finding is that there is evidence of a decline in hours women spend on agriculture in Bangladesh. It is explained by the scholars that it is mechanization which helps in removing the extra burden women feel in a traditional agricultural system. One interesting fact about Bangladesh is that higher work participation is found in the age cohort of 15 to 21. Female WPR in the rural areas decreases with increasing age. In Bangladesh the age at marriage is low and the traditional society gives very limited scope of working in public spaces to the rural women (BBS 2003). However, it is also true that women's visibility has increased in the economic sphere especially in terms of managerial performances in response to the high male out-migration to the foreign countries (Khan *et al* 2017).

1.2.3.4 Nepal

It is documented in the existing literature that in the Nepal Terai (plains), agriculture is already a feminized (or female dominated) sector as women constitute a major part of the labour force in the agricultural sector (Gartaula *et al* 2012; Ghale 2008). In the upland paddy growing areas of Nepal women's participation in agriculture has always been high. In Nepal, the share of women in agriculture has increased from about 45 per cent in 1991 to 48 per cent in 2001. However, though it appears that women's share in agriculture may be increasing, they just fall short of attaining the rate of participation of men (Gartaula *et al* 2012). Women continue to be active in agriculture following their husbands' migration, and subsequently, women's work and roles on the farm change significantly.

The literature on women's role in agriculture throws up diverse understanding from the three South Asian countries. However, most micro and macro level studies are in agreement that distress-driven male selective migration is the primary reason for the female counterparts to participate more in the agriculture work. However, on the other hand it is found that this situation varies based on whether the household is a nuclear, joint or extended family.

A number of scholars have started with the assumption that the agricultural sector is feminizing as male members of the households are migrating to the urban areas in Nepal or

other South Asian countries for better opportunities of employment, and tried to explain women's position and empowerment in the context of male outmigration in Nepal (Tamang *et al* 2014; Maharjan *et al* 2013; Gartaula 2010), without connecting it to the actual degree of feminization.

Rana *et al* (2018) point out the important fact that in most studies, feminization of agriculture in Nepal has been considered as an axiom. They believe that this over-generalized pattern of the feminization debate is quite problematic in the case of rural Nepal. Many micro-level studies show that other factors may be pulling in or pushing out women into the agricultural sector.

This review of literature thus yields a few notable insights. First, an attempt to bring the entire mass of women in agriculture within a single frame tends to overlook regional, cultural and class differences in the EGB. Second, in this review, an attempt has been made to identify the context in which women (and men) in the agricultural sector are placed in the EGB region. However it does not bring out a regional comparison.

Certain gaps have been identified in this review and we have attempted to position our study to bridge some of these gaps. No existing study has attempted a holistic comparison to understand women's role in agriculture in the three South Asian countries and the EGB as a whole. The significance of this comparison comes from heterogeneity in the basin in terms of terrain conditions and productivity of agricultural land and cropping pattern, and also the gender relations resulting from different cultural norms. The sweeping assumption made with respect to feminization in many of the studies, not only for South Asia, but developing countries at large is somewhat misleading. Though many studies based in India have been concerned about the missing women in both agriculture and rural work, there is little or no work that analyses the trajectories of women's work in the rural EGB of India. There is also a lack of focus in attempting to understand the plurality of women's work patterns in terms of their social and economic identities, and this mirrors a gap within the academic scholarship as gender concerns in an agrarian transition has remained virtually untheorized.

In summary, current discourse on the feminisation of agricultural trends and factors in the EGB requires further research including: regional, socio-cultural and class differences in and across identified EGB sub-regions (micro); a holistic comparison of factors across these regions; evolution of current theoretical models (Goldin 1995) to explain the multi-faceted nature of women's participation and role in both agricultural and rural work.

1.3 Research objectives

Given the gaps in understanding the EGB as a region and the role of women in agriculture within the region, the research aims to answer the following questions:

1. What is the rationale behind characterization of Eastern Gangetic Basin (EGB) as a region, particularly in terms of its gendered context?

- a. Based on a combination of physical, agro-climatic, socio-economic and policy milieu what are the different meso regions within the EGB?
 - b. How can we characterize these meso regions based on gender characteristics?
2. What are the patterns and trajectories of women's work in agriculture in the EGB in relation to that of men? What are the similarities and dissimilarities within the region?
 - a. What is the nature and trend of employment in different agricultural activities that women are engaged in? Are these patterns significantly different from that of men?
 - b. How do these trends differ across different socio-economic sections (across caste, ethnicity, religion, land size class, education, etc.)?
3. What are the processes that impact these patterns and how do these processes explain them?
 - a. What are the drivers of feminization or defeminization, as the case may be?
 - b. What role has policy played in shaping these trends? What are the gaps in policy incorporating and responding to these trends?

1.4. Study Area

This study focuses on the Eastern Ganges Basin (EGB) that covers the states of Bihar, and West Bengal in India, Western part of Bangladesh and the eastern part of Nepal (Figure 1.1). Earlier studies have not demarcated the boundary for the Indian, Bangladesh and Nepal part of the Ganga Basin, and this varies according to different sources of literature.

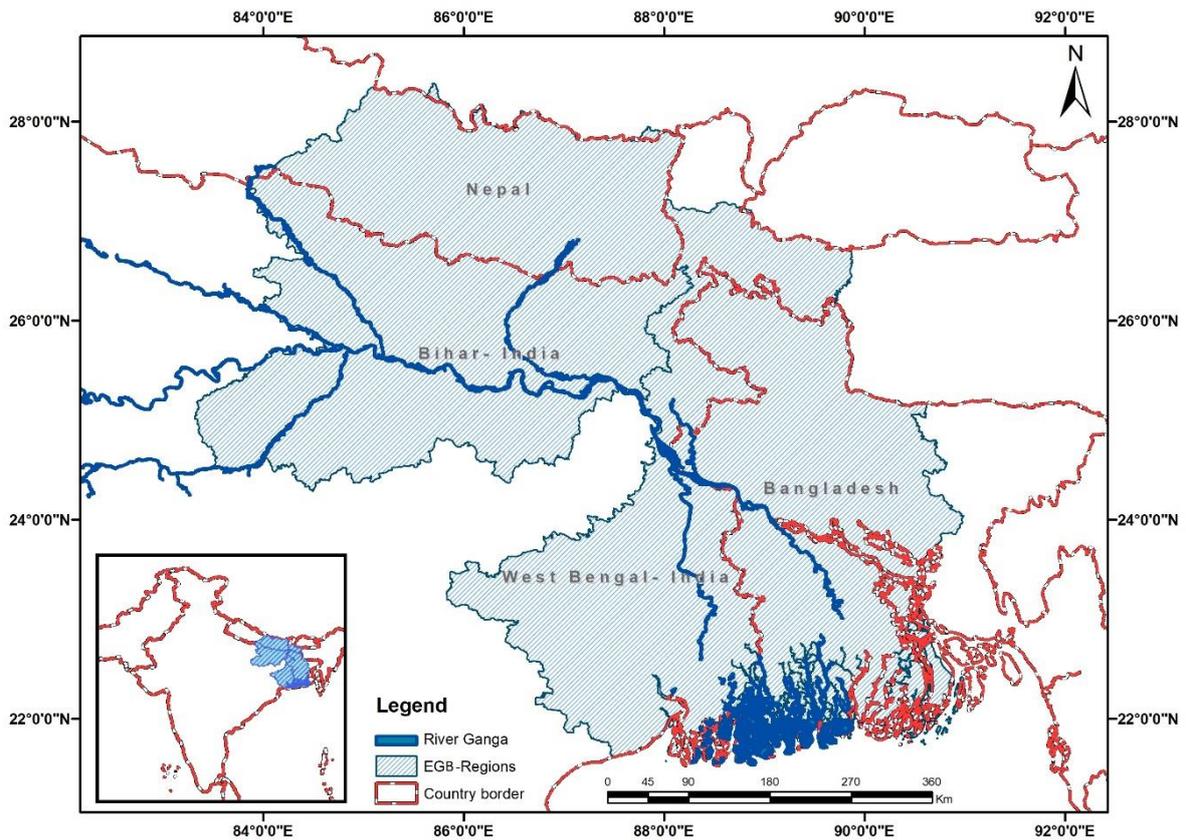


Figure 1.1 Study area in the Eastern Gangetic Basin (SaciWATERs, 2018).

Essentially, in India, three states (Bihar and West Bengal) come under the EGB. However, in our study we have only taken Bihar and West Bengal for ease of using secondary data for the analysis. In the case of Nepal, while earlier studies have included only the Nepal Terai as part of the EGB, we have considered the entire eastern and central development region of Nepal in our research. Physiographically, this region is further divided into 3 sub-regions, i.e. Terai region, hilly region and mountain region. In Bangladesh, the Ganga basin is part of the Ganga-Brahmaputra-Meghna Basin. In our study, we have taken those districts that come completely under the Ganga Basin.

2 Measuring women's work through large scale sample surveys: A methodological outline

Participation in economic activities is gendered, somewhat more so in the rural spaces of South Asia than in the urban. The measures in official statistics that estimate work, however, for understandable reasons, have uniform measures for men and women. Such concepts are often shaped by the patriarchal social norms and hence are partially blind to the nature of work done by women. In addition, the self-recognition of being a worker, particularly for the women, is muted by the social norms that bring down the self-worth of women. For example, the status of working on own farms without pay could often go unrecognized, as it may be treated by either or both the male head of the household as well as the woman worker as an extension of house work. This problem is compounded if the work in the family concern is either interspersed with domestic and care work and carried out in the domestic spaces. In other words, the way women's work would be captured would depend on the socio-cultural constructs of gender and work. This chapter aims to outline:

- The secondary data sources and their respective sample sizes
- The extent to which the data on employment and unemployment by the governments of the respective countries can be compared across three countries (India, Nepal and Bangladesh).
- Whether these datasets have captured women's work adequately and if not, the problems often associated with estimations of work.

2.1 Data Sources and Sample Size

This research draws on unit level data published by the labour surveys by the respective governments (Employment Unemployment Surveys of National Sample Survey Organization (NSSO) and Labour Bureau (LB) Survey for India; Nepal Labour Force Survey (NLFS); and Bangladesh Labour Force Survey (BLFS)). The total samples of these surveys vary from 2.8 lakh to 4.4 lakh individuals for different years in India, 36 thousand to 39 thousand for Nepal and 84 thousand to 1.2 lakh in Bangladesh. For the analysis for India, eight rounds have been used (1983, 1993, 2000, 2005, 2008, 2010, 2012 and 2015), for Nepal and Bangladesh, two rounds each have been used for the detailed analysis (2003 and 2013 for Bangladesh and 1998 and 2008 for Nepal). Country and survey round wise sample size are given in table 2.1.

Table 2.1: Different Data Source Wise Sample Size

Country	Data Source	Year	Sample Households	Sample person	Sample Male Population	Sample Female Population
India	NSSO	2012	101,724	456,999	233,804	223,195
		2009-2010	100,957	459,784	236,483	223,301
		2008	125,578	572,254	291,457	280,797
		2004-2005	124,680	602,833	308,627	294,205
		1999-2000	165,244	819,013	307,608	289,078
		1993	115,409	564,740	292,531	272,108
	1983	120,921	623,484	321,196	302,288	
	Labour bureau	2014	136,395	680,392	--	--
	2015	156,563	781,793	--	--	
Bangladesh	Labour Survey	2003	40,000	192,871	98,802	94,069
		2013	36,242	156,987	77,859	79,128
Nepal	Labour Survey	1998	14,335	71,560	35,567	35,993
		2008	15,976	74,688	37,104	39,104

Source: NSSO, 1983-2012 (India), Labour Bureau, 2015 (India); BLFS, 2013; NLFS, 1998-2008.

2.2 Methodological challenges in comparing the three countries

The differences in the definition of work, the way the data has been collected and other associated issues make the task of data comparability difficult across countries. Frequent changes in definitions and concepts over time have led to problems of comparability across different data rounds within the same source. These changes in the definitions and concepts are found to affect the enumeration of female workers much more than male workers. A careful observation of concepts used and the estimates obtained reveals that concepts adopted by some countries provides better enumeration of female workers than others. Under-enumeration of women's work in the secondary datasets results from the concepts used in the definition (problem of conceptualization) and partly because of data collection methods like sampling and design of questionnaire (Sudarshan 2014).

This section on methodological outline begins with a brief discussion of the conceptual shortcomings in the definition of work with special emphasis on the agricultural sector. This is followed by a comparison of methodological differences to find out how well they can be compared and whether there are changes over time. Finally, the last section assesses how well work of women has been captured in different datasets. The details of methodology for the primary data collection have been explained in Chapter 5.

2.3 Conceptualization of work by government institutions

The secondary data used for this study has been published by government institutions in the three countries responsible for doing large-scale sample labour surveys. The main objective behind the collection of data on labour force is to contribute to planning and policy of the

country and also to provide an idea about future trends. The existing literature suggests that the concept of an economically active population emerged from an advanced capitalist market economy (Leon 1984; Agarwal 1996). In a market economy, the participation in the labour force is dependent on the concept of 'work for pay and profit' and also standardized hours of work. Unpaid work is mostly ignored in the market economy as it cannot be counted in the national income. Counting of the economically active population in a developing country is difficult because of the economic heterogeneity (Beneria 1992; Leon 1984). The sexual division of labour shows that most of the time men are involved in paid work with standardized working hours. They also enjoy a certain degree of homogeneity. On the other hand, women's participation in work is fragmented, discontinuous and sometimes very blurred (Leon 1984). Therefore, inclusion of women in the definition of the labour force is even more critical in this respect. Essentially, the general problem that arises is in conceptualisation of the economic activities.

2.3.1 What work counts in the definition of work

Essentially, standard notions of the labour force seek to divide the population into two categories, i.e. the economically active population and the economically inactive population. The economically active population is further divided into three sub-categories, i.e. paid workers, unpaid family workers and the unemployed (those who are looking for job). The economically inactive population, who are neither working nor seeking jobs are not part of the labour market.

The definitions of economically active population of all three countries, i.e. India, Nepal and Bangladesh include the concept of an unpaid work category. However, the extent of inclusion is not same for all three countries (details in section 1.2.1). The extended concept of work includes both wage work and System of National Accounts (**SNA**) work (productive work), that is generating income or cash payment for the individuals and the activities that help in the survival of the family (i.e. non-SNA work), and this is captured by time-use survey techniques, which is something we use in our primary work. Non-SNA work is essentially divided into two broad categories. Firstly, activities like fetching water, collecting fuel and fodder, which are essentially known as Common Property Resource (CPR) related activities, and secondly, domestic activities outside the CPR activities. Those activities which are done for the survival of the family, not for income generation are detailed in Table 2.2. These activities, that are generally not classified as work, can be divided into non-SNA activities and volunteer activities.

i. Domestic activities/Non-SNA Activities

The main problem with domestic production and related activities (Non-SNA) is that hardly any effort has been made to include these activities within the definition of economic activity. However, the 'extended economic activity', as defined in the 1993 United Nations System of National Accounts (**UNSNA**) concept, was included as an additional question to include domestic activities by women that contribute to the overall economic situation of a

household. Extended economic activities cover such domestic duties done for the production of goods consumed within a household, including collection of firewood and fetching of water. However, there are very few countries that have adopted this extensive definition of work provided by UNSNA. However, the Nepal NLFS have adopted this definition and accordingly have added additional questions to capture extended economic activities. Therefore, in Nepal, the female WPR is correspondingly high in comparison to other South Asian countries and the gender gap of WPR is also very low.

The employment-unemployment surveys of India and Bangladesh do not include domestic unpaid work such as fetching water and cutting or collecting firewood for household consumption in the definition of the economically active population. The Labour Force Survey (LFS) of Bangladesh completely excludes full-time housewives from the definition of the economically active population. It is also important to mention here that the NSSO of India asks additional questions to those who are completely involved in domestic activities¹. The use of Code 93 in the 'usual principal status' activity codes used by the NSSO has helped to capture a part of otherwise unaccounted work of women or the 'extra-domestic work' in India. Block 7 of the NSSO schedule asks few additional questions for the persons with usual activity status as a non-worker. Chakravarty (2017) believes that the NSSO considers only a part of the unpaid activities related to agricultural production (Code 21 - worked as helper in household enterprise) as economically productive activities but excludes a major proportion of non-agricultural activities such as sewing, tailoring, fetching water from far-off places, collecting roots, and firewood (activities mostly covered under code 93) from the ambit of productive work. It is also shown in the research paper that the inclusion of code 93 (NSSO) within the definition of work brings an enormous difference to participation rates of women (See Chapter 4 for details).

Similarly, the 2013 LFS round of Bangladesh has also started to collect additional information on 'non-economic activity' i.e. activities not done for wage, salary or profit of the households but for production of goods for own final consumption (Section 11 and Section 12 of Labour Force and Child Labour Survey questionnaire, 2013) to all the population 5 and above. As the Non-SNA activity related questions are asked to the entire population irrespective of their involvement in wage work or outside wage work, it helps to understand the double and triple burden of work women are having on them.

¹ For details see follow-up questions for persons with usual principal activity status code 92 or 93 of employment and unemployment round questionnaire.

Table2.2: Details of Non-SNA Activities Specified by Various Countries

Data Source	CPR activities	Non-CPR activities	Remarks
India (NSSO all rounds, 1983-2012)	Free collection of fish, small game, wild fruits, vegetables, etc. for household consumption, free collection of firewood, cow-dung, cattle feed, etc. for household consumption, bringing water from outside the household premises.	maintenance of kitchen gardens, orchards, etc., work in household poultry, dairy, etc., husking of paddy for household consumption, grinding of food grains for household consumption, preparation of Jaggery for household consumption, preservation of meat and fish for household consumption, making baskets and mats for household use, preparation of cow-dung cake for use as fuel in the household, sewing, tailoring, weaving, etc. for household use, tutoring of own children or others' children free of charge.	These activities have been recorded only for people who attended domestic duties, only attended domestic duties, only also engaged in free collection of goods (vegetables, roots, firewood, cattle feed, etc.), sewing, tailoring, weaving, etc. for household use.
Bangladesh (BLFS,2013)	Production of goods for own final consumption – Time use Catch any fish, prawns, shells, wild animals or other food for the household's own consumption, Fetch water or collect firewood for household use Not for wage, salary or profit of the household – Time use Cooking, Cleaning utensil/ house, Shopping for own household, Caring for child/old/sick, Washing and cleaning of clothes/dishes/yards, Volunteer work (help others: without pay), Apprentices/intern/trainees (if un-paid), Other household tasks (specify).	Production of goods for own final consumption – Time use Working on his/her own plot, farm or help grow farm produce or tending animal for the household's own consumption, Any construction or major repair work on his/her own house, farm plot or business, Produce clothing, furniture or other goods for household use.	These activities have been recorded for all persons 5 years and above. All the activities have been recorded as time use The persons who did CPR work (more than one hour during the last 7 days) is included under CPR category.

Nepal (NLFS,1998-2008)	Current activity (7days) 1. Fetching water 2. Collecting firewood/ cow dung.	Activity without pay or profit for your household and for community 1. Cooking/serving food for household 2. Cleaning utensils/house 3. Minor household repairs 4. Shopping for household 5. Caring old/sick/infirm 6. Child-care (Feeding, taking to school and other cares of children) 7. Services rendered voluntarily only (excluding volunteer construction work).	The activities have been recorded as time use. In NLFS-2008, NSCO classification does not give separate category for collection of firewood & fetching water, which has been mentioned in the older round (1998).
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Source: NSSO, 1983-2012 (India), Labour Bureau, 2015 (India); BLFS, 2013; NLFS, 1998-2008.

Researchers believe that women's work is more under-reported when they are involved in home-based activities. Work outside the home is more visible as it has fixed times and places. On the other hand, for -home based work women do for variable number of hours and variable timings in the day, and also simultaneously do many domestic chores (like-cooking, taking care of children) at the same time. Therefore, most of the time women reported themselves as 'non-worker', making the work they do in the home less visible to others (Dixon 1982).

ii. Volunteer activities

Beneria (1992) mentioned that a different area of undercounted work by women is that of volunteer work whose beneficiaries are not the members of the immediate family. Therefore, it is difficult to measure voluntary activities performed by women. It is important to mention here that Bangladesh LFS excludes unpaid activities from work such as unpaid domestic activities and voluntary community services.

Keeping all these details in consideration for conceptualisation of work it is clear that the definition of work needs to include further minute specifications within the category.

2.3.2 Counting women's work in agriculture

Measuring the role of women in agricultural and allied activities is a difficult task. A number of attempts have been made over time to improve the methods to measure the extent and intensity of women's work by government organizations in general, to assess women's work that was earlier seen as only aiding men's work and to analyse the relation of women's work

to the production structure of the economy (Duvvury 1989). More specifically, agricultural activities cover a vast range of activities related to crop and animal related production irrespective of market production or subsistence productions and thus some of the activities not related to the market, which are often done by women, can easily be invisible (Leon 1984).

Major activities associated with agriculture and allied sectors are as follows:

- i. Production of goods required for agriculture, fishing and forest activities (making equipment, repairing tools, collection of material such as fertiliser, manures, etc.);
- ii. Field preparation (i.e. plot preparation, planting of seeds, weeding, cultivation and harvesting);
- iii. Processing of agricultural produce (i.e. threshing grains, husking corn);
- iv. Work involving transport, storage and marketing of crops;
- v. Activities associated with organising agricultural work and decision making.
- vi. Hunting, trapping and related activities,
- vii. Silviculture, aquaculture
- viii. Raising and feeding of cattle, buffaloes and other animals
- ix. Gathering of non-food products, etc.

Most of the time during data collection only those activities that are done in the field or outside the domestic space for sale or exchange instead of the household's own consumption, is categorized as agricultural work (Dixon 1982). As a result, most of the activities in which women are involved tend to get hidden. Activities commonly undertaken by women have two major characteristics: first, they are done in the domestic space and second, they are often interspersed with domestic activities. Examples of such activities are pre or post-production work that is not carried out in bulk like sorting of flower seeds, grading fruits and vegetables for the market, and tending to livestock. This problem gets intensified in the subsistence agricultural economy where exchange of labour on other's land is a common practice, and also women often grow vegetables and crops in their own courtyard (Dixon 1982).

2.4 Challenges of comparing women's work across countries

Apart from these conceptual problems, there are many issues associated with measurement of work. This paper essentially focuses on five aspects of the measurement related issues, i.e. (i) what constitutes work, (ii) the way labour force activity data is collected, (iii) the reference period for measurement of work, (iv) inclusion of shorter term work or subsidiary activities and (v) minimum time required for an activity to be considered as work.

2.4.1 What constitutes work

Nepal is the most inclusive in terms of what constitutes work, particularly unpaid work which is primarily done by women. As per the Labour Force Survey (**LFS**) in Nepal, collection of water, fuel and fodder is included under the definition of work, which is not the case for the other two countries. In India and Bangladesh, these activities which are done primarily by rural

women and are crucial to the sustenance of households, are merely seen as extra-domestic work. Just this difference causes a huge difference in work participation rates of women in Nepal as opposed to the other two countries. For India, there is a rough account of the total number of non-workers that are engaged in these activities. Though this study has attempted an upward correction of work participation using such information in India, which increases the numbers substantially for women, there are limitations to this correction. The reason for this is that the information that is available for non-working women is simply whether they have done this activity or not, and not the duration for which they have done it. The data from which this adjustment is done provides how many 'non-working women' carried out the work for a period of time that qualifies it to be counted as work (the period of 30 days is the benchmark that is used by the NSSO). For Bangladesh, such a correction is possible only for one year, which does not suffer the limitation as India.

2.4.2 The way labour force activity data is collected

The enumeration of women workers is influenced by the order in which questions are sequenced in the questionnaire. If the question gives priority to inactivity, there are significant chances of undercounting.

For instance, if women are asked about what they have done with the majority of the time in the reference period, there are chances that most of them will say household work. As per the definition of an economically active population of Bangladesh, full-time housewives are excluded from the labour force as well as workforce. The criterion of majority time involved in household work will exclude the female members of the households from the labour force. It is worth mentioning that if the person is first asked to describe the economic activities he/she has done for an hour and above in the reference week, the work status would get greater priority over the unemployment status. Since all women are engaged in domestic activity, this problem results in selectively undercounting of women's work as opposed to men.

In the case of Nepal NLFS, a list of both home based and non-home based activities are given, and it requests the respondents to elaborate the work done under these two categories. Thus, the employment measure for women is better captured in the case of Nepal, especially in the agricultural sector.

2.4.3 The reference period

For any kind of comparison, the reference period for which work is being recorded has to be the same. The broad areas of comparability in terms of reference period among NSSO (India), Labour Bureau (India), NLFS (Nepal) and LFS (Bangladesh) are briefly captured below:

a. Employment

For India, NSSO and Labour Bureau provide three different estimates of employment and unemployment based on reference periods used to classify an individual's activity status. These are:

1. Usual status approach with a reference period of 365 days preceding the date of survey;
2. Current weekly status approach with a reference period of seven days preceding the date of survey;
3. Current daily status approach with each day of the seven days preceding date of survey as the reference period.

For measuring work participation, the first is the most robust as it is not impacted by seasonality. The NLFS of Nepal also provides data for the usual status that has a reference period of 365 days, and is comparable with the Indian measure. The 2013 round of Bangladesh LFS uses a weekly status, i.e. a reference period of seven days. For Bangladesh, the only comparable measure of work that can be used over time within the country is a weekly status, where the reference period is 7 days preceding the day of survey enumeration. As is obvious, this status is different and less robust compared to the usual status, as the response of the weekly status would depend on the season of enumeration and could be an over-estimate or under-estimate depending on whether it is recorded in the peak or lean season respectively. This problem has been minimized by spreading the survey across seasons in different regions. In 2003, which had both the usual and weekly statuses, the difference in the female workforce participation (WPR) between the two measures were just above 1 percent, though for males, this difference was about 5 percent. Thus there are problems in comparison, particularly in case of Bangladesh with the other two countries in this regard, and this is a limitation this study had to work with.

b. Unemployment

According to NSSO (India), unemployment status in India is estimated both from the weekly status and usual status. In case of the measurement of unemployment in the weekly status, persons are considered to be unemployed if they did not work at all during the preceding week of the survey (i.e. even for an hour in the reference week) and were actively looking for work or were available for work but did not work due to temporary illness or because there was no work available. On the other hand, Labour Bureau (India) provides the unemployment estimates by monthly status. Nepal's reference period for unemployment is by weekly, monthly and two-monthly status, while Bangladesh provides it by weekly status, monthly status for 2013 and bimonthly status for 2003. In spite of the differences in the questions ask to determine unemployment conditions in three countries, it is possible to compare the same by following the criteria mentioned in the table 2.3.

Table 2.3: Unemployment Criteria in all the datasets

	Criteria			
	India NSSO	India Labour Bureau	Bangladesh LFS	Nepal NLFS
Question asked on unemployment	Did not work at all during the preceding week of the survey (even for an hour in the reference week) and were actively looking for work or were available for work but did not work due to temporary illness or because there was no work available.	Did not work at all during the preceding month of the survey and were actively looking for work or were available for work but did not work due to temporary illness or because there was no work available.	Did not have work or job during last 7 Days.	Asked only to those who did not work in last 7 days and did not have any job or business to which he/she can return to work or not receiving any pay or profit from a job /business during last 2 months.
Comparability	1.Without work 2.Seeking for job 3.Available for job 4.Not currently available due to there was no work available.	1.Without work 2.Seeking for job 3.Available for job 4.Not currently available due to there was no work available.	Needs to include people who has replied work not available to the question 'why you are not looking for work/job?'	For comparability needs to include people who has replied – thought no work available, awaiting reply to early enquiries, waiting to start arranged job/business and not replied to the question 'why didn't you look for job in last 30 days?'

Source: NSSO, 1983-2012 (India), Labour Bureau, 2015 (India); BLFS,2013; NLFS, 1998-2008.

2.4.4 Inclusion of shorter-term work or subsidiary activities

The *usual status* of work in India further provides two sets of information, usual principal status (UPS) and usual principal and subsidiary status (UPSS). A person is considered in the labour force on UPS if he/she has spent relatively longer time (i.e., major time criterion) on economic activity for 365 days preceding the date of survey. A person, whose principal usual status has been determined on the basis of major time-criterion, could have pursued some economic activity for a relatively short time during the reference period of 365 days preceding the date of survey. The status in which such economic activity was pursued is termed the subsidiary status of that person. This is a more inclusive measure which covers, in addition,

participation in economic activity on a more or less regular basis, of those classified as unemployed on the UPS as well as those as being outside the labour force on the same criterion. This criterion is termed as Usual Principal and Subsidiary Status (UPSS). This would result in a higher proportion of the population as being in the labour force with a higher proportion of workers and lower unemployment rates relative to the UPS criterion (GOI 2016).

Notably, many women are engaged in short-term activities or seasonal activities and it is thus particularly important to get a balanced view of gender and work to include the concept of UPSS. The Labour Bureau of India only captures Subsidiary Economic Activity (SEA) only for the members having Usual Status code 81, 91, 92, 93 i.e. only for those who are not involved in any principal activities. On the other hand, NSSO captures it for both those who are also involved in principal activities and those who are not. Therefore, the percentage share in subsidiary activities of Labour Bureau does not match with the NSSO. The Labour Bureau only gives partial information for subsidiary economic activity. The idea of subsidiary activity is not specified in either the Bangladesh or the Nepal data, although in the case of the latter, the inclusion of a greater range of activities to some extent make up for this. Thus, the non-inclusion of the concept of a short-term activity is likely to impact the counting of work more for Bangladesh than in Nepal. Also, women's work in Nepal tends to be of a longer duration nature in the backdrop of a large-scale male-selective out-migration.

2.4.5 Minimum time requirement to be considered as work

A major reason for under-enumeration of women workers is the minimum time requirement that is taken under consideration in the definition of the economically active population. In other words, a person will be considered economically active only if she worked for a certain number of hours in the day/week. This is particularly inappropriate in rural areas where people are mostly dependent on agriculture and it is seasonal in nature. The enumeration result would vary depending on whether the survey was conducted in the peak or lean season. The BLFS is unable to capture chronic unemployment, as it only provides CWS (Current Weekly Status) and only gives the figures of seasonal employment.

2.4.6 Other miscellaneous challenges

Another difficulty that arises stems from the way instructions are given to the interviewers. The sex of both interviewer and respondent also tends to impact the count of women workers since the interviewers generally ask the questions to the head of the households who are mostly male (Unni 1989). Nowadays most of the labour surveys provide a separate instruction manual to the interviewers. In some cases, instructions are given also in the questionnaires and contradict with the manual information. Another problem is that for Bangladesh and Nepal, data is collected for the labour force for individuals above the age 5 and 15 years respectively. In India, Labour Bureau also collects the information for individuals for 15 years

and over. On the other hand, NSSO does not put any age criterion for collection of data. Thus, for the purpose of comparison, 15 years and above age criterion has been used in this study.

In *sum*, the definitional and methodological differences across different data sets of the three countries lead to a large number of challenges in trying to compare the results. Women's work can be captured in a comprehensive way in the context of rural South Asia, when the definition of work includes:

- a. CPR related work like fetching water, collecting fodder and fuel
- b. Other extra-domestic activities like working on his/her own plot, farm or help grow farm produce or tending animal for the household's own consumption.

Also, the estimations of the labour force using Usual Status (US) approach, i.e. taking account of the entire year enhances the possibility of counting more women workers; within this, the seasonality and periodic nature of women's work needs to be taken into account, which is done in some data sources like India. Nevertheless, invisibility of women's work is a problem that has not been overcome fully in any of the data sources, though some of these sources have attempted to improve their indicators over time to capture women's work.

3 Genderscaping the Eastern Gangetic Basin

3.1 Introduction

The discussion so far has revealed that there are marked geographic and cultural variation in the three South Asian countries which affect women's position in the society in general and women's participation in the economic activities in particular. This section portrays variations of gender spaces across the EGB through a quantitative lens. The cross regional presentation of the basin serves two purposes: first, to add to the existing literature that generalizes EGB as a homogeneous region; and second, to use selected multifaceted variables to explore variations in gender spaces and the changes therein.

The literature suggests that women are alienated from assets that are central to empowerment, like ownership of land and other productive capital and technology, and that not much difference exists in such alienation across the three countries in question (Agarwal 1996). Land and its quality, however, has been central to defining the contours of patriarchy. It has been argued that the terrain conditions and the physical landscape shapes cultural regimes, which in turn 'work in tandem to construct and sustain regional gender constructs' (Datta 2011). The nature of the physical conditions shapes the demand for women's labour, and implicitly the way the patriarchy has been shaped in a particular region. The work participation of women tends to be higher in places with low productivity (hilly terrain) and low land prices, which are historically areas of male selective outmigration (Subba 1985). Typically, thus, the gender relations pose little restrictions on women working in public spaces, even agricultural fields owned by others in such cases, if only for the fact that the agricultural economy has had to historically depend on women.

The plurality within the region thus is expected to arise from the performative aspect of gender, like acceptance of girl children, education levels and participation in the labour and workforce.

3.2 Data and Concepts

This section is based on the analysis of the spatial variation of three indicators and their composite Index, termed as Gender Vulnerability Index (GVI) extensively used in the Gender Atlas (Raju, Sen and Das 2016). The three indicators i.e. child sex ratio, relative literacy rate and relative WPR are used for the calculation of the index. The data base is taken from Population Census of the respective countries.

The specific significance of these three indicators is discussed below:

(a) Child Sex Ratio is defined as the number of females per 1000 males in the lower age groups (0-6 years is for example the norm for India). Child sex ratio is expected to be a reflection of how acceptable a girl child is to the family compared to a boy child. Biologically, births of female children have a slightly higher probability compared to the birth of a boy child. However, taking the example of India, this ratio for India declined from 927 to 919 between

2001 to 2011. A low child sex ratio is indicative of feticides, infanticides or the neglect of a girl child compared to a boy child. Sex ratio may also be computed for an entire population which is termed as the crude sex ratio. The crude sex ratio is influenced by factors other than neglect of girl children, typically of male-selective migration. For this analysis, to make it comparable across the countries, we have taken sex ratio for 0-4 age group.

(b) The Census of India currently defines the literacy rate as proportion of literates to total population in age group 7 years and above. Literacy can be loosely described to be a proxy indicator of educational attainment. However, for Nepal and Bangladesh it is calculated for the age group of 5 and above. For this analysis, we have measured relative literacy rate, i.e. literacy rate of females divided by literacy rates of men.

(c) The relative work participation rate (WPR) serves as a proxy indicator for the degrees of physical and economic visibility in work and in public spaces and hence mobility among women with respect to men. WPR is defined the worker population ratio expressed in percentage and is often age specific. Here we have taken 15-59 age group also known as the working age group. The relative WPR is the ratio of female to male WPR.

A composite index is constructed after standardizing each indicator by the following formula:

$$X\text{-Index} = \frac{X - X_{\min}}{X_{\max} - X_{\min}}$$

Where X - Index is a standardized score

X is the actual value of X Indicator

X_{\min} is the minimum value of X Indicator

X_{\max} is the maximum value of X indicator

And Composite Index is constructed by the following formula

$$GVI = \frac{\sum_{i=1}^3 X_i}{N}$$

Where GVI is the Gender Vulnerability Index,

$$\sum_{i=1}^3 X_i$$

is the Sum total of all three Standardized Score and

N is the total number of Indicators

An aggregation of the three indices would give us the inverse of a Gender Vulnerability Index (GVI). The higher the value, the lower is the gender vulnerability and vice versa.

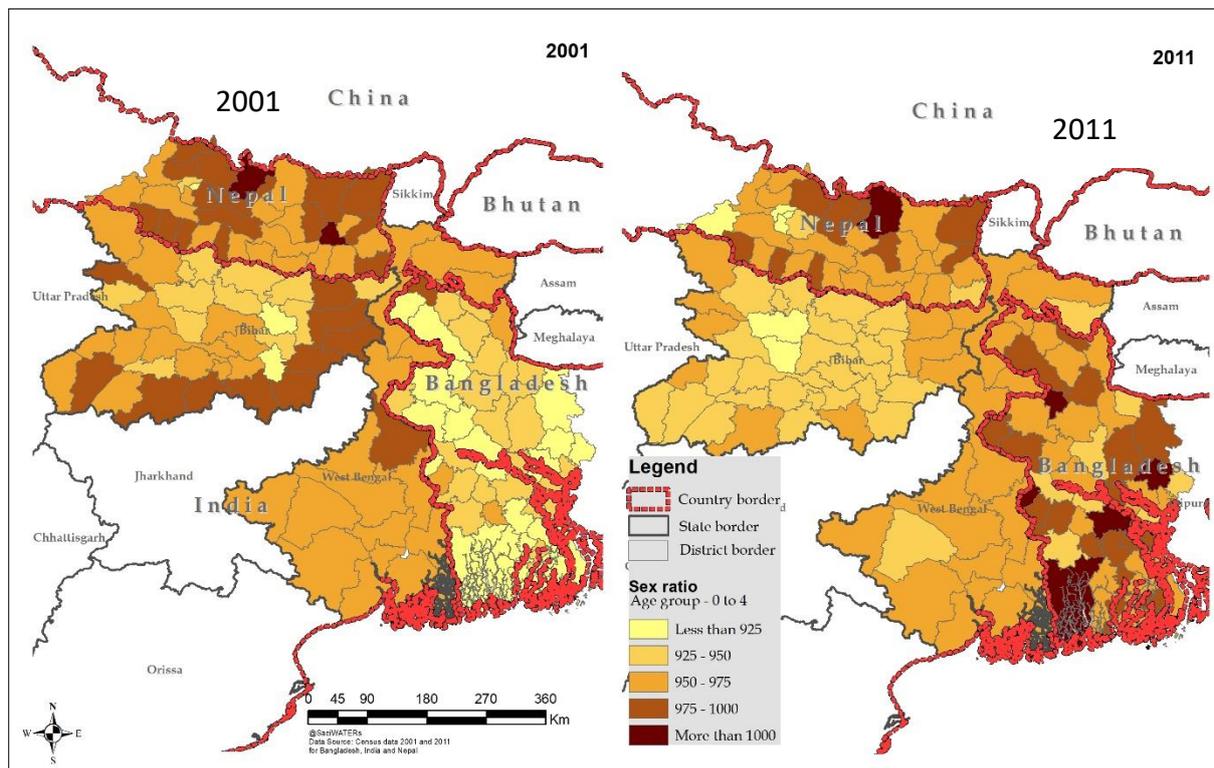


Figure 3.1 Levels and changes in Child Sex Ratio in the Eastern Gangetic Basin. Source: Calculated from Census of India, 2001 and 2011, Nepal Census 2001 and 2011, Bangladesh Census 2001 and 2011

Fig 3.1 depicts the spatial pattern of child sex ratio (CSR) in the EGB region in two consecutive census years (2001 and 2011). While some regions within EGB have recorded notable decline in CSR, few regions within EGB has recorded increase in CSR. The change in CSR in EGB region is not random, and has a distinctive regional pattern. A clear improvement in the CSR is found in the Gangetic basin of Bangladesh. Researchers believe that it is the progressive policy initiatives, like female secondary-school stipend program, micro-credit program and increasing opportunity of employment for women in the apparel industry has led to the overall increase of status of women, which in turn increased the overall child sex ratio of the Bangladesh plain (Talukder *et al* 2015). This is an example of successful policy interventions. In contrast in India, the CSR between 0-4 years has declined significantly in the state of Bihar. Bihar by this count portrays an increasingly regressive gender space as the chance of survival of the female child is less than male child, which has been declining over time. This could be heightened by the increasing son preference in the region. The trend of declining CSR has not spilt over in the neighbouring state of West Bengal. Surprisingly Nepal, which had relatively high CSR in the first period, shows minor signs of decline in pockets. Historically, girl children have had a relatively better status in Nepal, both in comparison to the other two countries, and in relation to male children, since the local rural economy is heavily dependent on women's work.

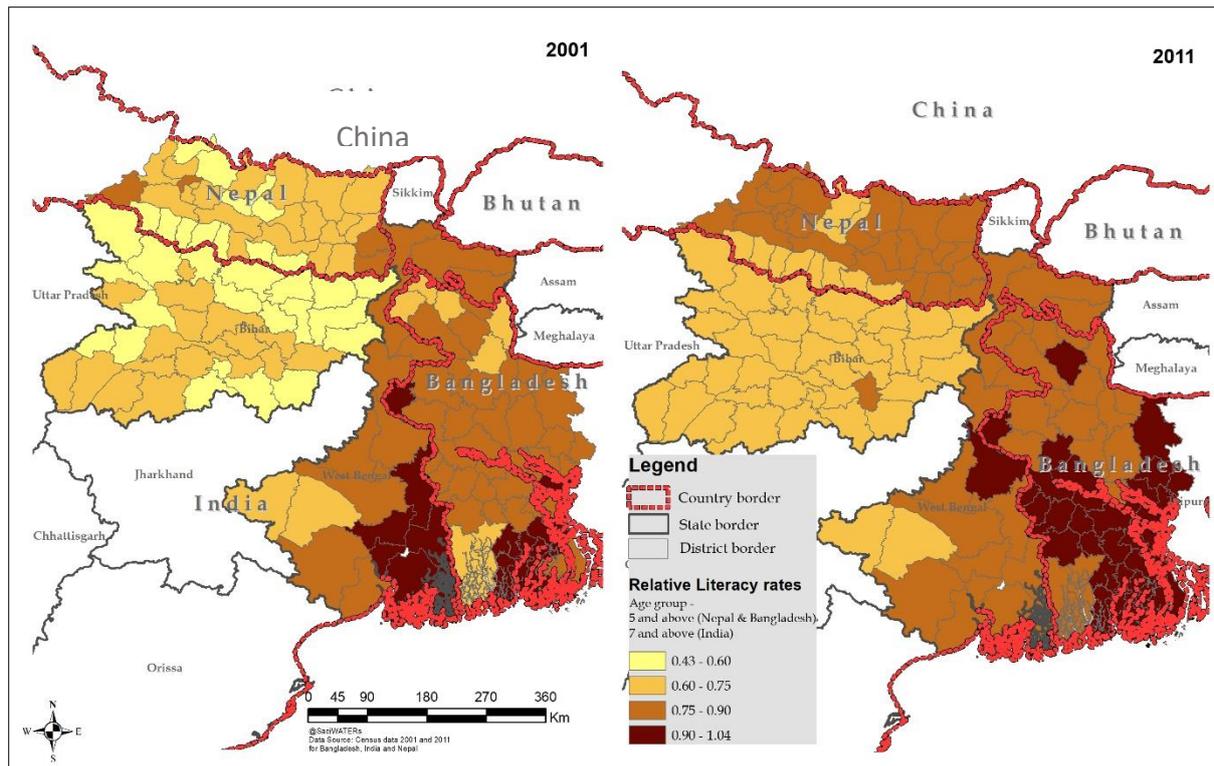


Figure 3.2 Levels and changes in Relative Literacy Rate in the Eastern Gangetic Basin. Source: Calculated from Census of India, 2001 and 2011, Nepal Census 2001 and 2011, Bangladesh Census 2001 and 2011

It needs to be mentioned that since literacy rate is a stock variable, a decline in the ratio is less likely, unless the rate at which young boys are becoming literate is much faster than the rate at which young girls are becoming literate. This too can only result in a marginal decline in the relative literacy rates, since the status of those who are already literate in older age groups does not change.

The literacy rates are highly variable among the regions in the EGB. Beyond basic necessities like food and shelter, few things matter more than education — which begins with achieving literacy. However, gender disparities in literacy rates could have far-reaching consequences not just for the equality between men and women, but also for women's overall prospects.

There is a sharp regional variation in terms of gender gap in literacy rate (Fig 3.2). In the base period used for this analysis (i.e. 2001), the relative rates were far higher in the Eastern part of the EGB, and abysmally low in the Bihar plain region. Notably, the South Eastern part West Bengal, which was in the highest category in the base period, has experienced a decline in the relative literacy rates, which is unusual, as mentioned before. This situation has however improved in the terminal period. In Nepal in the Terai region, where the land under agriculture is relatively high compared to the rest of the country, the gender gap in literacy is also relatively high in comparison to the hill and mountains. Over time, Bangladesh has bridged the male-female gap in literacy rates.

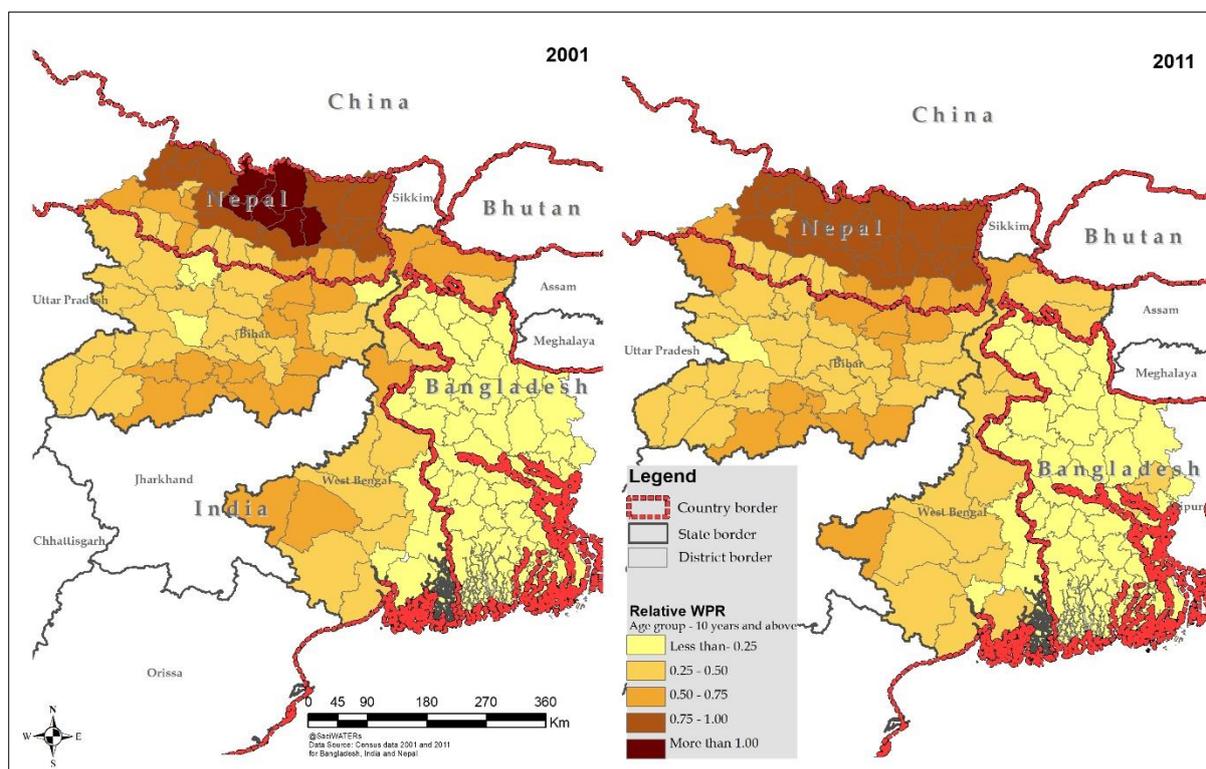


Figure 3.3 Levels and changes in Relative Work Participation Rate in the Eastern Gangetic Basin. Source: Calculated from Census of India, 2001 and 2011, Nepal Census 2001 and 2011, Bangladesh Census 2001 and 2011

Fig 3.3 presents the ratio of female to male work participation rates. Work participation rate, as an indicator for gender status is quite complex, since the gender inter-sectionalities with class and caste define this indicator in a major way. For example, the restrictions on women in terms of their mobility outside the home space among the upper caste and higher income groups in rural areas, the plains in particular, are typically higher. The overall work participation rate is also dependent on the regional ecosystems as well as cropping pattern. For example, it is a historically established fact that women worker's demand is essentially high in a rice producing economy (Boserup 1989). Fig 3.3 shows that the relative rates in Bangladesh is far lower than the other parts of EGB². The increases in relative WPR in Nepal is visible from this map. Though the same is true of Bangladesh and some parts of India, this is not visible from Fig 3.3, since such changes have not resulted in changes in classes of relative WPR that the map uses. The defeminizing areas in India is not clearly visible from the map for the same reason, i.e. the changes in the value have not led to changes in the category.

² The census data has been used here as opposed to the NSSO and labour survey data, which has been used for the rest of the study. These two data sources do not match, since the definitions are somewhat different in the two sources. The rationale for using population Census here are twofold: 1. The other variables used in this chapter are from Census and WPR needed to match the same period as the other two variables for making aggregation possible. 2. The NSSO and Labour survey data for Nepal and Bangladesh are sample surveys, and often suffer from small samples for some regions.

3.3 Gender Vulnerability: Spatialities and Trends

A combination of all three variables enables us to make an assessment of the overall status of gender in the region.

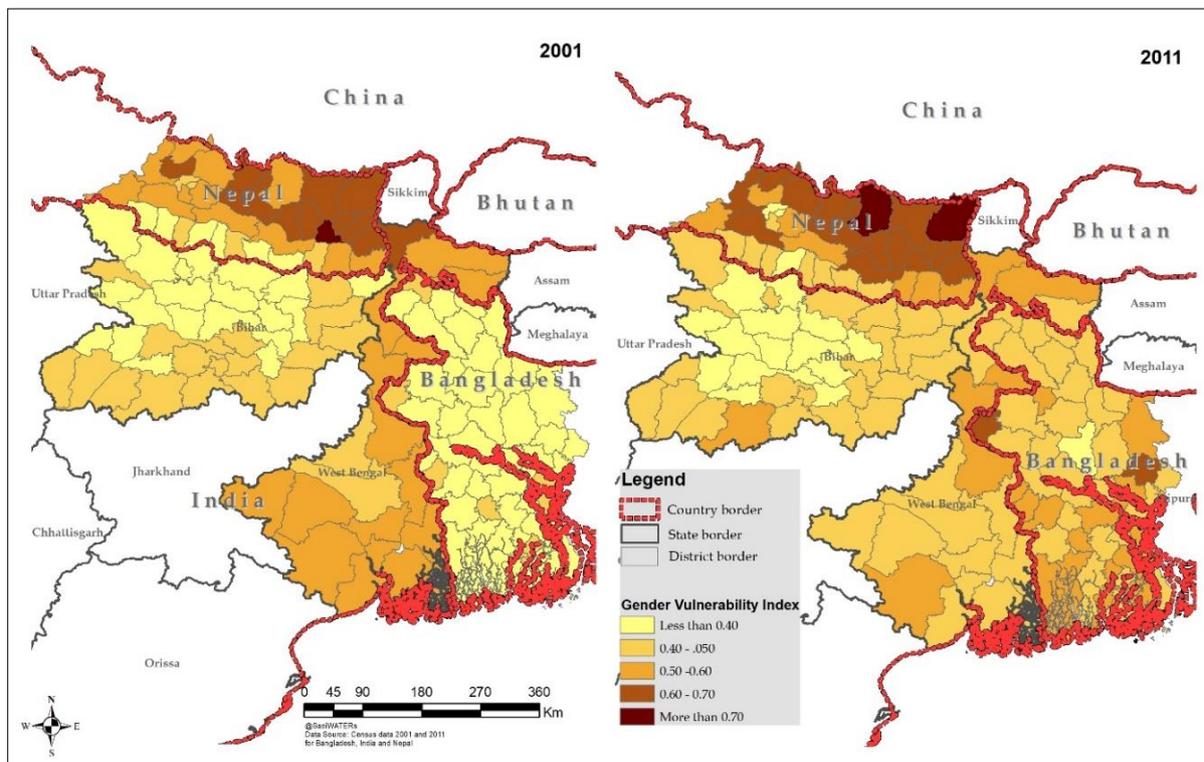


Figure 3.4 Gender Vulnerability Index in the Eastern Gangetic Basin. Source: Calculated from Census of India, 2001 and 2011, Nepal Census 2001 and 2011, Bangladesh Census 2001 and 2011

Fig 3.4 portrays the GVI that reveals the female status relative to the males in terms of an aggregation of sex ratio (0-4 age group), literacy rates and work participation rates. The spatial pattern of GVI depicts that despite having lower per capita income and high poverty, Bangladesh has experienced a superior performance in terms of elevating the gender disparity status over India and Nepal on key welfare indicators. The spatial pattern observed in the different figures reveal that there is hardly any spatial correlation between gender gap in literacy and work participation. In a relative sense, the changes between the two periods in the GVI of Nepal, Bihar and West Bengal are more muted that Bangladesh. While Nepal and Bihar (with some exceptions) have improved marginally, West Bengal is seen to have regressed somewhat over time in terms of overall gender disparity.

In sum, this analysis highlights three things: (a) it is important to further divide the macro regions into micro regions to understand the sub-regional variations; (b) improvement in literacy rate does not necessarily result in a positive impact on women's economic role and survival rates of female children; and (c) it is the social and cultural structure that ultimately shape the gender relations of a region and therefore sometimes transcend the political

boundaries. Though the process of globalization has brought about certain changes in social norms and attitudes towards gender issues in South Asia, traditional patriarchal values still continue in many societies of South Asia and contribute to the erosion of women's rights and position in the society.

4 Patterns, trends and drivers of women's work in agriculture in the Eastern Gangetic Basin: Macro insights

4.1 Introduction

From the last chapter, we have seen that there are inbuilt differences in gender status in the three countries in the Eastern Gangetic Basin (EGB). Nepal and Bangladesh over the last decade have significantly improved its position in the overall gender status, relative to that of the Indian EGB. It is in this backdrop that we are attempting to examine the patterns and trajectories of women's work based on secondary unit level data published by government sources of the three countries, the methodological details of which have been presented in Chapter 2.

There is a general acceptability of feminization (i.e. increased involvement of women in agriculture) in developing countries which has been based on a somewhat over-simplified proposition that if a large number of men are moving out of agriculture in search of better paid jobs in the rural non-farm sector or to urban areas, women are expected to fill in for the labour that was earlier contributed by men (Gartaula *et al* 2010; Lastarria-Cornhiel 2008; Deere 2005). Though the positive or negative implications of such a trend have been looked into by a number of studies (Kelkar 2010; Patnaik *et al* 2018), very few have discounted this widely expected trend for developing countries other than in India (Brauw *et al* 2008). This chapter establishes that even within a seemingly homogenous space such as the EGB, the trends of women's engagement in agriculture can be plural, and not necessarily associated with male selective outmigration from rural areas.

There are other reasons that strengthen the rationale for such a study. First, it provides a distinct context for analysing changing rural gender relations which have been inadequately conceptualised till now, unlike the gender relations embedded in class, caste, race, colonialism etc. (Sachs 2018). Second, we typically assume a linear and smooth progression from the rural to urban workspaces, whereas there is ample evidence to suggest disrupted and uneven relationships between them in the recent decades in the Global South (Harvey 2003; Smith 1992; Friedman 1986). This is important because the notion of agricultural surplus being reinvested in rural areas resulting in non-farm job creation seems to be a lopsided conclusion which does not pertain to the realities on ground. In the case of India in particular, the trajectory of women's work needs to be understood in the context of an agricultural sector undergoing an agrarian distress since the early nineties (Vakulabharanam & Motiram 2011; Suri 2006).

4.2 Comparative analysis of the 3 countries in the EGB: levels and trends of work participation, unemployment and work composition

4.2.1 Trends of Rural Work Participation

Both the NSSO and Labour Bureau data for India show that in the last three decades (1983 to 2015) especially with economic liberalization in 1991, the female workforce participation rate (WPR)³ has declined both in the EGB and Non-EGB regions of India. The male workforce participation rate in the rural areas has also declined over this period. Figure 4.1 and 4.4 present the WPR levels for male and female in EGB and Non-EGB regions of India, Nepal and Bangladesh.

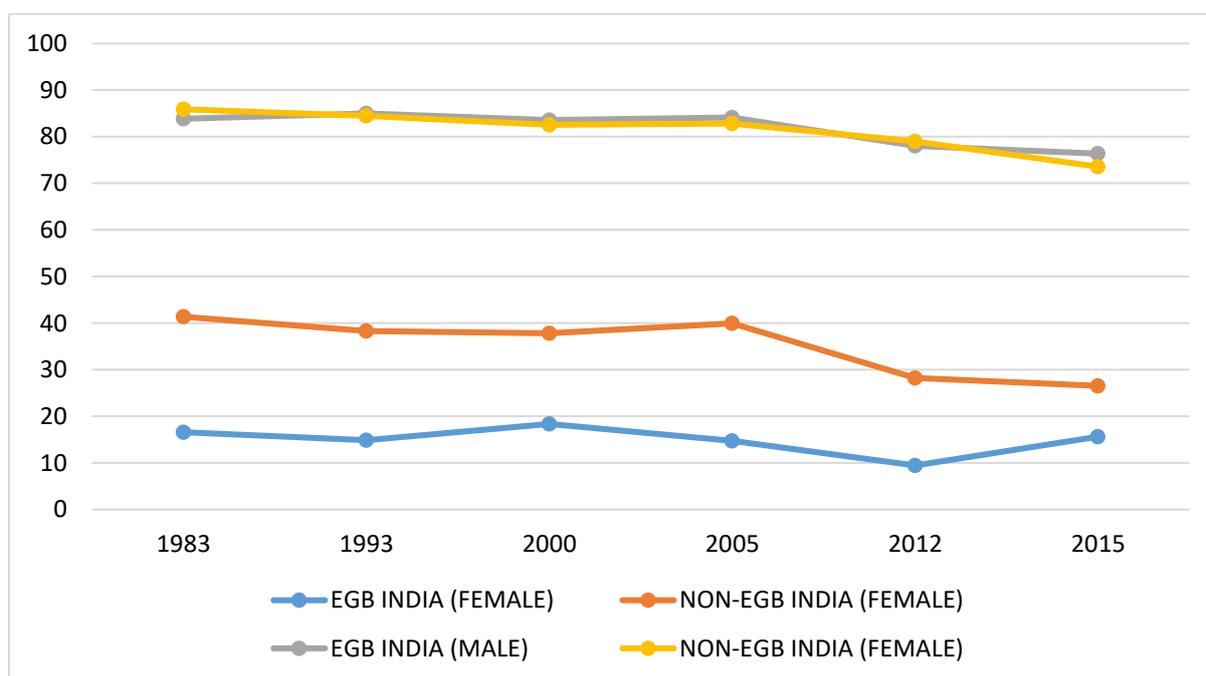


Figure 4.1 Work Participation Rates in EGB and Non-EGB regions of India, Rural (for 15+ age groups). Source: NSSO, 1983-2012 (India), Labour Bureau, 2015 (India).

³ The work participation rate is measured as workers/population; for males, it is male workers/male population; for female workers it is female workers/female population. As mentioned in Chapter 2, for the sake of comparison across 3 countries and the various datasets, this has been calculated for population and workers above 15 years of age.

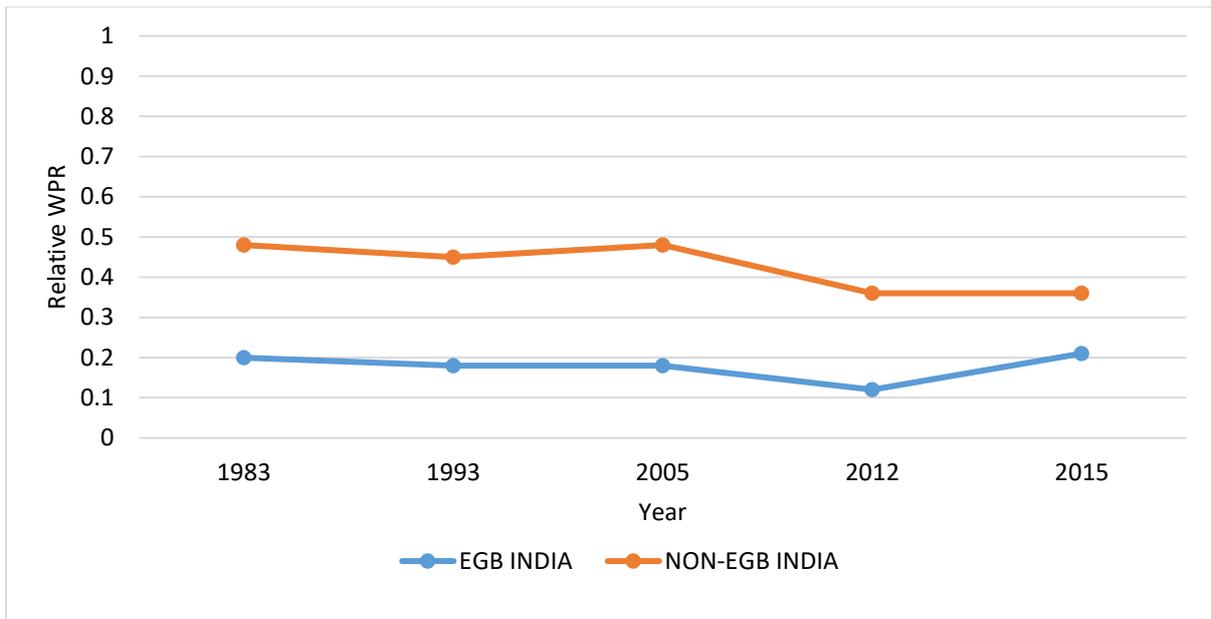


Figure 4.2 Relative Work Participation Rates, Rural India (for 15+ age groups). Source: NSSO, 1983-2012 (India), Labour Bureau, 2015 (India).

The absolute fall in women's work participation rates (WPR) in rural areas both in EGB and Non-EGB region of India need not necessarily be a gender concern; a fall in economic opportunities and lack of jobs could potentially lead to a fall among both men and women and the gender distinction can be understood from examining the relative rates. The relative work participation rate (ratio of the female to male WPR) (Figure 4.2) has fallen from 0.35 to 0.21 from 1983 to 2015 in the EGB region and 0.63 to 0.43 in the Non-EGB region (Fig 4.2). It is worth mentioning that the fall in FWPR is greater than that of the male WPR. This is a clear indication of long term defeminization in rural areas of the EGB as well as the rest of India for a period of over three decades both in absolute and relative terms. It is clear that the female WPR rates in non-EGB areas are two to three times higher than the female WPR rates in the EGB, and this has resulted in far lower relative WPR rates in the EGB compared to the rest of India. Though the female WPR rate in the EGB shows a slight increase in the terminal year (2015), this one data point cannot by itself validate a reversal of the defeminizing trajectory. Even within the EGB region of India, the Bihar plain has experienced a more severe decline, with female WPR dropping from 19.1% in 1983 to 4.9% in 2012 (Fig 4.3), much lower than that of West Bengal. In fact, in rural West Bengal from 2008 onwards there is a feminizing trend. This intra-regional contradiction is notable, since Bihar has a higher rate of male outmigration, and a lower agricultural productivity compared to West Bengal, both of which are typically associated with a feminizing trend.

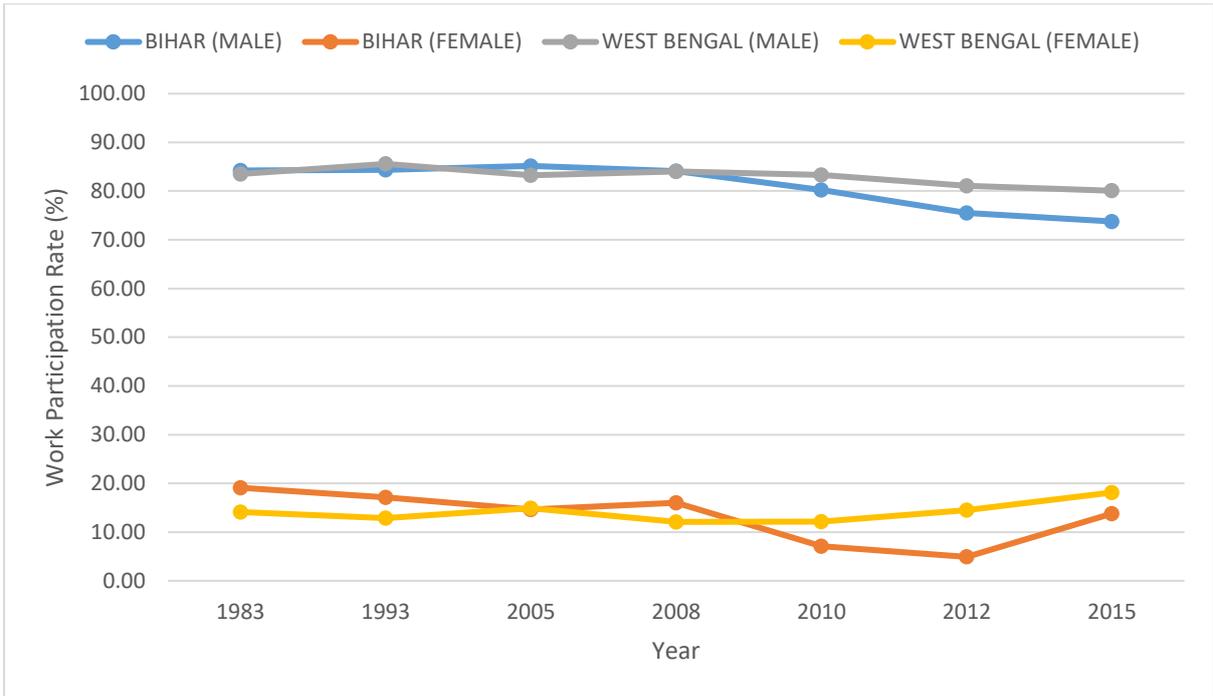


Figure 4.3 Work Participation Rates trends in Bihar and West Bengal, Rural (for 15+ age groups). Source: NSSO, 1983-2012 (India), Labour Bureau, 2015 (India).

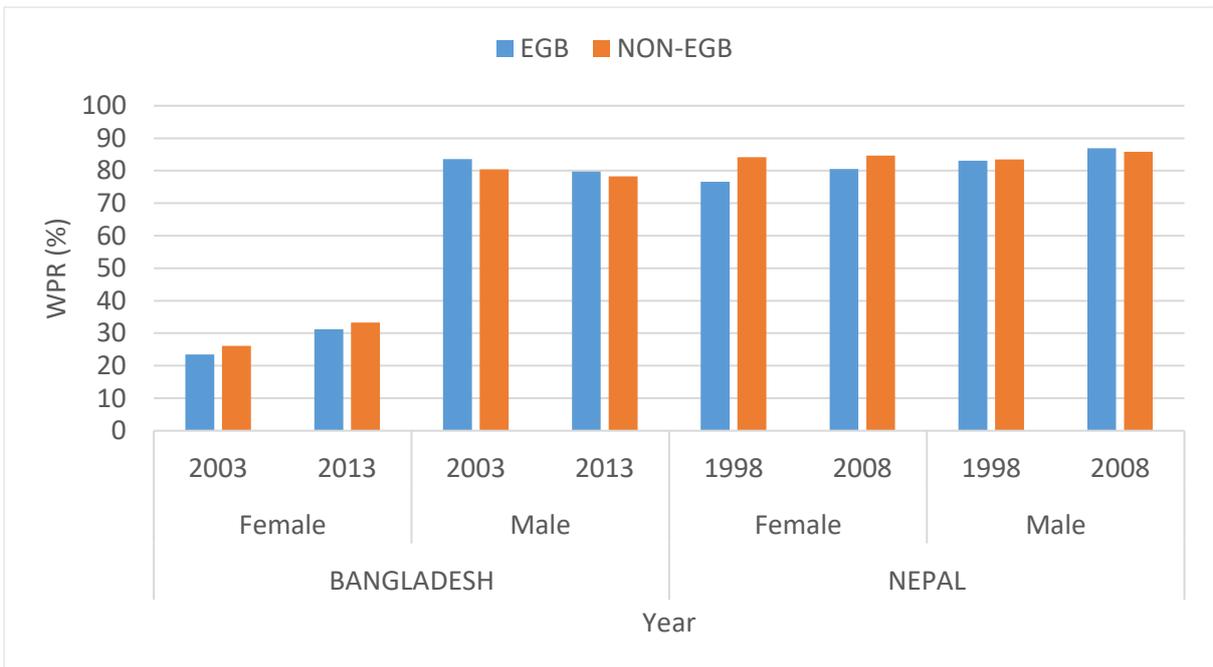


Figure 4.4. Male and female Work Participation Rates over time in Bangladesh and Nepal, Rural (for 15+ age groups). Source: BLFS, 2003-2013; NLFS, 1998-2008.

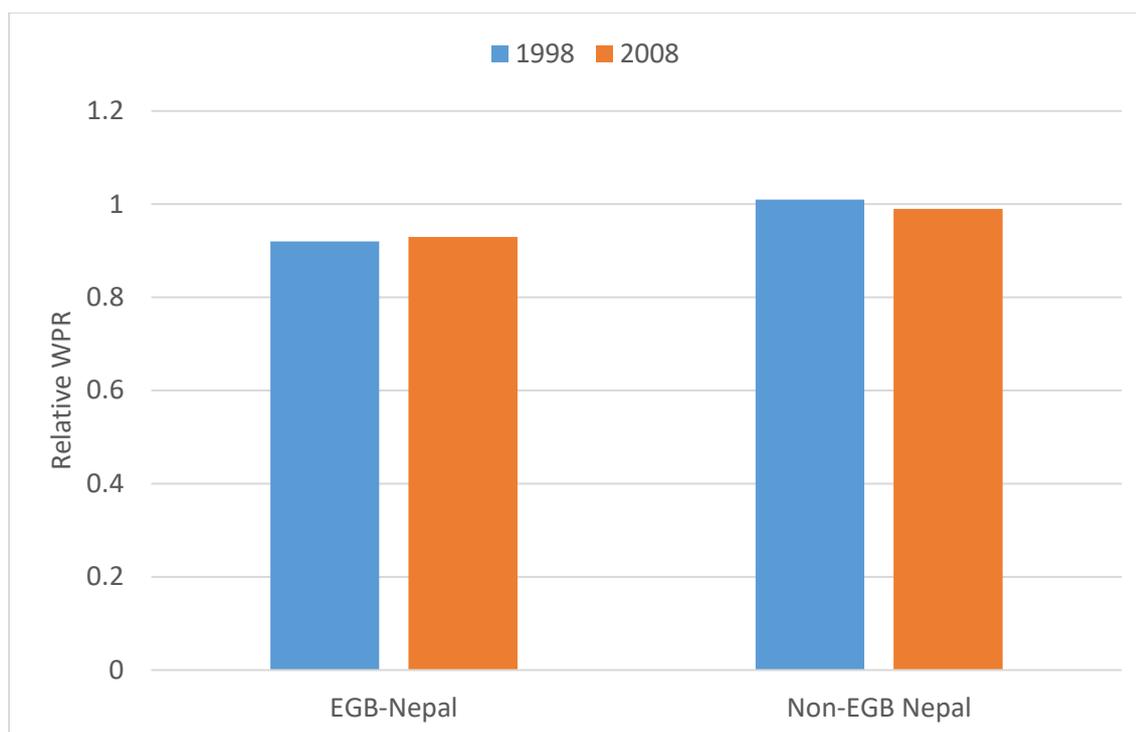


Figure 4.5 Relative Work Participation Rates, rural Nepal (for 15+ age groups). Source: NLFS, 1998-2008.

In both Nepal and Bangladesh, there is an increased participation of women in rural work over time, a trend converse to that in India. Even with the same trends, there are major differences between the former two countries. In in Nepal, the female work participation rate is extremely high, almost comparable to that of men. However Bangladesh started from a very low base, lower that of Indian EGB, and between 1995-96 the rural female WPR almost doubled by the end of 2013, and ended at a level higher than that of the 2011-12 level of the Indian EGB (Figs 4.4, 4.5, 4.6 and 4.7). The data reveals that there is hardly any difference between male and female work participation rates in Nepal. Thus the increase in WPR in rural Nepal is negligible. Such high rates are partially a function of the way work is measured; as mentioned before, common property related work, like collection of fodder, fuel and water, which are activities primarily undertaken by women are included as 'work' in Nepal, which is not the case in the other two countries.

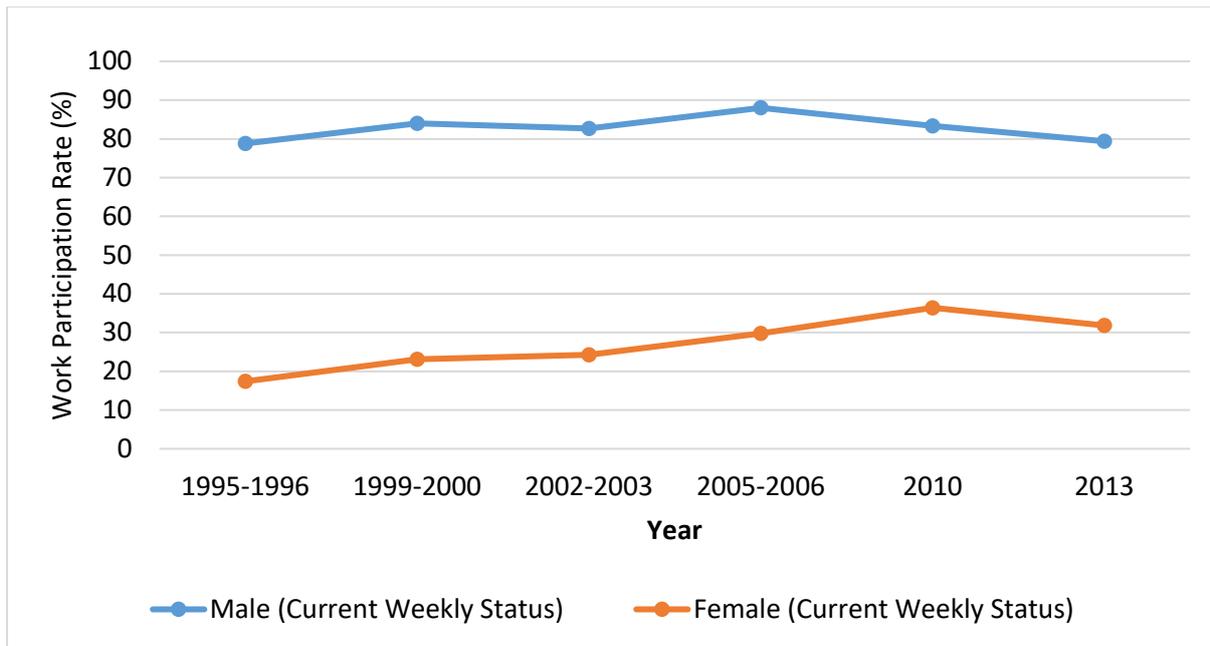


Figure 4.6 Rural Work Participation Rate, Bangladesh (for 15+ age groups). Source: BLFS, 1995-2013.

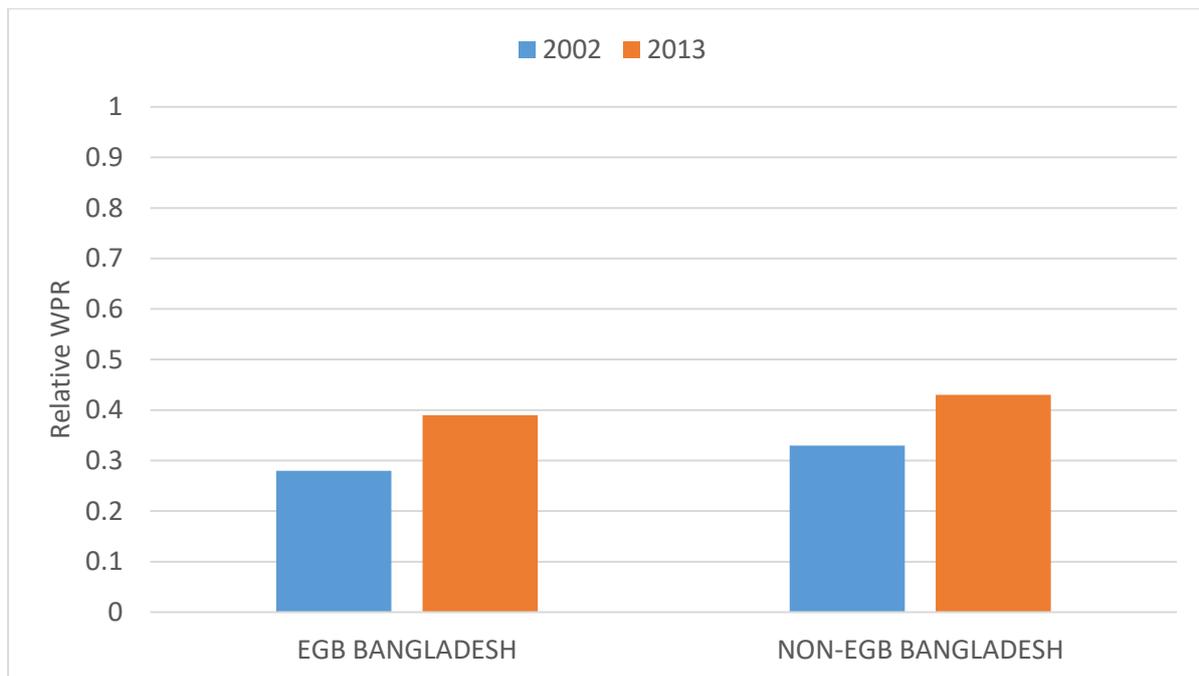


Figure 4.7 Relative Work Participation Rates, rural Bangladesh (for 15+ age groups). Source: BLFS, 2002-2013.

We have attempted to make the work participation comparable (with limitations for India as mentioned in the Methodology section), and this is presented in Table 4.1.

Table 4.1: Revised Comparable Work Participation Rates for Eastern Gangetic Basin in Nepal, Bangladesh and India

Countries	Nepal	Bangladesh	India
Years [#]	2008	2010	2011-12
Revised female WPR (inclusive of collection of fodder, fuel and water outside premises)	80.0	62.1	57.3
WPR as provided by the government data sources		33.7	9.5

Source: NSSO, 1983-2012 (India), Labour Bureau, 2015 (India); BLFS, 2013; NLFS, 1998-2008. [#]Available comparable years closest to the data available in Nepal has been taken for comparison.

As can be seen from Table 4.1, when collection of fodder fuel and water from outside the premises is taken into account, the WPR jumps up by almost double in Bangladesh EGB and more than **6 times** in the Indian EGB. 5 percent of the men in Bangladesh are engaged in these common property resource related activities while in India, it is only 0.5%. Thus such activities, gendered as they are in most developing countries, are much more so in India compared to Bangladesh. The restrictions of mobility of women in Bangladesh may have led some men to participate in such activities.

The way activities related to common property resource can be interpreted other than the fact that they are gendered, is that they take women out of the home space for such activities that are crucially linked to the sustenance of the households. There is a class angle to these activities in the sense the poorer households are forced to depend on such activities much more compared to the rich as the former have less land and thus little agricultural by-product that serve as both fodder and fuel. They also have less capacity to buy fodder or fuel or access alternatives as LPG or bottled water, in case the public services of tap water is unavailable, which is common in rural areas of all three countries.

The following are the major finding from this section:

- The EGB in all countries have a lower female work participation rate compared to their counterparts. The higher fertility of land in the plains, and the strong relationship of control of land of productive land and an associated strong patriarchy restricting the women from working in public spaces and keeping them away from paid work could be a generic theory for understanding this macro difference.
- A higher level of work participation in Nepal compared to the other two countries is expected and stems from two reasons. First, the measurement of work is more inclusive in Nepal, and includes a few common property resource related activities as work, while the same activities are considered as extra-domestic activities in the other two countries. But the WPR of women in Nepal is still significantly higher even after correcting for such discrepancies in the definition of work (Table 4.1) and that can be explained by a more muted patriarchy in Nepal, particularly with respect to restrictions on women's work, compared to the other two countries.

- A consistent defeminization in India has been reported by earlier literature. The same is true for West Bengal and Bihar, particularly the latter, which appears to be a counter-intuitive finding. The feminizing trends in Nepal and Bangladesh are no surprise and have been pointed out by existing literature.

4.2.2 Interpreting Unemployment Trends in the EGB

The addition of people 'seeking jobs' to the working population make up the labour force. The former group include those that are unemployed and when divided by the total population of the relevant age group (above 15 in this case), we get the rate of unemployment (UR). Generally, an increase in unemployment is taken to indicate a problem in the economy, which could indicate that the rural labour market is not creating adequate jobs with respect to the demand for jobs. For women, however, an increase in the unemployment rate without a decline in the WPR would mean that more women are in the labour force; an increase in unemployment could from a social perspective, be a sign of a relaxation of patriarchal norms, though at the same time be indicative of economic distress.

Figs 4.8 and 4.9 show India's (EGB and non-EGB) absolute and relative⁴ unemployment rates. There is an increase in both the absolute and relative female unemployment rates (i.e. relative to the trends of male unemployment rate), and this increase is steeper for women of the EGB. Even the male unemployment rates have been going up in rural India, but at a rate slower than that of the females, for the most part. There is a marginal dip in the relative unemployment rate in 2015. After 2000, the female unemployment rates in India, both in EGB and non-EGB regions exceeded the male unemployment rates. Notably, this is the period when the female WPR underwent a decline.

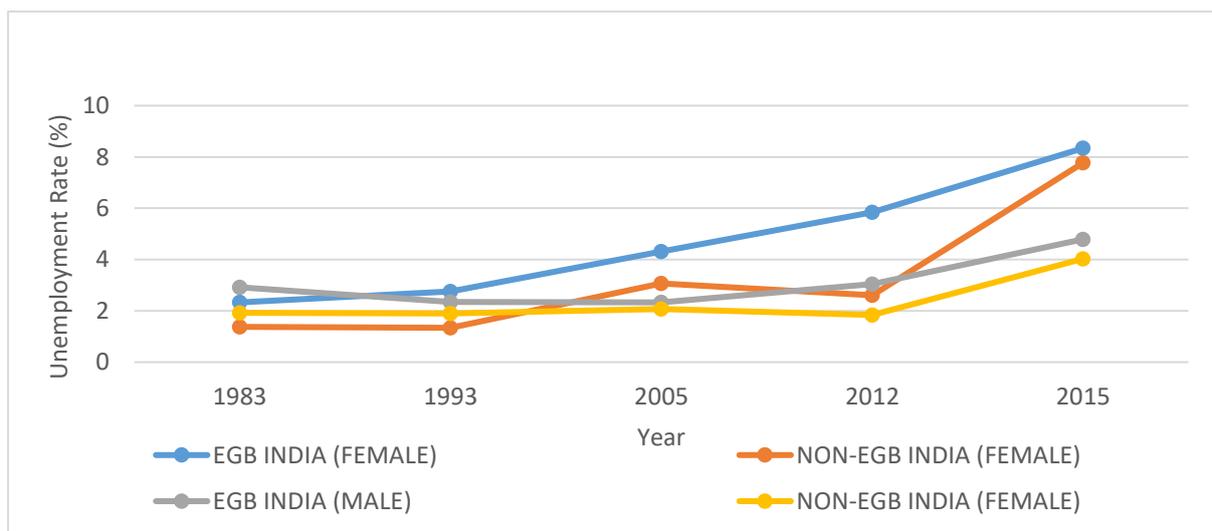


Figure 4.8 Unemployment Rate, rural India (for 15+ age groups). Source: NSSO, 1983-2012 (India), Labour Bureau, 2015 (India).

⁴ The relative unemployment rate (RUR) is female/male unemployment rate. In other words, $RUR = \frac{\text{unemployed females}/\text{total female population}}{\text{unemployed male}/\text{total male population}}$

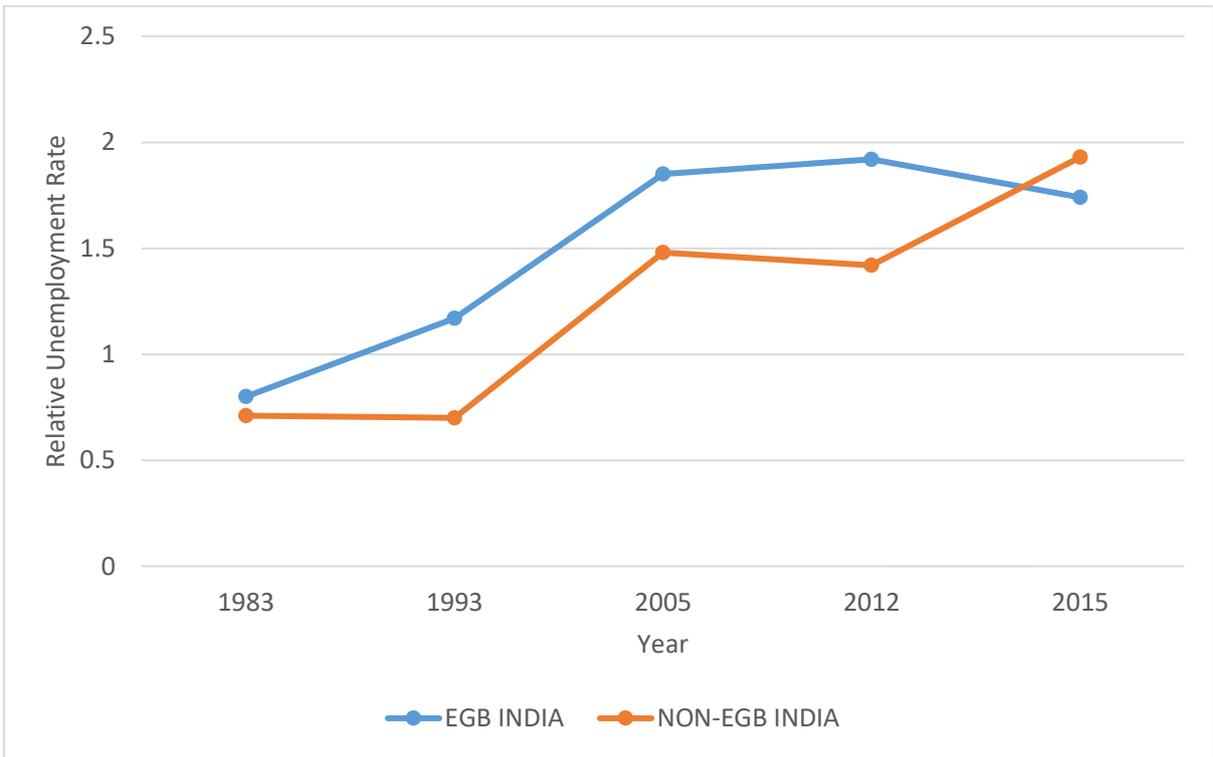


Figure 4.9 Relative Unemployment Rate, rural India (for 15+ age groups). Source: NSSO, 1983-2012 (India), Labour Bureau, 2015 (India).

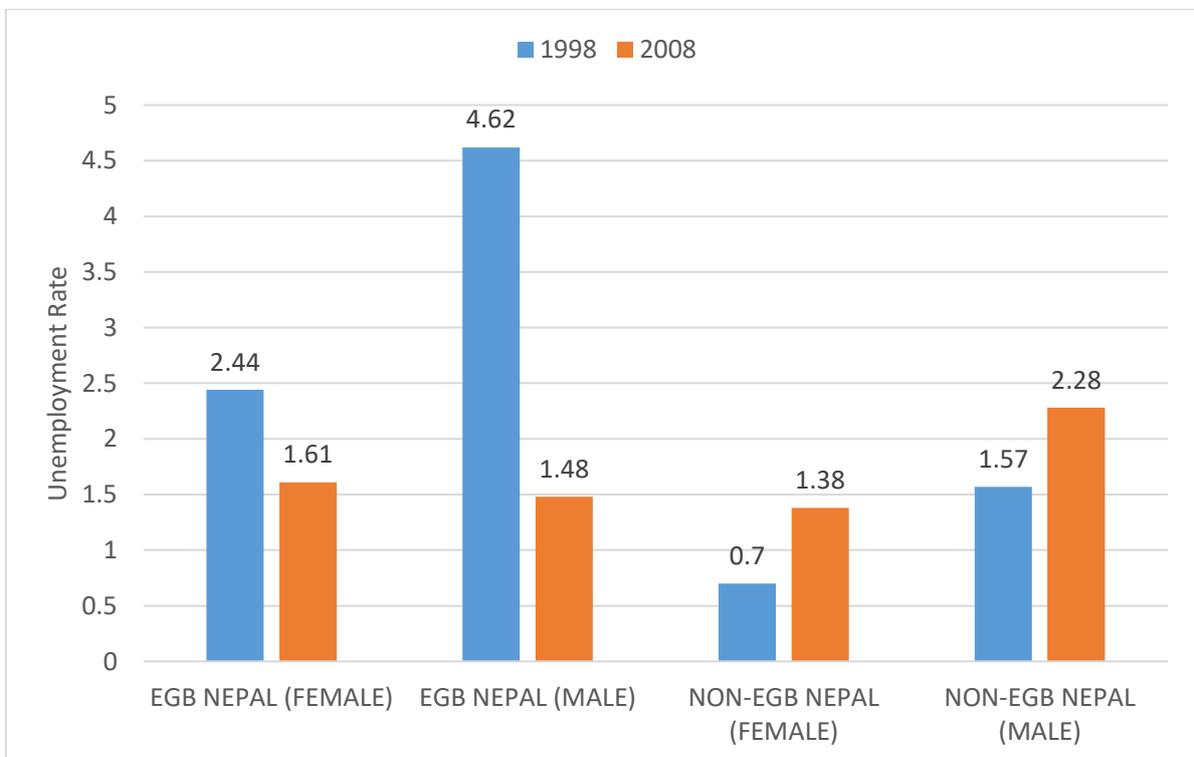


Figure 4.10 Unemployment Rates, rural Nepal (for 15+ age groups). Source: NLFS, 1998-2008.

Nepal data depicts a picture different to that of India (Fig 4.10). In rural EGB of Nepal UR has declined for both male and female population in past one decade and along with that, the relative unemployment has also declined considerably. However, in the non-EGB region of Nepal, UR has been increasing in the past decade. The relative UR in Nepal shows, however, that the male–female gap in UR has declined in the recent period. Thus overall, there is no clear gendered pattern in either EGB or non-EGB Nepal.

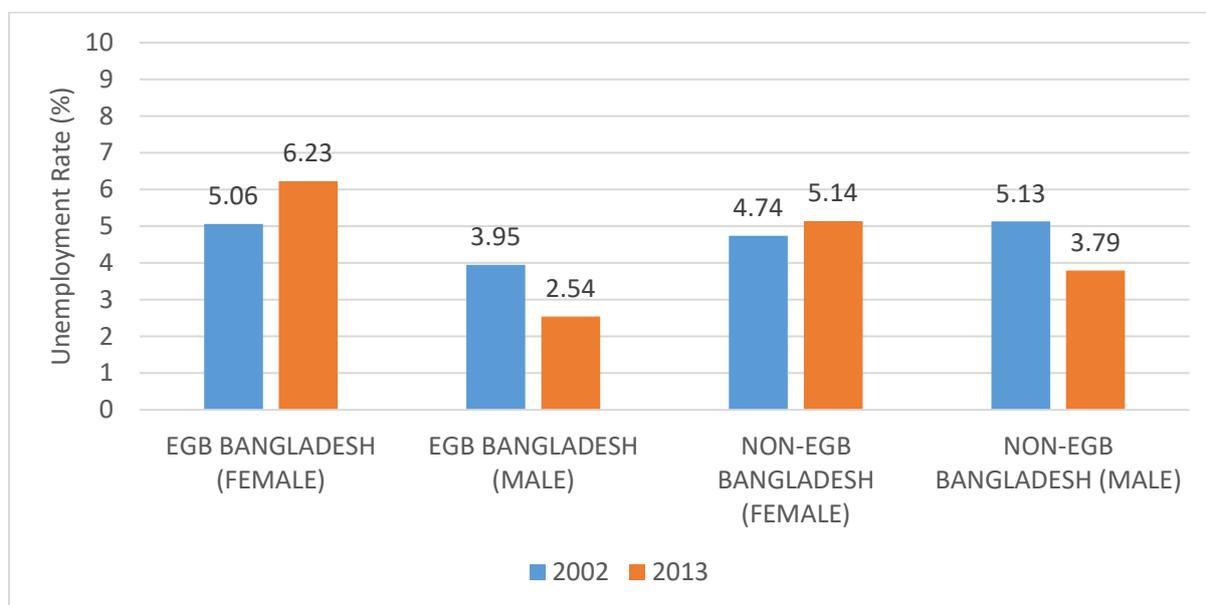


Figure 4.11 Unemployment Rates, rural Bangladesh (for 15+ age groups). Source: BLFS, 2002-2013.

For Bangladesh, the situation is different from Nepal. In both EGB and Non-EGB regions of Bangladesh female UR is more than the male UR (Fig 4.11). Also, there is an increase in women’s UR while there is a corresponding decline in the male UR. Thus, contrary to the trend in Nepal, Bangladesh’s unemployment trend is gendered, coupled with the fact that the gap between the male–female gaps in UR is increasing. Table 4.2 reveals the relationship between WPR, UR and labour force participation rates, a point that was mentioned in the beginning of this section.

Table 4.2. Levels and Changes in Labour Force Participation Rates (LFPR) in the EGB. Source: NSSO, 1983-2012 (India), Labour Bureau, 2015 (India); BLFS, 2013; NLFS, 1998-2008.

Gender	Indicators	EGB India		EGB Bangladesh		EGB Nepal	
		1993	2012	2003	2013	1998	2008
Female	WPR	14.9	9.47	23.47	31.22	76.6	80.49
	UR	2.76	5.85	5.06	6.23	2.44	1.61
	LFPR	17.66	15.32	28.53	37.45	79.04	82.1
Male	WPR	85.00	78.05	83.53	79.77	83.09	86.92
	UR	2.35	3.04	3.95	2.54	4.62	1.48
	LFPR	87.35	81.09	87.48	82.31	87.71	88.40

The LFPR of women are the lowest in India and falling further (Table 4.2). The fall has come primarily from a drop in WPR and in spite of an increasing UR. Such relationships between WPR, UR and LFPR is indicative of both economic and social distress. An increasing unemployment rate coupled with a fall in WPR is indicative of non-voluntary ouster from employment, as women are still looking for jobs. The overall LFPR declined by 2 percent points, which may be indicative of voluntary withdrawal from the labour market. Overall, what is of concern is the pathetically low EGB India female LFPRs which is further falling. Bangladesh's LFPR is increasing, which is primarily contributed by an increasing WPR, but also an increasing UR. More women are coming to the labour force in agriculture and allied activities, and this is a development that augurs well for gender relations in rural areas. The female LFPR in Nepal is nearly as high as men, with rates of unemployment declining. Such high rates, over and above the domestic and care work undertaken by women is indicative of extremely high burden on women.

4.2.3 Share of Women Workers in Agriculture in the EGB

Till now the discussion has veered around rural work as a whole. The share of women in agricultural work provides us direct information about women's role in agriculture. This indicator could show an increase, either because more women have joined agriculture and/or because fewer men are working in the sector.

A fall in female WPR will in all probability reflect itself in agricultural work, but not necessarily, since this trend could be driven by the non-farm sector. Figure 4.12 and 4.13 provide about the trend of the share of women in agricultural employment as a percentage of total workers in agriculture in EGB and Non-EGB regions of the three countries. Fig 4.12 shows a very gentle fall of share of women workers in agriculture from 1983 to 2004 and then a sharp fall from 2004 to 2012. There is again a sharp increase in the share in the last three years from 2012 to 2015⁵.

⁵ The 2015 is from Labour Bureau, while the rest is from NSSO. Though the definition of work is the same in both sources, the drastic fall of share of women in agricultural workers between 2012 and 2015 needs to be validated with a longer-term data.

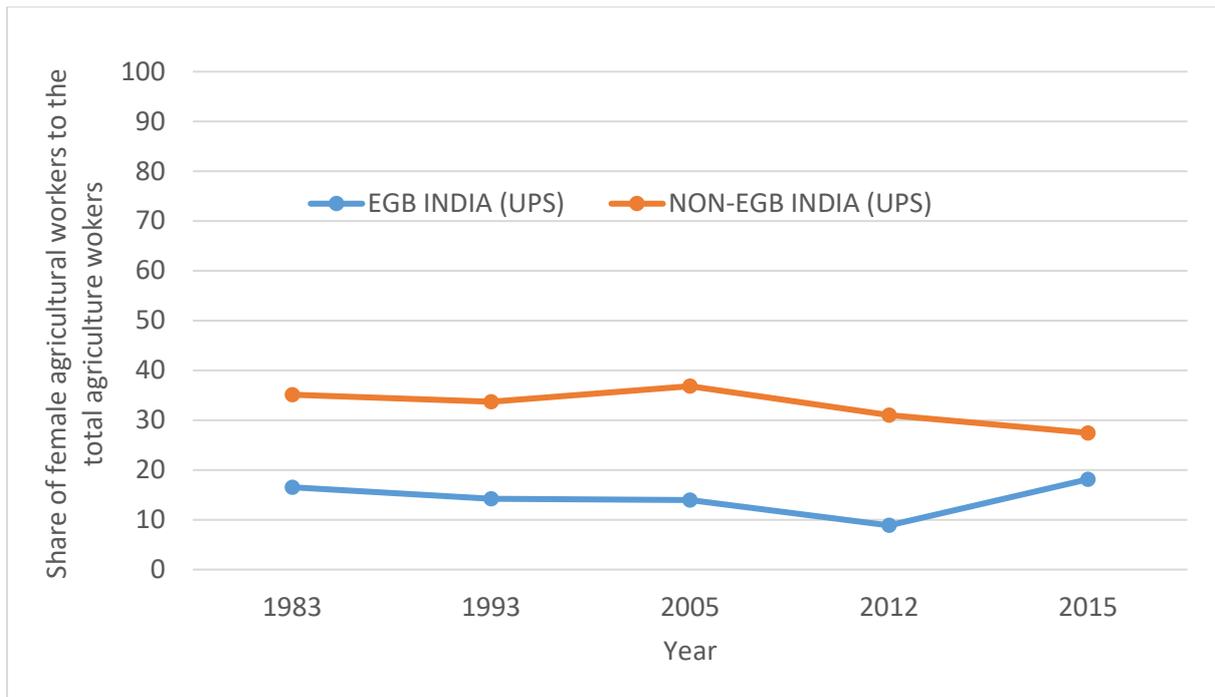


Figure 4.12 Share of female workers to total workers in agriculture in the EGB and non-EGB regions of India, rural (for 15+ age groups). Source: India NSSO 1983-2012, India Labour Bureau 2015.

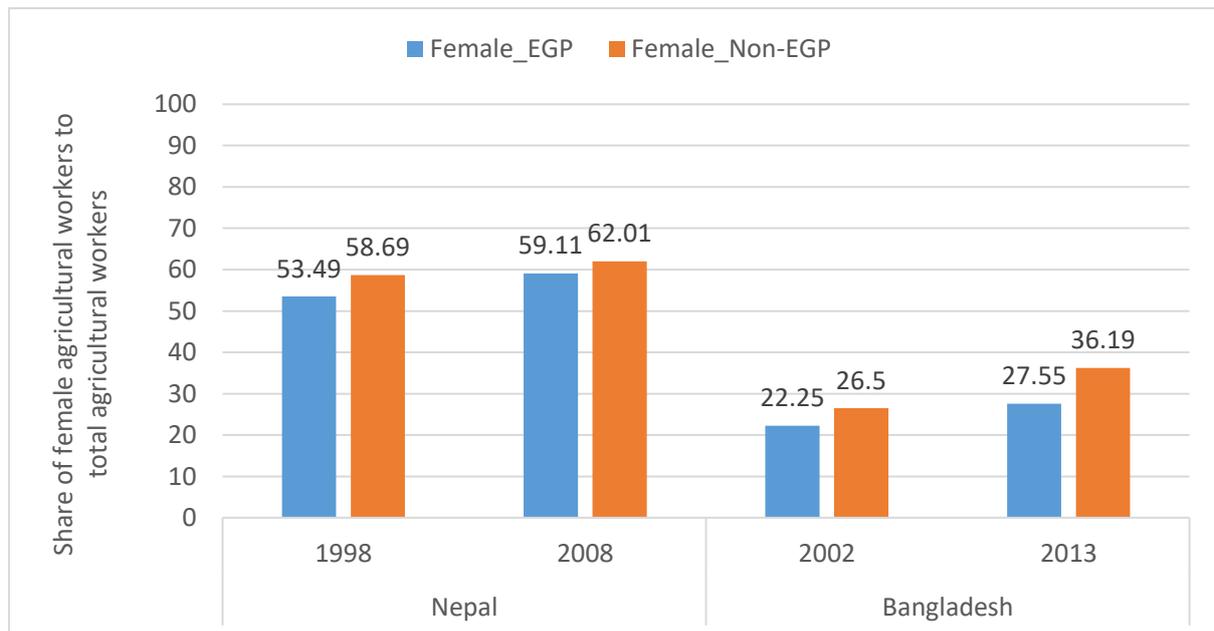


Figure 4.13 Share of female workers to total workers in agriculture in Nepal and Bangladesh, rural (for 15+ age groups). Source: Bangladesh Labour Force Survey, 2002-2013, Nepal Labour Force Survey, 1998-2008.

The trend of feminization is visible in Nepal irrespective of whether it is the EGB or non-EGB region (Fig 4.13). In the EGB region of Nepal, the share of women in agriculture increased from about 53% in 1997-98 to 59% in 2007-08. Patterns of feminization in agriculture are also noticeable in the EGB region of Bangladesh, where the share increased from 22% in 2003 to 27.55% in 2013.

28% in 2013. Based on the available data, it is clear that Nepal’s agriculture has already feminized, while Bangladesh’s agriculture is feminizing. Somewhat inexplicably, in spite of being part of the same river basin region, the Indian EGB is experiencing a defeminization in agriculture.

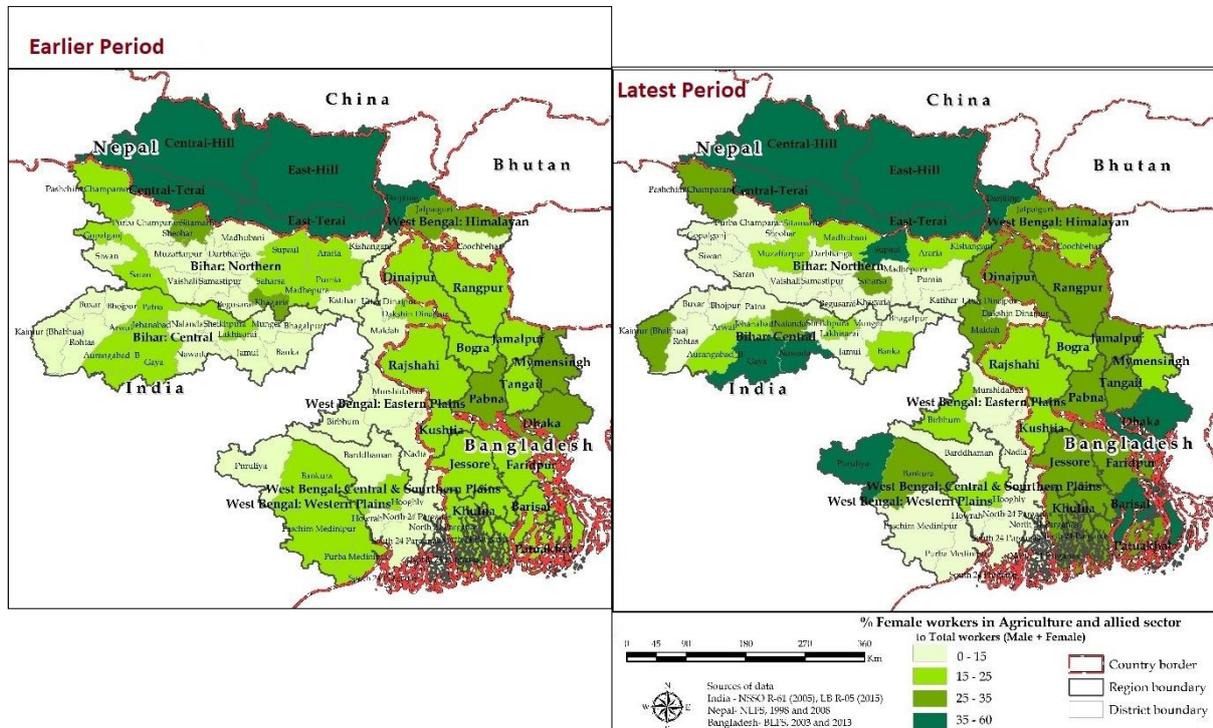


Figure 4.14 Female workers in agriculture and allied sector in comparison to total workers in agriculture.

The spatial picture broadly supports the scenario explained earlier in the chapter, especially when we compare the Nepal and Bangladesh EGB with the Indian EGB. Women’s share in agricultural activities shows dramatic differences between regions within the EGB.

The proportion of women employed in agriculture is low in West Bengal and Bihar and it has decreased considerably over the past decade. The female share in agriculture has increased considerably in Bangladesh. The contrast between the two Bengals lies in the change in the labour market for women over time in Bangladesh. Not only are overall rates of labour force participation in Bangladesh increasing, but the proportion of women employed in the agricultural sector is also increasing. Nepal is completely different from the rest of the basin region and shows a high share of women in agricultural activities. The high participation of women in agricultural activities in Nepal indicates that given the extreme physio-climatic conditions, women’s participation is utmost necessary for agricultural production.

4.3 Change in sectoral composition of women's work in EGB

While the last section spelt out the details of the share of women in agriculture, that does not give us the duration of engagement over the agricultural year. This information is only available for India, but due to the decline in women in agriculture in the Indian EGB, it is important to delve deeper to provide us deeper insights about this somewhat deviant trend. Women are typically engaged for a shorter duration in what is counted as 'work' since they have to shoulder the majority of the domestic and care work. Principal activity in NSSO typically indicates an engagement for more than 6 months, whereas subsidiary activities are shorter duration work, i.e. less than six months, but more than 30 days. This section attempts to understand the composition of both agricultural and non-agricultural work, given that the overall work participation in the Indian EGB has declined. The composition has been seen across six categories:

1. Principal status in agriculture and allied activities: Those doing only longer-term activities in agriculture and allied sectors.
2. Subsidiary status in agriculture and allied activities: Those doing only shorter-term activities in agriculture and allied sectors.
3. Principal and Subsidiary status in agriculture and allied activities: Those doing two types of jobs in agriculture and allied sectors (e.g. cultivation and livestock), one short term and the other long term.
4. Principal status in non-agricultural activities: Those doing only longer-term activities in non-agricultural activities.
5. Subsidiary status in non-agricultural activities: Those doing only shorter-term activities in non-agricultural activities.
6. Principal and Subsidiary status in non-agricultural activities: Those doing two types of jobs in non-agricultural activities (excluding cultivation and livestock), one short term and the other long term.

4.3.1 Principal and Subsidiary

Figure 4.15 reveals that, in the rural EGB regions of India, there has been a continuous decline in the share of both principal and subsidiary workers in the agricultural and allied sector.

On the other hand, the share of women workers in both principal and subsidiary status in the non-agricultural activities has increased. This could be the effect of introduction of Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGA) which guarantees 100 days of work to each household for constructing rural assets (water harvesting structures, rural roads etc.). There is thus a shift within the women workers from agriculture to the non-agricultural sector. This shift in favour of the non-agricultural sector, however, has not been able to make up for the decline in the agricultural sector as we have observed a decline in the WPR in the rural EGB India. The trend reveals that women within agriculture are engaged more in principal status activities rather than in secondary status over time, which indicates longer term engagements in the sector, than shorter term ones. This could be as a result of

male selective outmigration, which is particularly visible in the state of Bihar. Thus, in spite of a declining presence in rural work in general and agriculture in particular, the women that are in work are firstly, moving to non-agricultural sectors and secondly, moving towards longer term work rather than shorter term ones. Both these trends are positive ones, so long as they represent exercising choices by women.

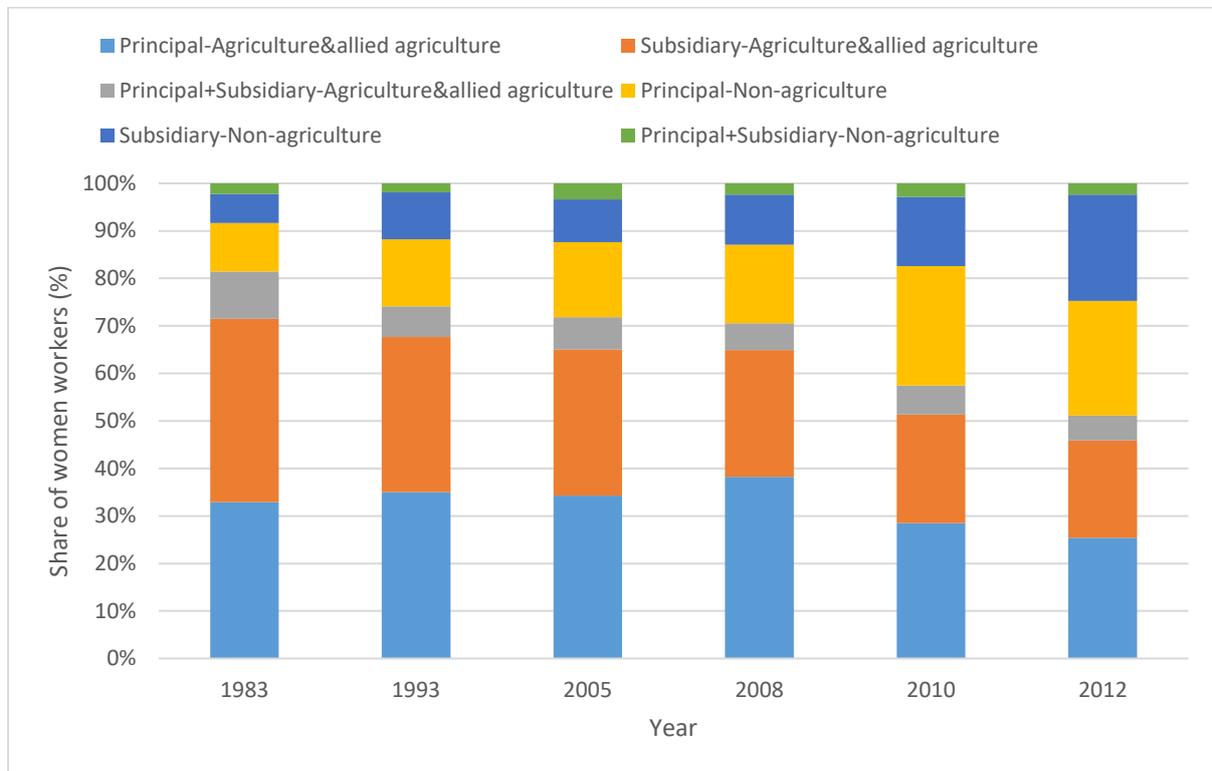


Figure 4.15 Share of women's work in rural EGB India, 1983 – 2012 (for 15+ age groups). Source: India NSSO 1983-2012.

Though the duration of work (principal and subsidiary work) is not available for Bangladesh and Nepal, the sectoral shift of women and men from the agricultural sector can be compared across the three countries in the EGB. In all the countries, as expected, both men and women are shifting from the agricultural to the non-agricultural sector (Table 4.3). But the rate of decline of the share of women workers in agriculture is in the highest for India, and interestingly, double the rate among women than men (1.6 % per annum for women as opposed to 0.8 % per annum for men). The shifts for women have been from both principal and subsidiary agricultural activities to the non-agricultural sector, in both principal and subsidiary statuses. Thus the decline in the subsidiary status in the agricultural sector among women, pointed out earlier is being replaced by subsidiary status in the non-agricultural sector, and opting for MGNREGA work would result in such status. The rates of decline of the agricultural workforce among women of Nepal is the lowest at 0.3% per annum; this is indicative of women mostly staying back in agriculture in Nepal, as opposed to men, whose rate of decline from the agricultural workforce is 0.8%. In Bangladesh the rate at which both men and women are moving out of agriculture to join the non-agricultural sector is moderate and similar for both groups (around 0.6% per annum).

Table 4.3: Shift of Workers from Agriculture to Non-Agricultural Sector in EGB

Gender	Categories /Sectors	EGB India		EGB Bangladesh		EGB Nepal			
		1993	2012	Total agriculture/non agriculture					
				1993	2012	2003	2013	1998	2008
Female	Principal Agriculture	41.5	30.7	74.1	51.1	63.0	58.7	92.0	88.9
	Subsidiary Agriculture	32.6	20.5						
	Principal Non-Agriculture	16.1	26.4	25.9	48.9	37.0	41.3	8.0	11.2
	Subsidiary Non-Agriculture	9.8	22.4						
Male	Principal Agriculture	72.2	61.0	74.0	62.0	58.2	54.2	76.1	69.4
	Subsidiary Agriculture	1.8	1.0						
	Principal Non-Agriculture	25.7	37.4	26.1	38.0	41.8	45.8	23.9	30.6
	Subsidiary Non-Agriculture	0.4	0.6						

Source: Calculated from NSSO Employment Unemployment rounds, Government of India (1993 and 2012), Labour Force Survey, Government of Bangladesh (2003 and 2013) and Labour Force Survey, Government of Nepal (1998 and 2008)

This section points towards the dynamism within the women workers in Indian EGB, who though shrinking in terms of share of population, are transitioning into longer term, more regular work in agriculture, while some are moving towards the non-agricultural sector, which typically has higher wages. Such dynamism is not seen, or seen in a lower degree in Nepal and Bangladesh, though the extent of women's involvement in rural and agricultural labour is increasing in these countries.

4.3.2 Quality of work in rural EGB across the three countries

Self-employment in rural areas in South Asia mostly corresponds to the work category of a cultivator, though in some cases, it could also be owners of a small industry or a service enterprise like a shop. The difference between an unpaid family worker and a self-employed person is that the former typically would not have managerial control over the enterprise, farm or non-farm, as the latter. Casual wage work by status in agriculture, and particularly for women, is usually seen to be of a lower order than cultivating in one's own field, since in many parts of the Gangetic basins, working in others' fields is seen as a matter of degrading family pride, particularly among the upper castes in India. In Bangladesh, even working in one's own field is mostly forbidden for Muslim women (and is also true in the case of Indian Muslim women too), who are engaged in post-production work, or livestock activities. Such restrictions are the least among women in Nepal. Despite the lower status of wage work, it cannot be denied that this form of occupation actually makes women's interaction with cash transaction possible, which is rare when they work in their own fields as an unpaid family worker or at times even as a cultivator.

Table 4.4: Changes in Quality of Work among Women and Men in Rural EGB

Region	Gender	Year	Self Employed	Unpaid family Work	Casual Work
EGB Bangladesh	Female	2002	23.7	71.6	4.5
		2013	7.07	84.17	7.85
	Male	2002	53.2	14.5	30.8
		2013	62.71	6.79	28.95
EGB Nepal	Female	1998	20.3	74.3	5.3
		2008	23	73.5	3.4
	Male	1998	63.2	30.2	6.5
		2008	59.9	36.1	3.9
EGB India	Female	1993	8.8	15.5	74.9
		2005	9.6	25.9	60
		2012	4.6	15.5	73.9
	Male	1993	35.6	15.4	47.8
		2005	38.2	15.3	45.4
		2012	35.6	10.2	53.5

Source: Calculated from NSSO Employment Unemployment rounds, Government of India (1993, 2005 and 2012), Labour Force Survey, Government of Bangladesh (2003 and 2013) and Labour Force Survey, Government of Nepal (1998 and 2008)

A few points emerge clearly from the table above:

- The level of unpaid work is very high in Nepal and Bangladesh, and increasing in the case of the latter. In the Indian EGB, the level of unpaid work among women is far lower, almost comparable to that of the men. In recent years, the incidence of unpaid work has been declining, as it has for the men.
- A very low share of women are self-employed or cultivators in India, and this too has been declining further after 2005. In Bangladesh, this was at a much higher base, but over ten years has declined to less than half, while the share of men doing the same work has gone up. Nepal is the only country where women's engagement as cultivators, which provides some control over land, has gone up.

The presence of both Bangladeshi and Nepali women are very low in the casual wage work in agriculture. However, the reasons are different. In Bangladesh, it is the socio-cultural norm that restricts the women from participating in casual work. In Nepal, the burden of work in agricultural activities on their own land, on the one hand, and the lack of casual work opportunities on the other, restrict them from participating in casual employment in agriculture. The engagement of causal work among women in India is very high, but as is clear from the last section, much of this comes from non-agricultural activities. It may thus be observed that though the control of agricultural land as visible from low share of cultivators

is low among the Indian EGB women, so is their presence as unpaid family workers, which often leads to long work hours with no remuneration. In contrast, the share of this category is high in Bangladesh and Nepal, arguably giving women less choices for decision making and potential for empowerment. The high share of casual wage work among women in India on the one hand is indicative of a need to alleviate the family from economic distress, but on the other, may provide a liberating avenue by making cash in the hands of women more easily available.

4.4 Drivers of defeminization in EGB India

A trend of higher work participation in Nepal compared to India and Bangladesh can be explained from existing studies (Sen 2018). However, a few unexpected points emerge from the comparative trends of the three countries. Firstly, the notably lower female WPR in EGB India is somewhat difficult to explain in comparison to the rest of India. Secondly, the long term defeminization for over three decades, in both EGB India and the rest of India has been a bit of a puzzle, though a lot of the existing literature have attempted to explain this (Verick 2018, Mehrotra and Parida 2017, Abraham 2013, Neff *et al* 2012, Kannan and Raveendran 2012). This set of literature leaves some questions unanswered. The third issue is the comparative position of India and Bangladesh EGB, i.e. the defeminizing trend in the former case and feminizing in the latter. There is a trend of increasing productivity and mechanization in both cases, along with sub-regional trends of male selective out-migration in both the countries (Jaim and Hossain 2011, SaciWATERS 2019). At the sub-regional level, almost the entirety of Bangladesh EGB is feminizing, which conforms to the macro trends (Fig 4.14). The Terai part of Nepal is feminizing, which is where the majority of the workforce in the country is concentrated. In India, West Bengal reveals a mixed picture, while Bihar almost entirely is defeminizing, save four districts that are scattered. This trend is contrary to the literature on gender and agriculture in developing countries, and hence requires further attention.

The primary reasons of defeminization in Indian agriculture that come out of the literature are two-fold: first, a prosperity-induced withdrawal, a similar process described by Goldin explaining the fall in the U shaped curve; second, an education effect, whereas more young women are going into higher education relative to young men, and thus withdrawing from both the workforce and labour force. The first can only be partially true given that the WPR has reduced faster for the poor than the rich (Kannan and Raveendran 2012). This is borne out by our analysis for EGB India, which shows the same trend in Fig 4.16. This is also inconsistent with the fact that the relative unemployment rate (females/males) in EGB India has gone up over the years. The high unemployment rates indicate that women are still in the labour force looking for work, which would not have been the case had it been primarily a case of prosperity-induced withdrawal.

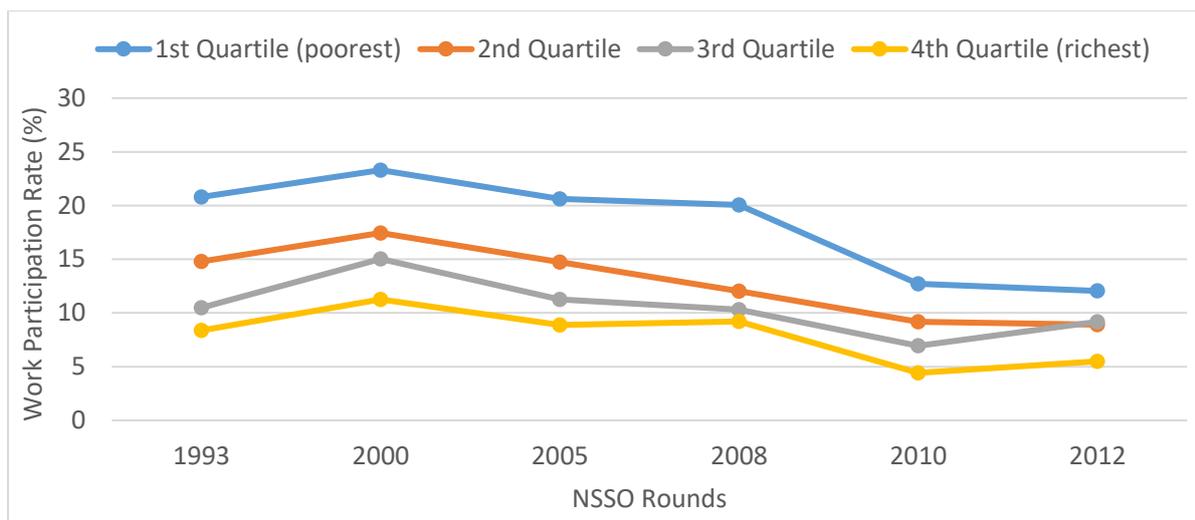


Figure 4.16 Reduction of female WPR by monthly per capita consumption categories, in EGB India, rural (for 15+ age groups). Source: Calculated from NSSO Employment Unemployment rounds, Government of India (1993-2012).

We also discount the phenomenon of education-related withdrawal for EGB India in explaining the missing women in agriculture since the fall of women in the younger age group has been marginal in relation to that of men (Fig 4.17). The fact that Bihar has experienced consistent defeminization, raises questions about defeminization processes emanating out of economic progress, since it is a state marked by male selective outmigration on the one hand and low per capita agricultural income, on the other.

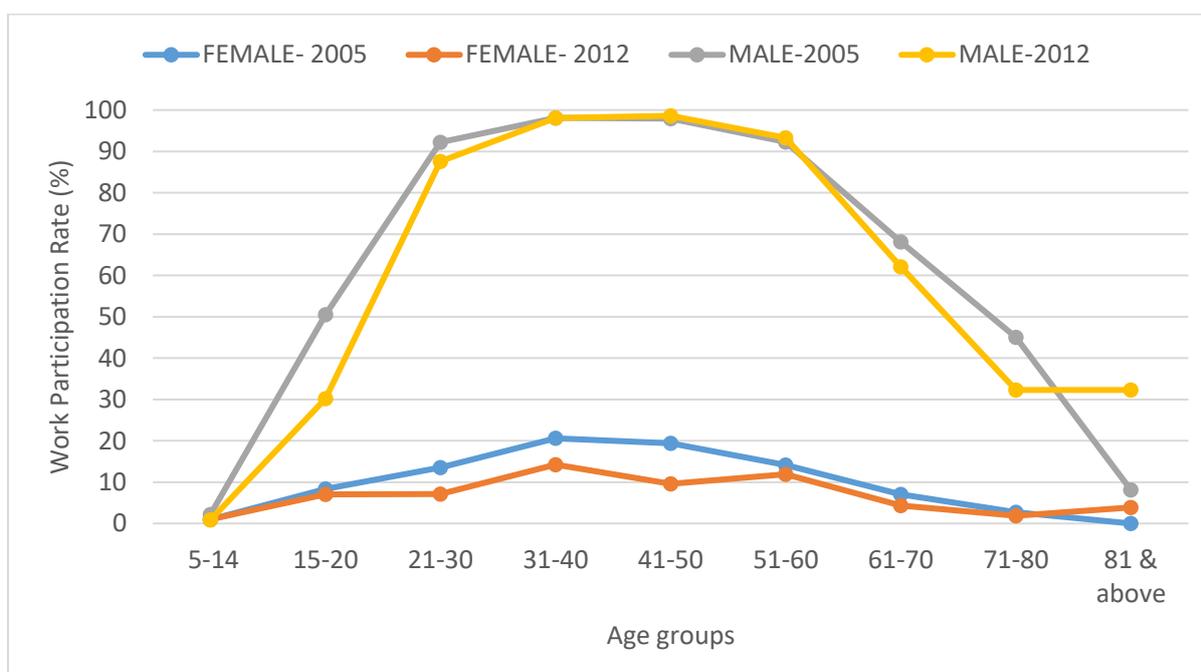


Figure 4.17 Age wise WPR for male and female in the EGB India, rural (2005 and 2012). Source: Calculated from NSSO Employment Unemployment rounds, Government of India (2005 and 2012).

The class specificity of the withdrawal of women from the labour force, that is poorer women withdrawing out of work more than those from better-off households is an unusual phenomenon. Though this has been highlighted in the literature (Kannan and Raveendran 2012), it has not been followed up with reasons for the same. Very clearly, there has to be compelling reasons for the poorer women to withdraw out of work. The idea of holding out of the job market due to low pay or poor quality of work is not likely to apply to this set of women, due to the economic distress that they are faced with. Agarwal (1989) acknowledged the excessive burden that poor rural women are faced with in terms of sustenance of the family, though they are hardly positioned favourably to fulfill the relationship due to their class and gender status. One of the means of sustenance that poor women singularly carry out is work dependent on common property resources (CPR) like collection of water, fodder and fuel, all of which is central to the sustenance of the household. The CPRs are getting depleted over time and in recent years the lack of access stems from a state-mediated privatization of CPRs (Sud 2007; Jodha 2000).

An examination of CPR related burdens like collection of water from outside the household premises, fodder, fuel and minor forest products undertaken by women reveals that this burden has increased over time, though the trend is counter-intuitive and unexpected, given expectations of greater coverage of piped water supply, availability of alternative and clean institutionalized fuel sources etc. (Table 4.5). The class specificity of the burden of this work is clear from Table 4.5, since a far greater share of women from the poorest quartile are engaged in this activity. But more significantly, the increases in the CPR related activities are clearly higher than the two poorer quartiles. Thus, we argue that an increased burden of these activities, which are non-negotiable for the survival of the households, could potentially force women to withdraw out of the work force, even under conditions that where employment is extremely important for them. For the two poorer quartiles, Table 4.5 shows that the increase in the share of women in CPR activities constitute 50% of the share that has withdrawn from the work force in the same years.

Table 4.5: Share of Non-Working Women Engaged in Common Property Resource Related Activities. Source: Calculated from NSSO Employment Unemployment rounds, Government of India (2005, 2010 and 2012), Note: The figures in parenthesis show the monthly per-capita consumption quartile-wise (proxy for economic class) reduction of work participation rates in the respective quartiles.

Year	Poorest quartile	2nd quartile	3rd quartile	Richest quartile
2005	36.2	30.6	26.3	20
2010	38.7	31.7	25.4	18.7
2012	41.2	34.8	28.5	22.8
% point increase in share (2012 over 2005)	5.0 (-10)	4.2 (-8)	2.1 (-5)	2.7 (-7)

The other reason that has been missed out in the existing literature that can explain defeminization is the larger environment of unemployment that has been increasing in India

for the past decade or two, which is bringing back men to agriculture, as is evident from Fig 4.18. Excluding the aberration of 2005, there is an increase in the share of cultivators (self-employed) since 2000, and this can only be explained by men who had earlier migrated coming back to agriculture. One of the earlier sections shows a corresponding decline in women cultivators and unpaid labourers in agriculture during the same time period. The agrarian distress in the country coupled with reduction of public investment in agriculture is indicative of an increasingly impoverished agriculture, which may not be able to accommodate women workers following the return of the men workers to agriculture.

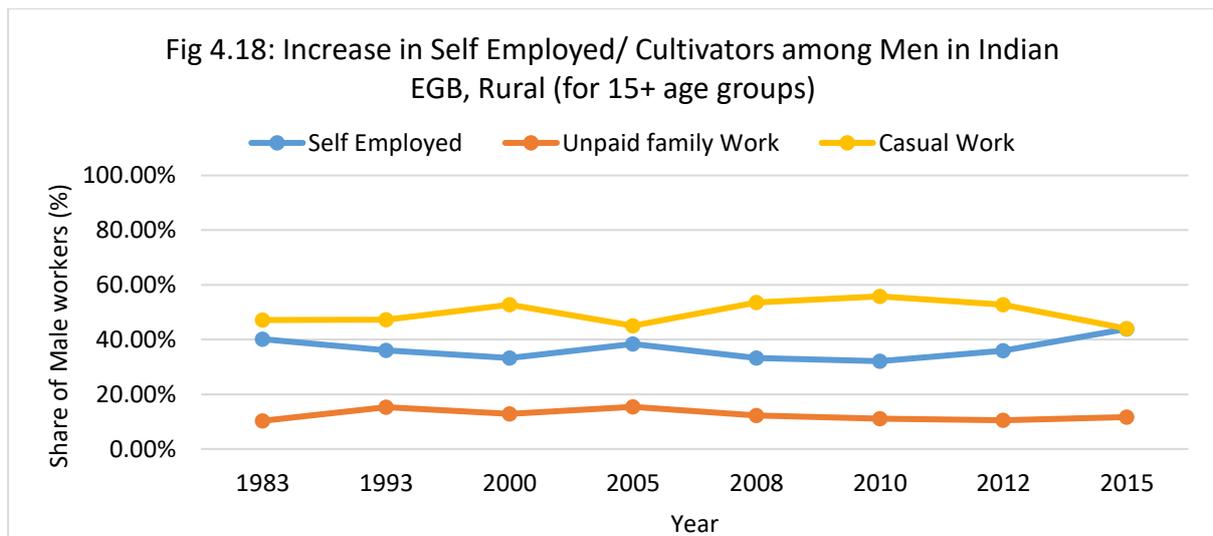


Figure 4.18 Increase in self-employed/cultivators among men in the Indian EGB, rural (for 15+ age groups). Source: Calculated from NSSO Employment Unemployment rounds, Government of India (2005 and 2012), Labour Force Survey (2015).

4.5 Summary

This chapter has attempted to trace the patterns and trajectories of women’s engagement in rural and agricultural work drawing from analysis of data from government sources. The overarching narrative that comes out from the analysis of these large data sets is that irrespective of significant pluralities in the way women’s roles are defined in the three countries that constitute the EGB, aspects of women’s work is significantly different to that of men, barring a few exceptions. These gender roles, however, play out differently in different countries, shaped by their location, culture and economic environment. The primary finding of this chapter is that while the Nepal and Bangladesh EGB have a feminizing trend, that is greater presence of women both in rural and agricultural work, the Indian EGB shows a distinctly defeminizing trend for about three decades, barring in the terminal year (2015). The levels of women’s participation in Nepal is almost as high as men, and the literature suggests that this is a result of more muted patriarchal norms leading to lower levels of restrictions on women’s work in the backdrop of a history of male-selective outmigration. The feminization in Bangladesh appears to be partially due to the changes in definitions of data

that captures work and a potentially more favourable environment over time to be engaged in post-production work in an increasingly diversifying crop sector and the livestock sector. However, our analysis suggests that the quality of work and access to wages have deteriorated for the women in these two countries. This chapter paid particular attention to the potential drivers of defeminization in the Indian EGB and finds that two major reasons highlighted in the literature to explain this. First, prosperity-induced withdrawal and withdrawal due to increased women's participation in education cannot adequately explain the trend. The trend of defeminization in the Indian EGB is somewhat counter-intuitive, since at the sub-regional level, Bihar experiences a more drastic trend, and has all the potential characteristics that are more usually linked with feminization. A defeminization process linked with higher levels of unemployment is indicative of distress, and is suggestive of displacement from jobs or lack of jobs that women can take up along with the care-work. Two causes of defeminization which has till date not been mentioned in the existing literature have been highlighted by this chapter. First, an increased engagement of poorer women in CPR related activities forcing them to drop out of work, and second, a return of the earlier migrated men to an impoverished agriculture pushing women out of work. This analysis, however, also concludes that the women that are able to retain work in the Indian EGB have greater access to wage work than before, a lower presence in unpaid family work and are transitioning to the non-agricultural sector faster than their male counterparts.

5 Micro connects: Understanding processes and nature of women's work across gender spaces in the Eastern Gangetic Basin

5.1 Backdrop

The preceding chapter discussed gender differences in the work force participation, trend and type of employment in rural areas in general and agriculture in particular, with the secondary unit-level data available from government sources from the three countries that constitute the EGB. The analysis of nationally representative data indicates that in both the Nepal and Bangladesh EGB, there is a clear trend of feminization of the rural and agricultural workforce, while the Indian EGB displays a distinct trend of defeminization for over three decades. While, the literature has emphasized male selective out-migration as a major driving force for feminization of the labour force in both Bangladesh and Nepal, the driving forces behind the trend of defeminization of labour in India, although debated, have not been fully understood.

The task in this chapter is to add to or validate the findings of the secondary data. Since there is a divergence in the existing literature based on secondary and field-based evidence, this section is based on exploratory primary data as an attempt to bridge this gap (Kelle 2005). This section focuses on the gendered role in agriculture across countries and also on the possible driving factors behind the trends observed from the secondary data in the three countries of the EGB, by assessing the empirical evidence found from four study locations⁶.

5.2 Sampling Design

5.2.1 Study Area Selection

5.2.1.1 Selection of Study Sites in West Bengal and Bihar

The selection of the districts from both the states was based on two indicators—e.g. change in the relative work participation rate (WPR) and change in percentage share of women workers in agricultural and allied activities. We used district-level data from both NSSO (2005 and 2012) and the Population Census – primary census abstract (2001 and 2011) for the district selection. It is very clear from the maps that there are some discrepancies between the two maps prepared on the basis of two different sets of data. Keeping this scenario in mind, we selected those two districts of Bihar and West Bengal where the two data sets showed high defeminization. Purba Medinipur district of West Bengal and Katihar district in Bihar fulfilled the above-mentioned conditions and were selected for the primary survey.

⁶ The micro level study is based on the information collected from a series of primary fieldwork conducted by the SaciWATERS research team with the help of the local enumerators from four study sites in three countries (India, Bangladesh and Nepal). For India, we have purposively decided to conduct the survey in the districts (both in Bihar and West Bengal) having extreme defeminization of agriculture, on the other hand, for Nepal and Bangladesh EGB the major focus was on the feminization of agriculture.

Talukas (Blocks) were selected similarly based on the same two indicators at the block level from the Census of India data in 2001 and 2011. Talukas of each selected district were ranked according to the decline in relative WPR and change in the percentage share of women workers in agricultural and allied activities, after excluding talukas where there was no change in relative WPR or increasing relative WPR. The number of sampling sites visited was mainly based on the diversity of the region in terms of cropping pattern and socio-economic composition of the region. Once the taluka was selected, village lists were drawn up again based on the same criteria. The research team conducted a rapid rural appraisal (RRA) across a large number of villages. After consultations with the key persons, local authorities and grassroots level organisations with local expertise and outreach, we decided to collect qualitative information from a cluster of villages selected purposively. Katihar district of Bihar has a significant percentage of Muslim population (around 50 per cent), while in the blocks of Purba Medinipur the share of Muslim and other marginalized groups like SC and ST population is very low.

5.2.1.2 Selection of Study Sites in Bangladesh

The selection process of the district for Bangladesh was almost similar to West Bengal and Bihar. However, here our objective was to find out that region where the trend of feminization of agriculture is quite prominent. Based on our analysis it is found that the change in relative WPR is high in the rural areas of Dhaka region in comparison to other regions of the EGB, which indicates towards women's increased rate of work participation and the data also indicates that women's share in agriculture has also increased in this region. The Dhaka region consists of 6 districts, namely, Dhaka, Gazipur, Manikganj, Munshiganj, Narayanganj and Narsingdi. Out of these 6 districts, Manikganj district was chosen based on the fact that it has a higher agricultural population.

5.2.1.3 Selection of Study Sites in Nepal

The Eastern Gangetic Basin in Nepal comprises the mountain, hill, and the Terai regions of eastern Nepal. Each of these ecological regions provide varied resource, agricultural, and socioeconomic contexts within which the gender space and women's work is located. The Terai refers to the lower plains region which is relatively fertile, with alluvial soils and water resources making it very suitable for remunerative agriculture. On the other hand, the hill and mountain regions have poor shallow soils, steep slopes and low levels of water resources. This condition is more stringent on the upper hill slopes; the valleys are more productive and being closer to the streams have relatively better access to freshwater resources.

The study areas were selected to ensure a wider representation of narratives across these different ecological and agricultural regions. Jhapa from the Terai region is a fast growing, well connected village that primarily has very productive agriculture. Patle Khola village from

Sunsari district represents the flat fertile valley in the hill region. On the other hand, Arun Gaon Palika, which is a cluster of hamlets, is located on the upper slopes of the hill region.

Table 5.1: Steps involved in micro-level analysis

Step 1	<ul style="list-style-type: none"> • Identification of district within each meso region through secondary data • The district is representative of the direction and level of (de)feminisation in agriculture in the meso region
Step 2	<ul style="list-style-type: none"> • Analysis of agricultural and socio-economic variables from secondary data sources at sub-district level to identify regions for RRA • Short-listing of sub-districts/ up-zilla/ mandal in representative district
Step 3	<ul style="list-style-type: none"> • Identification of ground level organisations for in-depth local knowledge (identification of village clusters) and field support
Step 4	<ul style="list-style-type: none"> • RRA for short-listing of final study villages • Villages will be selected such that they exhibit a sharper trend of (de)feminisation than the regional average to enable clearer understanding of the processes involved
Step 5	<ul style="list-style-type: none"> • 120 questionnaire surveys at the individual level including time use surveys, selection of individual case studies for process narratives.
Step 6	<ul style="list-style-type: none"> • In-depth qualitative interviews and gender narratives were collected through 20 case studies. • Video documentation of select narratives

Table 5.2: Details of the field sites in three countries

Country/ State	Field Location (District)	Villages
West Bengal	Purba Medinipur	1. BLOCK: SAHID MATANGINI. Villages: Paikpari, Pannchberia, Chatara, Alinan, Soadighi. 2. Block: MOYNA Villages: Charandas chak, Janki chak, Dakshin Chanra chak, South Changra Chak. 3. BLOCK: NANDAKUMAR. Villages: Uttar Kumar Chak, Kumar Chak, Shibdattapur, Bojberia. 4. BLOCK: TAMLUK. Villages: Bohichbenia, Mirikpur
Bihar	Katihar	Azamnagar Block: Kazipura, Singhoul, Mehdibari, Prampur Block: Keotia
Bangladesh	Manikganj	Villages: Bokchar, Hofor Jamirta, Hotor Mouza, Kohilatoli, Kholasur, KanchanNagar, Hatni Zamrita, Binnadangi, Deutia
Nepal	Dhankuta, Bhojpur, Jhapa	Villages: Patle Khola, Arun Gau Palika

The interviews were conducted between October to December 2018. The survey depended on three major sources of information.

1. Observation: of the agricultural system, gender divides in work, women's participation in domestic as well as in economic activities, the burden of CPR collection etc. Detailed field diaries were prepared based on such observations that included the exact instances.

2. Photographs: A tool essentially to supplement the observation, with narrations.

3. Interviews: This was the main survey tool. Interviews that informed the study were of three types.

a. Key persons' interviews: Those who are knowledgeable about the particular field site (i.e. village, tehsil/union Parishad and upzilla) where the interviews are being conducted. On an average around two interviews were taken for each field site, one typically being an elderly woman. The information collected was about the cropping pattern and crop production, agro-climatic condition, soil quality, availability of water, social and religious structure, the gender division of work, presence of women in productive activities, and about education and mobility.

b. In-depth Interviews with men and women to talk about their lives with a focus on their dependency on agriculture. The broad themes around which the interview was conducted were their occupation, the detailed nature of work (domestic and others) they do, major changes they have noticed in occupational structure and livelihoods, particularly if it has any relation with the cropping system; their individual perception about climate change, its impact on agriculture, changes in the production cost, labour availability, mechanization, labour out-migration and how these changes have altered the rural economy.

c. Time-Use Surveys: In order to capture the degree of invisibility of women's work, time use surveys were conducted with structured questionnaires. It collected data on how individuals (both male and female) spent their time throughout the day during peak and lean periods. To the extent possible, we tried to collect data for male and female from the same households. However, at times it was not possible to collect data from the same households, especially in Nepal, Bangladesh and Bihar where men were not present during the survey for labour out-migration. A number of 30 male and 30 female members were surveyed from each of the locations. In West Bengal and Bangladesh, interviews were conducted entirely in Bengali and in Hindi in Bihar. In Nepal it was conducted in Nepali.

The primary survey has some of the general limitations:

- 1) It was an exploratory field survey and with the limitation of time, had to be completed within 15 days
- 2) The survey was conducted in the region for extreme cases and focused primarily on processes of change from surveys done at one point in time.

Despite having these aforesaid limitations, the micro picture provides useful insights on the localised factors that shape feminization and defeminization of agriculture in the EGB.

5.3 Gendered roles in agriculture

The macro analysis has already proved women's contributions in the agricultural and rural economies of all regions of the EGB. However, the exact contribution both in terms of the nature of work and the intensity of it is often difficult to assess from the secondary data due to lack of information. Apart from that our analysis in the previous section also shows a high degree of variation in WPR among women across regions within EGB. This section presents an overview of the evidence on the varied roles women play in agriculture in particular and in rural labour markets in general across the four regions of the EGB.

5.3.1 West Bengal EGB

Agriculture is the largest source of livelihoods in West Bengal in general and Purba Medinipur in particular. About 60 per cent of the rural population in West Bengal is still dependent on agriculture. The main crop of Purba Medinipur district is paddy. However, there was a time when the district was quite well known for betel leaf farming also known as 'Pan', however, the betel leaf cultivation has declined massively in the last decade due to high input cost and low profitability. In recent times, commercial floriculture has become very popular in this region.

In the Ganga basin of West Bengal, the division of labour on the farm is relatively gender neutral in comparison to both Bihar and Bangladesh. Traditionally, in the West Bengal plain, women are very closely attached to farming and allied activities. They possess knowledge and skills crucial to the farming system and also contribute to the production process. Like all other South Asian societies, there are gender divides in the workspace in West Bengal. In certain activities, women's participation is more than their male counterpart. For instance, sowing and weeding of the field are exclusively done by women. While the spreading of fertilizer and pesticides, harvesting are jointly done by both men and women. Women are also entirely responsible for threshing, boiling and drying of rice.

The work of livestock rearing is done by both men and women. Apart from that, women are also responsible for supplementing the diet with farm grown produce like vegetables. The division of labour is even more sharp in betel leaf production. Betel leaf production is a highly specialized commercial cropping activity and needs intensive care. The farmers put considerable efforts to adopt a suitable layout, as betel plants are sensitive to soil and climatic conditions; the tropical plant requires proper maintenance of soil moisture, of soil aeration

as well as sufficient humidity. Field preparation and the structure of plantation⁷ are solely done by the male members of the households with the help of hired male labourers. All other activities like- sowing, planting, irrigation and drainage, weeding, thinning, propping, topping, lowering of vines, harvesting is mostly taken care of by women. The marketing of betel leaves and purchasing of seeds are solely carried out by the male members of the households. It is worth mentioning that there is a gender gap in wages between male and female agricultural workers in this region.

5.3.2 Bihar EGB

The major crop in terms of gross cropped area and scale of employment generation in the Katihar district which is part of Koshi basin (sub basin of Ganga) is paddy. In the study location (Azamgar), which is mostly a double cropped area, both Rabi and Kharif paddy provide most of the employment opportunities both for men and women. Apart from that other major crops during Rabi season (winter) are wheat, potato, mustard and maize. It has been found from the field survey that the villagers have started cultivating maize very recently, only 7-8 years ago. One of the main characteristics of Bihar is that the major crops such as paddy, wheat and maize are all labour intensive crops. Like all other regions of South Asia that practise agriculture, Bihar also has gender divisions in agricultural practices, though it varies depending upon the variety of crops. In Bihar, women still get lesser remuneration in agricultural activities relative to the men.

In Bihar also, traditionally, the division of agricultural labour is quite gender specific. While men have the responsibilities of land clearing, preparation, ploughing, irrigation and fertilizer spreading, women are mainly involved in sowing, weeding, and post-harvesting activities. However, activities like harvesting, threshing etc. are performed both by men and women. Importantly, the entire Koshi Basin, where the survey was conducted is a Muslim dominated region and like Bangladesh, women from these households are rarely present in the field-based activities. However, the situation varies based on the economic conditions of the households. Muslim women from poor economic background commonly participate in the field-based activities.

5.3.3 Bangladesh EGB

Like other South Asian countries, the agricultural sector remains the largest employer in Bangladesh. The physiography, agro-climatic condition and the fertile low-lying alluvial river basin is extremely suitable for large-scale paddy production. The agro-climatic condition of the region is such that paddy can be grown twice in a year, locally known as Aman and Iri (Boro) paddy. Apart from paddy, other major local agricultural product includes mustard, jute, cane (*Dhaincha*), grass for livestock and vegetables.

⁷ A typical Betel farm structure looks like a hut, fenced with bamboo sticks or canes and coconut leaves, with the husk of paddy laid over it.

The Bangladeshi farming system can be described as a male-dominated farming system. In-depth interviews with both men and women revealed that the gender division of labour in agricultural activities is more differentiated in Bangladesh in comparison to all other regions of the EGB. All the field-based activities, like ploughing of the field, irrigation, sowing, weeding and harvesting are mostly done by men. Women are typically absent from most field-based activities. Thus, socially, agriculture has always been considered as men's work, even though women have always been involved in the post-harvest activities, including threshing, boiling and drying of crops, managing and storing of seeds. Additionally, they also grow many other crops within the household premises and raise livestock, taking charge of milking of cattle, etc. This is the reason why the national statistics have a tendency to underestimate women's work.



Plate 5.1: Women are involved in post-harvest activities on the field adjacent to their house in Kohilatoli village of Manikganj district, Bangladesh.



Plate 1.2: In South Asia, the work of land preparation is exclusively done by men, and Bangladesh is not an exception

The contribution of women as food producers is less recognised because women's involvement in post-harvest activities in the agricultural sector is mostly unpaid and is often performed within the domestic sphere. It was found during the fieldwork that women in all the agricultural peak season invest a lot of time in cooking food for the hired labourers which supplements the labourers' wages. Though these efforts save on paid out costs as well as total costs of cultivation, these usually are not considered as work. Thus this process of men's access to the unremunerated labour of their wives leads to a reduction in production cost and increasing the net returns, goes almost completely unnoticed. In spite of the technological changes that Green Revolution has brought to agricultural production, has hardly changed women's role in agriculture and the norms therein.



Plate 5.3: A Bangladeshi woman carrying food for the hired labourers to the field

5.3.4 Nepal EGB

The nature of agriculture development in the regions has been one of the central determinants of the changing gendered work patterns. While the Terai region has seen very productive agricultural landscape with high levels of mechanisation, the hills and the higher mountain regions continue to follow traditional and subsistence agriculture. Lack of mechanisation, introduction of chemicals such as urea, scarcity of water, dependence on rains for agriculture, lower agricultural productivity in poor soils, and crop damage caused by wild animals around the forest lands of the upper slopes have all led to stagnation of agriculture in large parts of eastern Nepal dominated by the hill and higher mountain ecologies.

A very high participation of women in agriculture is not a new phenomenon in eastern Nepal. The participation of women in agriculture is at par to that of the men, and has been the accepted norm in society. Analysing the gendered roles within agriculture, it was expressed that traditionally women carried as much, if not more, burden of agricultural work as men. Men's work is primarily concentrated in activities that are considered to be physically difficult for women like ploughing, hoeing, manual threshing, carrying heavy loads, and irrigation of fields. In contrast, women's roles in agriculture work is concentrated around activities such as transplanting, sowing, and weeding. Harvesting is carried out by both men and women as

it is highly labour intensive. While these roles continue even today in the hills and the mountain regions, women’s involvement in activities that were traditionally seen as men’s work has increased (e.g. threshing, chopping and carrying wood). In the Terai region, there are recent changes of these traditional gendered roles in agriculture since much of the work is now either mechanised or carried out through hired labour.

Table 5.3 Traditional division of gendered roles in Nepal

Only by Men	Only by Women	Both Men and Women
Ploughing, Hoeing and Threshing, building dykes and Irrigating the field	Weeding, Transplanting, Sowing, Fetching Drinking Water, Fodder collection, Regular Household Activities	Household shopping, carrying Manure, Harvesting, Firewood collection

Source: Field work, Nepal (2018)



Plate 5.4: Manual threshing of paddy mostly done by men

In comparing these four regions within EGB, there are some noteworthy differences as well as some similarities. Nepalese society is the most gender-neutral society in terms of work performed on the field; almost all the women are equally involved in agriculture like the male counterpart. In Bangladesh, the gender divide is the sharpest, as women broadly do not take part any kind of field related activities and their work is invisible. In Bihar, for our Muslim dominated field site in particular, the gendered divides are wide, though it varies based on the socio-economic background of the households. In West Bengal, on the other hand, the division of labour in agriculture is relatively gender neutral in comparison to both Bihar and Bangladesh. However, the interesting fact here is that West Bengal still having a low female work participation rate in agriculture is a sign of distress. The survey also reveals the fact that the gendered role in agriculture varies substantially depending on the agro-biodiversity,

cropping pattern, technologies used in production, age, and marital status, social and economic status. On the other hand, what is common across all four locations is women’s active participation in post-harvest home-base activities.

5.4 Gendered roles in agricultural work in peak and lean seasons

The invisibility of women’s work has been pervasive, irrespective of the location. To have a deeper understanding of women’s multiple roles in production, reproduction and social reproduction, a time-use survey (TUS) was carried out as a part of the larger research design. The implicit goal for using this tool is to analyze the differential roles of women and men during an entire day (24 hours) in both lean and peak seasons. In this section, we analyze the gender differences in time use patterns in 3 countries spread across 4 study locations in EGB. As the sexual division of work becomes more rigid with increasing age, we have taken samples only from the working age group (age 15-59) population. All the activities are divided into three broad categories:

- *SNA* (System of National Accounts) *activity* includes farm activities, livestock and other allied agricultural activities, collection of water for livestock and irrigation of field, non-farm and other professional activities.
- *Non SNA activity* includes child-care activities, domestic activities, and collection of water for household.
- *Non-Economic activity* includes personal care and maintenance, free time activity, mass media communication, social and cultural activity.

The peak and lean season for work participation varies based on the agro-climatic conditions of the region and also the types of crop cultivated in that particular region. The peak and lean seasons for all the four study locations under the EGB is listed below in Table 5.4.

Table 5.4: Peak and Lean season of work

Field Site	Peak Season	Lean Season
West Bengal	Starting of summer (April-May)	Monsoon (June- September)
Bihar	End of February/ starting of March and Mid of November to Mid of December	Monsoon (June- September)
Bangladesh	Starting November/ Mid-June	End of winter (End of March)
Nepal	No such distinction between peak and lean season	

The distribution of time in the three types of activities has been presented in two ways; by table and graph. The first method of representation is to time-count method. Table 5.5 gives the average time count on various activities assuming that all individuals participate in various activities. The advantage of this approach is that the total of average time on all the activities will add to 24 hours though the data has been collected from the time they wake up until they

go to bed (Figure No. 5.1, 5.2, 5.3, 5.4). However, the disadvantage of this approach is that in some of the activities, the number of persons included in the denominator might have not actually participated in that particular activity⁸.

Table 5.5: Average Time spent in a day on SNA, non-SNA and non-economic activities

	BIHAR (INDIA)				WEST BENGAL (INDIA)				NEPAL				BANGLADESH			
	MALE		FEMALE		MALE		FEMALE		MALE		FEMALE		MALE		FEMALE	
	PEAK SEASON	LEAN SEASON	PEAK SEASON	LEAN SEASON	PEAK SEASON	LEAN SEASON	PEAK SEASON	LEAN SEASON	PEAK SEASON	LEAN SEASON	PEAK SEASON	LEAN SEASON	PEAK SEASON	LEAN SEASON	PEAK SEASON	LEAN SEASON
SNA + Non-SNA work	10.33	8.39	11.65	9.43	10.58	8.29	11.6	8.87	10.71	9.74	13.23	11.68	9.32	6.6	11.05	8.58
SNA work	8.93	6.39	6.28	2.38	9.56	7.11	6.32	1.94	9.86	7.9	7.7	5.09	9.03	5.46	5.67	2.38
Non-SNA work	1.40	2.00	5.37	7.05	1.02	1.18	5.28	6.93	0.85	1.84	5.53	6.58	0.29	1.14	5.38	6.2
Non-Economic work	13.675	15.61	12.35	14.57	13.42	15.71	12.4	15.13	13.29	14.26	10.77	12.33	14.68	17.4	12.95	15.425
Personal care	10.34	10.69	10.50	11.68	9.77	10.44	8.97	10.15	11.03	11.82	9.96	11.28	9.45	9.63	9.42	9.68
Free time & Social & cultural activities	3.33	4.92	1.85	2.90	3.65	5.27	3.43	4.98	2.27	2.44	0.81	1.04	5.23	7.77	3.53	5.75

The following findings refer to Table 5.5:

- On average, men spend more hours in SNA activities as compared to females across all the four study locations. The time difference in SNA activities among males and females is even more during the lean season. The regional differences in terms of time spent in SNA activities is quite prominent among the females. Data from Nepal reveals greater involvement of females in SNA activities in comparison to other study sites of the EGB.
- The above-mentioned situation completely changes when we consider the non-SNA activities. Women spend much more time in non-SNA activities as compared to men. Time spent in non-SNA activities by female is even more during lean period. The regional variation is very low among women in terms of non-SNA activities. It is also found from the analysis that women spend more time in non-SNA work especially during the lean season irrespective of their locations. The invisibility of women's work is rooted in what is counted as the non-SNA work; notably much of the non-SNA work is related to the SNA work. For example, the subsidization of workload by women in collecting free water saves the household money which it would have spent on marketed water which can be categorized as a production sector that would have been counted within the SNA umbrella.
- It is found from the macro level data analysis that the women's WPR is quite low in both India and Bangladesh. However, the TUS data shows that the gaps are not very

⁸ Time spent for a particular activity = (Total duration of activity/Total number of persons)

large among men and women if we consider both SNA and Non-SNA activities as work. In fact, in some cases the time count for female even exceeds the time count for male.

- Time Use patterns for men and women were not found to be very different in terms of personal care both in peak and lean season.
- Females have relatively little time for social and cultural activities irrespective of location.

While the above table help us to understand the average time spent on various activities, graphical representation for 24 hours helps us to understand the kind of work performed at particular points in time in a day, and the sequence of activities relative to other activities.

The TUS data indicate an unequal sharing of total work in both SNA and non-SNA work by males and females. While males spend more time in SNA activities (Fig. 5.1), females spend more time on non-SNA activities (Fig 5.2). Figure 5.3 which indicate involvement both in SNA and Non-SNA work shows that lines for the female population are mostly above the male population through the entire day. There is a slight peak for the male population only during the afternoon between 4 pm to 7 pm. These graphs also show the fact that women start their day earlier than their male counterparts, and also work for longer hours than them.

It is worth mentioning that the gender gap is much more in non-SNA work, with the result that women carry the relatively higher burden of total work. As a result, women get much less free time for rest and recreation as compared to men.

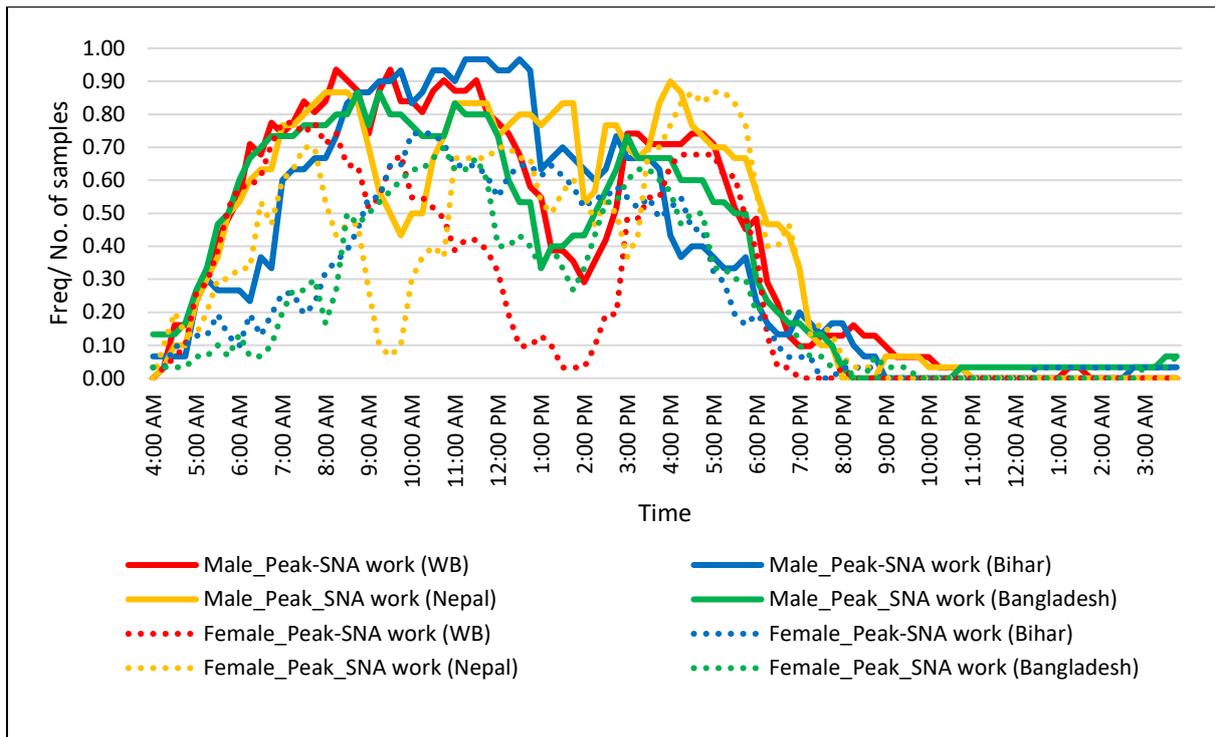


Figure 5.1 Peak Season, SNA activity. Source: Primary Field Work, 2018.

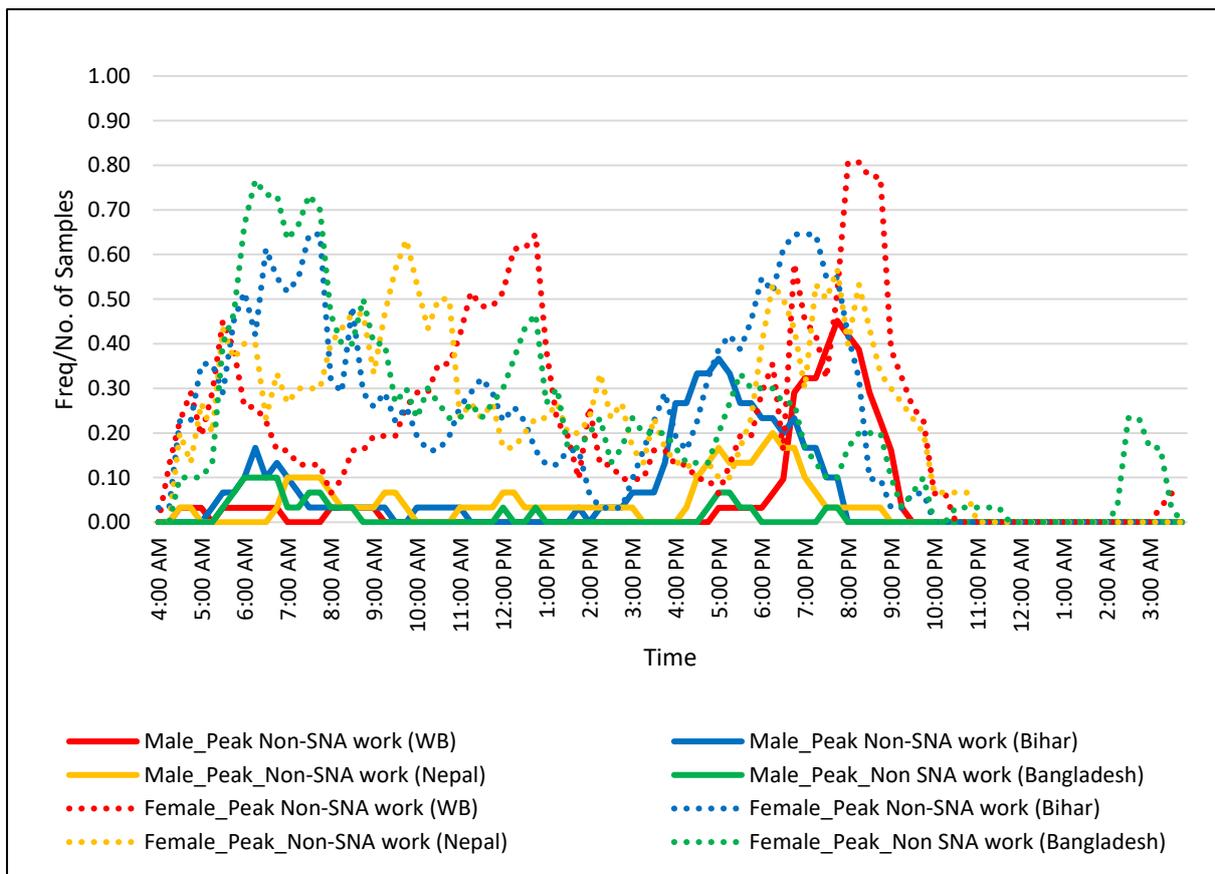


Figure 5.2 Peak Season, non-SNA activity. Source: Primary Field Work, 2018.

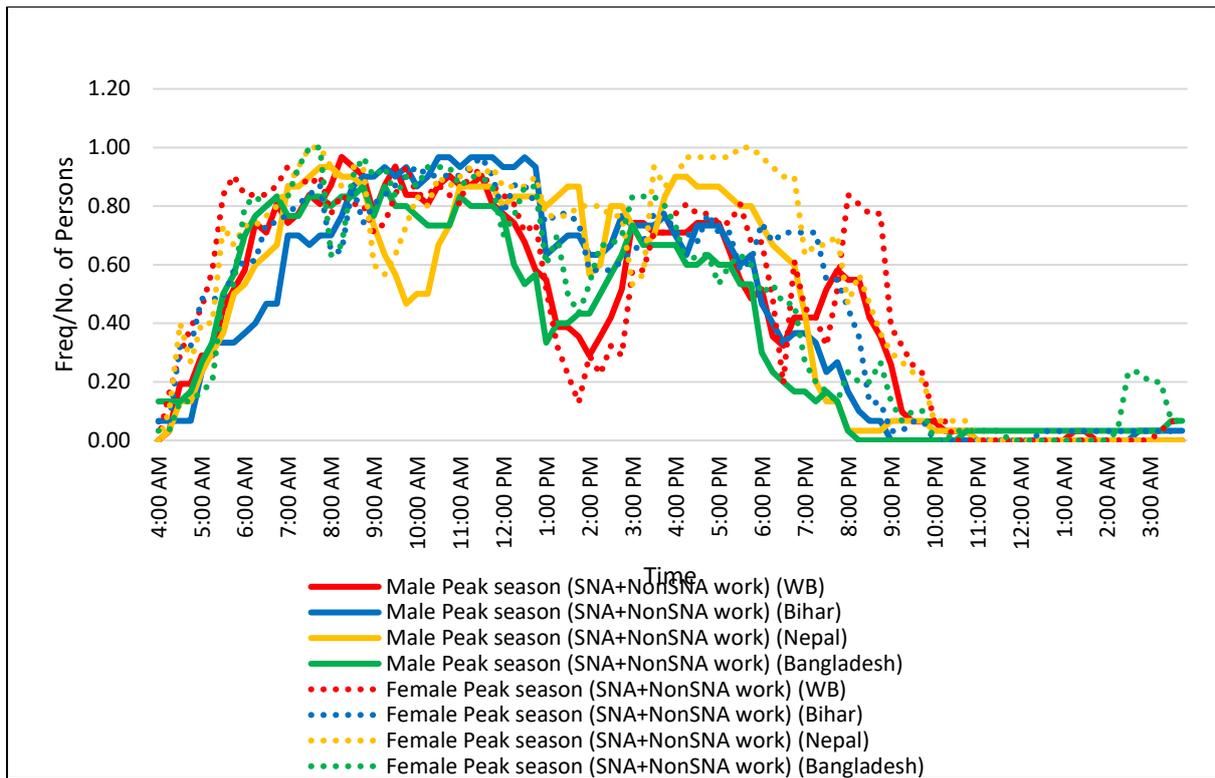


Figure 5.3 Peak Season, SNA + Non-SNA activity. Source: Primary Field Work, 2018.

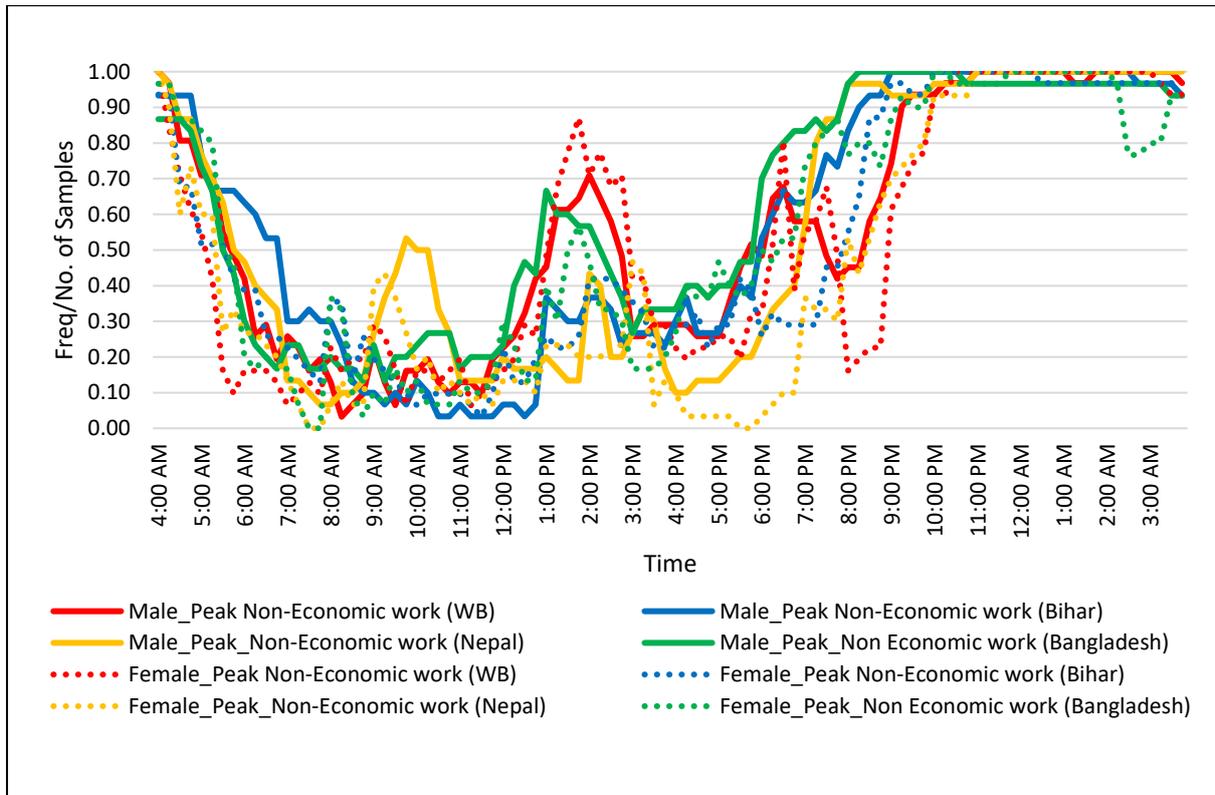


Figure 5.4 Peak Season, Non-economic work. Source: Primary Field Work, 2018.

In Bihar, it was found that during peak season, women devote less time to domestic and childcare activities. The survey reveals that domestic duties and child care activities are mostly shared by the older daughters who play the role of the mother to her siblings in the absence of their mother.

In Bangladesh, there is not much gender difference between the peak and the lean seasons. However, the male and female members primarily do two different types of activities during the peak period, such as male members work in agricultural field, while women cook food for the agricultural labourers.

In Nepal, it is very difficult to distinguish between peak and lean periods. Table 5.4 shows that in comparison to other study sites, women's engagement in economic activities is relatively more in Nepal, especially during the lean period. Cooking and food preparation time increases in the lean season, impinging on the leisure hours of women.

This data clearly indicates that the gaps in male and female WPR discussed by scholars are not really very large in reality, and these gaps are primarily due to the definitional reasons. As already discussed in the methodology section, neither India nor Bangladesh include non-SNA activities in the definition of work. The importance of this section lies in pointing out the ways in which official statistics underestimate women's contributions to economic activities by excluding non-SNA activities; this also shows how official statistics are guided by norms of patriarchy, so much so that women themselves undervalue and under-report their own contribution to economic activities.

5.5 Understanding the trends from interviews and narratives

While the gender divide in agriculture is generally sharp across the EGB, one of the main objectives of the primary survey was to find out the explanations for the trends of women's work participation in these regions in the last few decades.

5.5.1 Explaining Defeminization of Agriculture in West Bengal and Bihar EGB

It has been found from our analysis that Bihar has experienced a more drastic trend in defeminization compared to West Bengal. The discussion below enlists the reasons that explain such trends.

5.5.1.1 West Bengal

The local production systems of the study site in West Bengal, based on paddy and betel leaf for the primary agricultural crops, are labour intensive. However, there is a widespread concern among the farmers as there is a massive decline in betel leaf production. Additionally, cultivation of the Aman paddy during monsoon season is also quite uncertain due to excessive

rainfall, submergence of agricultural fields and very poor drainage facilities. The majority of the respondents interviewed stated that production of rice during the monsoon season has become uncertain, and they receive most of the rice production during the winter season from a particular variety of paddy called 'Taichung', a high yielding variety. Commercial floriculture is also becoming popular in this region.

Impact of changing cropping patterns on women's work

Almost all the interviewees irrespective of their gender felt that women have lost their traditional roles in agriculture in this region due to declining levels of betel production. Increased costs of inputs, declining fertility of soil, and lack of flood management technology have collectively led to a deceleration in agricultural productivity and growth. Earlier, betel vine farming was one of the livelihood options of the people of Purba Medinipur, especially in the villages of Tamluk and Sahid Matangini Block. It requires high labour inputs, much of which was contributed to by women. To maintain the soil moisture under such climatic conditions, farmers need to sprinkle water on a regular basis, at least four times a day during the summer and twice/thrice a week during winters. Most of the time, these tedious activities were performed by women. Nowadays, low productivity, low demand for betel leaf in the market, rising input costs primarily for labour and irrigation, discourage the betel vine farmers to continue with the crop. With the declining area under betel vine farming, women's responsibility in farming activities has also declined over the time period. The decline in betel plantation has not only affected those women who used to work on their own vines, but also for the hired labourers.

As a survival strategy, a large number of farmers have been attracted to floriculture, although this has not created much additional employment for women. Earlier, betel vine plantation was not a seasonal agricultural activity, and this used to engage women for the entire year. On the other hand, floriculture is a seasonal activity and women get work in floriculture activities only for 5 months (June to October) in a year. The qualitative survey indicates that the number of working days in agriculture has declined considerably especially among the landless women. Respondents often stated that women have a maximum of only 10-15 working days (for both sowing, weeding and harvesting activities) during rabi season.

Impact of change in the agricultural system on women's work

In the villages of Moyna Block of Purba Medinipur, paddy cultivation is not an option anymore due to submergence of the agricultural field on the one hand and transformation of a large tract of agricultural land into sweet water fisheries on the other. Aquaculture has become an important source of income for the rural households in these villages. Farmers who have leased out their land for sweet water fisheries have reported an increase in income levels as well as a general improvement in their livelihoods. According to the villagers of Moyna Block, from 2008 onwards the area under aquaculture began to expand, thereby reducing the land

available for paddy cultivation. Respondents noted a loss of livelihood, especially for the sharecroppers. Aquaculture differs considerably from paddy cultivation with respect to the labour and farm inputs required. Aquaculture has also led to significant changes in the gender division of labour. This transformation has pushed men to the non-farm sector and displaced women from their traditional tasks of farming. As a result of these transformations, a section of the rural population, particularly landless agricultural labourers were forced to leave agriculture without much alternatives for women. This has increased the tendency for out-migration to cities among the rural male youth population in search of a job. Women of these households are the worst sufferers as their participation in agriculture has reduced substantially. The women from the land-owning households have also dropped out of work as the incomes from the lease has increased, and while this may have reduced their workload, this does not augur well for making of more favourable gender relations. The reduction in the wage labour opportunities for the landless women has been expressed by Sujata Haik, a 40-year-old woman of South Chanra Chak village of Moyna Block.

“Ever since people have started leasing out their land, there is hardly any work for the villagers, especially for women. Men still can get work outside, but women do not have that option. Only 5-10 people are required for fisheries and it is a contractual job for around 5 years. Women do not have any chance to get jobs in fisheries.”

Due to the increase of aquaculture over a large area in the last decade, the resources which had been under a de facto common property regime have been converted to de jure private property regime, which has also had an impact on women’s work participation.

Impact of male migration on women’s work

It was observed that aspiration among the younger generation does not appear to include working in agriculture. 50-year-old *Ashutosh Bera* mentioned that as the agricultural sector is not very profitable these days, the new generation is not interested to invest their energy in agricultural work. While young women aspire to complete higher education, young men are gradually leaving the village and moving to different metro cities in the hope of earning income in tune with the urban way of life. Key Informants’ Interviews reveal that the tendency of out-migration among the male youth has increased in the last 15 years. It is observed, however, that male outmigration does not have much impact on the work burden of women. Due to small land holdings, agricultural activities are easily manageable by the elderly married women members of the households even without the help of the younger generation (like daughter and daughter-in-law). Rural women’s occupations are limited to unpaid on-farm labour and household work, while men engage in paid on- and off-farm activities.

The agricultural sector of this region does not have the capacity to absorb the female labour force even in the absence of men and therefore, there is no indication of ‘feminization of agriculture’ in the study region. Rather, it is found that the opportunities to work in

agriculture are coming to an end. Women are either relying on remittances from the MGNREGA work or Anandadhara Program⁹ for earning.

Due to the decrease in paddy production, it has become difficult to feed the livestock. Most of the time, they need to buy feed for the livestock, which is very expensive. It has been reported by *Suparna Santra*, a woman of 30 years of Paikpari village that there are many households in the village who have sold cattle due to the increasing expanses of feed. As a result of that, the work of women has reduced as they were the ones responsible for livestock-related work.

Prospects for non-agricultural activities and women's work

Although opportunities in the agricultural sector have declined, the emergence of rural industries has opened up some new avenues for women in the non-agricultural sector. However, it is important to mention here that the emergence of rural industries like *zari*¹⁰ industry, hosiery industry etc. are highly location specific, and not widespread. While the emergence of these rural industries has provided some opportunities to the rural women of Sahid Matangini Block, there is no such scope for the women of Moyna and Nandakumar Block. In the villages of Sahid Matangini Block, these jobs have become the safety net for some of the poorer households.

The introduction of self-help groups (SHGs) has played a significant role in the life of rural women. The Government of India launched The National Rural Livelihoods Mission (NRLM) under the Ministry of Rural Development (MoRD). In West Bengal, the NRLM has been launched as Anandadhara in 2012. The main objective of this scheme was to mobilize the rural poor and vulnerable people into self-managed, federated institutions and support them for livelihood collectives. In addition, the embedded gender goal was to provide social empowerment through economic empowerment. It was found in our qualitative survey that a number of rural women have started small savings with the help of these SHGs, though most of the times, they invest that savings for the family business which are run by the male members of the household.

Why young women are not entering the labour market

While a section of the rural women have lost their paid jobs in general and agricultural work in particular, the aspiration of work participation has also declined substantially among young women. With the introduction of the Sarva Shiksha Abhiyan and the Right to Education Act (2009), there has been an improvement in the basic education level up to 14 years of age.

⁹ The Government of India has launched The National Rural Livelihoods Mission (NRLM) under the Ministry of Rural Development (MoRD). In West Bengal, NRLM has been launched as Anandadhara on 17th May 2012.

¹⁰ **Zari** (or **Jari**) is an even golden or silver colour thread used in traditional [Indian](#), garments, especially as [brocade](#) in [saris](#) etc.

Apart from that, with schemes focusing on improving the status and wellbeing of the girl child in West Bengal by incentivizing schooling of all teenage girls and delaying their marriages until the age of 18 (Kanyashree introduced by Department of Women Development and Social Welfare, Government of West Bengal), an increase in the mean years of education of rural females is quite evident in the rural areas of West Bengal. As a result, the will to work in the agricultural/non-agricultural sector has reduced among the young unmarried girls.

5.5.1.2 Bihar

In Bihar the agricultural sector has provided livelihoods to the people, although it is very difficult to survive only on agricultural production. In the Bihar basin, the face of agriculture has changed over the time period. It has become more commercialized, yet not very profitable due to increased costs of inputs, lack of more appropriate technology and above all uncertainty of production due to frequent floods. Almost all the respondents felt that income from agricultural activities is insufficient for survival. As a result of this, male members of almost every household are either involved in additional activities alongside agriculture or still looking for income from non-agricultural activities, while the rate of unemployment has increased among women especially after the disasters (mainly floods). With the advent of mechanization, the opportunities to work in the agricultural sector have started to shrink for both men and women. In the open market economy, the demand for labour in urban areas draws men off the farm, and contributes to the process of marginalisation of rural women, especially among the landless households. Introduction of improved farming systems including different types of machinery, HYV seeds, herbicides and pesticides, have disempowered women by making their skills and traditional knowledge obsolete and thus dispossessing them from production as well as decision-making processes.

A significant portion of the rural population in Bihar today are tenant farmers, most of whom cultivate the land on a sharecropping basis and have no legal rights on paper (Sugden 2016). The micro picture of defeminization is quite different in Bihar in comparison to West Bengal. Many studies consider women as a homogeneous entity, while in reality women's behaviour varies markedly based on their social origin, class, religion and age cohort.

Differential impact of migration on men and women

The literature is replete with assertions that migration of the rural male population is an important factor behind women's increased participation in agriculture. However, male outmigration has had a different impact on women's role in agriculture in Bihar.

In a distress driven economy, labour outmigration has become a major survival strategy for rural households. Labour migration in the districts of Bihar is predominantly seasonal as well as cyclical in nature and is dependent on the agricultural season both at the source and the destination. At the time this survey was conducted in December 2018, the peak season of migration had started. However, many men were still there either busy in the harvesting of

paddy or sowing of wheat, maize and mustard. The migrant workers either work in the construction sites in the metro cities like Delhi, Mumbai, Chennai, or move to Punjab for carrot cultivation with the sowing season beginning there. These workers would then come back during the end of March for harvesting. Many of the villagers reported that the out-migration of the rural male population essentially started after the devastating flood of 1987. Flood is a regular phenomenon of this region. Most of the years, the villagers do not get any production during monsoon season. Therefore, income from agricultural production during monsoon is highly uncertain. Migration is not only a survival strategy for the locals but also brings prosperity with it. With the passage of time, the migrant workers have accumulated their experiences and also established a good network with the employers in the urban areas. This has made it easy for the next generation of migrant workers. While the villagers get a good production of wheat, rice, maize, sugarcane and mustard during winter, they currently not only use the products for their own consumption, but also to sell a portion of it in the market. Therefore, almost all the men who out-migrate to the urban centres come back to their origin during the peak season for cultivation. Even the landless men also do not want to miss the opportunity as they get the share of production as wage. Whenever men come back to the source villages during the peak season of agriculture, there is a tendency of replacing women labourers with male labourers.

Contrary to the popular notion that male outmigration leads to feminization, our field insights from Bihar actually show that in fact, it is the major reason behind women's withdrawal from farm activities where migration is seasonal or flexible in nature. Post-migration remittances are the major source of income in migrant households. Having a migrant family member increases income from remittances, and therefore increases the overall standard of living, leading to the withdrawal of women from agriculture.

The field observations suggest that it is difficult to distinguish between distress-driven and prosperity-induced withdrawal. The decline in female work force participation among the lower classes may be attributed to a relative prosperity effect because the females might have withdrawn from distress employment. When asked about women's participation in work, *Tabarak* (age 45) replied that "*there was a time when 100 per cent women of this region were involved in agricultural activities. Now it has become around 60 per cent*". In Bihar withdrawal of women from agricultural work are a combination of several factors.

The micro picture gathered through the qualitative survey provides some idea of class variation among Muslim women. The villagers indicated that although the religious norms do not support Muslim women's involvement in field-based tasks, the poor economic condition of many households pushes them to take part in wage labour activities, while Muslim women from relatively better off households only perform post-harvest activities. This phenomenon is supported in the literature which indicates that women's participation in agriculture decreases as the landholding size and income increases (Agarwal 1996).

It has been argued in existing scholarly work that women get more autonomy and freedom in terms of decision making in the absence of man. However, our field observations indicate that

the presence of women in public spaces or in the work arena does not necessarily provide women with decision-making power in the rural societies of Bihar. It was observed that most of the time, decisions are made by the absentee male members of the households over mobile calls. More specifically, our observations and interviews suggest that it is the men who mostly control both the crop and cash generated from the production of it.

Child-care responsibilities fall primarily to women and are likely to restrict their ability to work in the field as agricultural labour and hence reduces the productivity of the plots. The landowners are not keen to involve them in the field for this reason, if they have an option. Indeed, having a larger share of children in the household significantly reduces the time spent by women in agriculture while it has no such effect on men.

Impact of modern technologies and green revolution on women's work

One of the striking changes found in the qualitative survey was the lowering demand for labour due to the increasing use of modern technologies. It has been stated by both male and female respondents that one impact of the use of these new technologies is that work time for the agricultural labourers has decreased irrespective of their gender. However, use of these technologies has a differential impact on women, especially among those households which do not possess or lease any land. With the introduction and expansion of the use of modern technologies in agriculture, the time and power requirements for field operations related to crop establishment and crop husbandry are reduced. It has reduced the time essentially used by the male workers in field preparation.



Plate 5.5: Using of tractor for land preparation displacing labour from agricultural activities (Azamnagar Block, Katihar District, Bihar)

It is generally found that weeding is a very time consuming manual activity and is generally done by women agricultural labourers. In Bihar, women expressed frustration in losing this source of work as well as earning due to the use of herbicides as part of these conservation agriculture technologies. Availability of additional time due to the reduction in weeding control work does not help the women labourers to devote their extra time for any other economic work due to lack of opportunities in the region. Scholars claim that intensification of conservational agriculture will revert the migration situation and will stop the rural male youth from seasonal migration by generating profit (Friedrich and Kienzle 2008), however, no such evidences were found during the survey. According to Boserup (1970), agricultural technologies are highly gendered in nature, and it was found that in Bihar, the responsibility of all mechanical inputs lie with men. It was also found during the field work that apart from land preparation and threshing of paddy and wheat, corn-shelling is the other farm activity which has become a highly mechanized activity. Earlier the corn-shelling was a women dominant activity. Therefore, the mechanization of this activity has highly affected those women workers who were used for this operation.

In sum, the foregoing analysis yields two important insights. First, there is a strong correlation between changing agricultural systems, cropping patterns and land-use that has made female employment scarcer, which has influenced the defeminization of agriculture in rural areas of Purba Medinipur. Second, in the case of Bihar, our analysis contends the often-accepted relationship between male out-migration and feminization. In fact, seasonal migration is seen to have the reverse effect of female withdrawal from workforce, coupled with displacements from work due to mechanization.

5.5.2 Feminization of agriculture in Bangladesh and Nepal EGB

The international labour market has become substantially accessible to the people of developing countries especially after economic globalization. Our survey found an increasing interest in rural to urban as well as international labour migration among the male youth population of these two countries, having limited opportunities for employment as well as earning in their home locations. Much of the literature (Tamang *et al* 2014; Maharjan *et al* 2013; Jaim *et al* 2011; Gartaula 2010) claims that in both the countries outmigration of the male population has a bearing on the female counterpart, while hardly focuses on other factors. Therefore, one of the major objectives of our field survey was to see whether it is only male out-migration that is responsible for the feminization of agriculture, or whether there are other factors which have a bearing on the macro trends.

5.5.2.1 Bangladesh

In Bangladesh, males from rural households migrate to the Gulf countries, leaving behind their female counterparts and children for as long as 5 to 10 years. The policies of the country have encouraged solo male migration to foreign countries (Khondker 2018). This outmigration from the rural areas of Bangladesh has had two major impacts on women's lives.

First, in the case of nuclear families, the wife of the migrant may need to fill in for the husband in many ways, including taking care of livestock and also work on the family farm or in the family business. A number of women from these migrant households have taken up all the responsibilities of farming with the help of hired labour, locally known as '*Poirat*' or '*Kamla*'. With men's labour migration to foreign countries increasing, hiring male daily wage labour has emerged as an important alternative household strategy for meeting labour needs in agricultural settings. Farm management not only includes hiring of agricultural labour but also their supervision, payment and providing food (three times in a day) to them. As the male members from a nuclear household leave to other countries, the gender division of labour for both farm and domestic activities is somewhat altered. However, the main change that was identified by both men and women with regard to participation in agricultural production systems came in the form of their increased role in farm management and decision-making by hiring male labour, and mostly not in the form of increased participation as field labour. From the field villages of Manikganj, however, many women have reported that often it is still joint decisions taken by both husband and wife.

Second, in the rural areas of Bangladesh, the incidence of a de-facto female-headed household is quite common. Most of the time they are receiving remittances from the male member of the households. When the return from agriculture is not profitable, those households prefer not to spend on agriculture. A section among them is not associated with agriculture anymore and completely dependent on remittances sent to them by the male members of the households. It is worth mentioning that the hiring of male labour explicitly depends on the remittances received from the migrant. It is mentioned by many interviewees that the daily wage rate of the agricultural labourers has increased many times since 2015. Therefore, for families who receive low amounts of remittances, it is difficult for them to hire labourers.

Given the socio-cultural setup, to be active in agriculture in Bangladesh has historically been a challenge for the women. Till date, women do not take part in the pre-harvesting and harvesting activities because of religious restrictions. The cultural setting shaped by religion essentially restricts women from participating in agricultural activities. In many households, it is found that when a son migrates to foreign countries for earning, the responsibility of farming comes on the shoulder of old parents. It is observed in the field that elderly women are still contributing their labour to agriculture, while prior to their son's migration, the elderly women (age 50 and above) reported that they spent most of their labour time in domestic activities, like-food preparation, cleaning, child care and the production of small livestock in the house garden. *Monoara Begam (57)*, a woman with a migrant son and an unwell husband states:

“My son has migrated to Saudi Arabia for work, while my husband is alone as well as unwell. That is why we hire agricultural labour for sowing and harvesting of crops, however, I also come to the field with my husband to help him out in managing those labourers.”

Women who are involved in field activities only help their husband in carrying crops and cleaning up of agricultural land after harvesting. Monoara’s response to her participation in farm activities can be interpreted otherwise. Monoara is not an exception but her response points towards an important change which is coming up in both the gender relations and role of women in agriculture in Bangladesh. The restrictive cultural norms of Bangladesh are becoming somewhat muted for women because of long term migration of male members, but only for elderly women, who take up the additional responsibilities. For the younger daughter-in-laws, such norms have not changed; their mobility is restricted, coupled with the fact that they are forced live apart from their husbands. On another note, this phenomenon, to some extent explains the change in the age profile of the workforce that we have observed for Bangladesh in Chapter 4.



Plate 5.6: Monoara Begam helping her husband in the field along with a hired labour in the absence of their son

On the other hand, women under extreme poverty situations, when the household is having extreme financial burden, cannot afford to stay away from work. The positive externality of this distressed condition is that they enjoy much more freedom, when they leave home to work, at times even travelling to the Gulf countries to work as domestic help, although they often face sexual harassment. Fragmented stories from the field suggested the importance of poor women contributing centrally to the welfare of their families. However, these changing roles of some women breaking the patriarchal norms do come under regressive social pressures at the same time.



Plate 5.7: Rokeya Begam: The poor financial condition of her household has pushed her to participate in agricultural activities and also work in the field with other male members of the household

Rokeya's story of Hatni village of Manikganj is somewhat similar to Monoar Begam, where financial crisis of the households pushed her to participate in agricultural activities. The increasing burden of agricultural work on the women as an outcome of male out-migration was clear from the villages of Manikganj, expressed by Sahana, a 40-year-old woman of Hatni Village. She is a widow and stays alone in the village and is without a helping hand. She has coped with the situation by leasing out her land of 1.5 Paki¹¹ in exchange for 6,000 BDT (Bangladeshi Taka) to secure her son's future. Thus, there are corresponding stories where single women have dropped out of agricultural work, which is not captured by the macro trend of feminization.

¹¹ 1 Paki is similar to 1 Bigha.



Plate 2.8: Sahana Begum, a 45-year-old widow manages her paddy production by hiring wage labourers

Notably, in the entire span of field work in Bangladesh, there was not one case of women who work as an agricultural labourer in other's fields. The Bangladesh scenario indicates more managerial feminization instead of labour feminization. The qualitative research revealed differences in the gender roles in agriculture based on age, marital status and class. However, one common thing was the growing responsibilities shouldered by women, for both farm and home management in the absence of their male counterpart. In spite of this, women experienced little improvement in their ability to control their own lives and have a voice of their own. It would be fallacious, however, to conclude on the basis of our specific field observation about Bangladesh EGB in general, though our insights have offered some explanations for the macro trends.

5.5.2.2 Nepal

While the cultural shifts in traditional gendered roles and division of work burden has already been discussed in the previous section, there is a need to understand the larger trends of demographic shifts due to the dynamics of migration in eastern Nepal, and assess the ways in which gendered roles are impacted. The academic literature (Tamang *et al* 2014; Maharjan *et al* 2013; Gartaula 2010) on women's work participation in Nepal has very largely focused on this phenomenon of *male outmigration* and feminization of agriculture in Nepal, which has not been so obviously stated for Bangladesh. The objective of this analysis is to add to this literature to explain feminization in Nepal.

While culturally the gender gap in WPR and other aspects is relatively small in the hills of east Nepal compared to the Terai region, the physical work space has been affected by issues such as poor agricultural productivity, decreasing pattern of rainfall in recent years, water scarcity,

stagnating agriculture, low incomes, lack of employment alternatives and road connectivity. Also, better access to education has led to outmigration of the youth from rural areas. Seasonal migration for alternative employment to agriculturally more productive valleys has been a traditional practice in the hills. However, in recent years this practice of migration has gained new forms which are more long term.

While migration to other countries has been a practice since early colonial times when Nepalese soldiers were inducted into the Army of other countries, recent Government policies have helped promote the migration of Nepali labour to other countries such as Malaysia, Dubai, Qatar, Korea etc. through bilateral agreements with 7 countries. These labour contracts can range from 2 – 5 years which is then extendable. While a small percentage of foreign migrants (10%) are women hired as domestic help, most foreign outmigrants are men.

Various forms of outmigration from the rural areas in the hills and higher mountains are found among the younger generation, both men and women, who are moving to urban areas within the country for higher education; young women are moving out for marriage; small families (newly married couples) are migrating to the Terai in search of employment opportunities in agriculture and non-agriculture sectors; men migrating to India for seasonal or long term work; and men migrating to countries other than India for long term work. The narratives from the field have revealed that families have moved to the Terai first and then searched for options for migration abroad. Various forms of migration impact the demographic character of the villages in different ways, and this leads to different kinds of changes in division of work in these villages.

The outmigration of the youth for education has shaped the support system for sharing work burdens that most women receive from their children, particularly from girls, for household work and activities such as cooking, fetching water, collecting grass for fodder, and cattle grazing. The outmigration of younger couples has shifted the work burdens on the older members of the traditional joint families. Migration to other countries however is primarily male-selective. This shifts the burden of agriculture work onto the women of all age groups left behind in the village. While all forms of outmigration usually increase the burden of work for women or the elderly, short-distance migrants are able to continue sharing some work burden seasonally or for short periods of peak agriculture time in the year. On the other hand, long distance outmigration tends to shift the work burdens on to women completely for much longer periods of time ranging anywhere between 2 to over 30 years.



Plate 5.9: Young children, particularly girls, support women in activities such as cattle grazing

Through women's narratives, it is found that even the impact of long-term male outmigration on women varies. In most cases it was found that women were left behind in the joint families of their out-migrating husbands. In such cases, the decision making about agriculture was either shifted or continued, as the case may be, to either the father-in-law or brothers-in-law. The gendered roles in agriculture for the household did not shift but the overall work burden increases because of fewer hands in the household to share the load. Also, in joint families mothers-in-law have taken on greater decision making regarding agriculture in the household. In cases of nuclear families, the roles and work burdens for women change more sharply. In this case women have to take on more managerial roles in agriculture. Due to a lack of availability of labour for fields, they engage in exchange of labour in the village. Activities of ploughing and threshing continue to be mostly done by men in hired or exchange labour. In some cases, due to poor productivity, lack of labour supply and increased burdens for women, land is also leased out for sharecropping to the landless or marginal land owners in the village in exchange for a share of the produce for subsistence.

Male outmigration has increased over the years, resulting in scarcity of male worker in the village, and nowadays, farming is done by the women, commonly based on shared labour rather than hiring. Because of the lack of labour, some of the villagers mainly have left their land barren or leased out as *adhya* (sharecropping). It is also difficult to find interested person to lease the land.

The analysis of such cases clearly shows that *women* cannot be clubbed into a single homogenous category when studying the impact of outmigration on women's work. Factors of age, education, patriarchal family relations, and family structure all matter for understanding shift in work burdens for women, like in the case of Bangladesh. While the mother-in-law takes on a greater managerial role, very aged and elderly women are unable to take on the load of the agriculture work and decision-making, necessitating greater work burden for the daughter-in-law and greater managerial decision-making roles. This points to the need for more nuanced understanding of migration in Nepal, changing gender spaces, and varied outcomes seen vis a vis women's work.

Narratives from Nepal, Bihar, West Bengal and Bangladesh EGB do conform to some of the drivers of feminization and defeminization pointed out in the literature and have in fact added to it. They also validate much of the analysis done from secondary data sources, in spite of the exploratory nature of the field work. Throughout the EGB, male dominance over the field related activities has been recorded. The survey findings however show that a generic understanding of processes of feminization and defeminization is not possible, even within a country.

6 Conclusion

This research explores the seemingly homogenous agriculture-dependent Eastern Gangetic Basin (EGB), unravelling the spatial and temporal pluralities with respect to gender and work in agriculture. The context is derived from the somewhat contradictory evidence in the existing literature about gendered patterns of work in agriculture in the EGB. Little exists by way of a comprehensive discourse on the processes behind feminization in the EGB belonging to Bangladesh and Nepal on one hand, and defeminization in the Indian side (West Bengal and Bihar), on the other. This study attempts to bridge this gap, focusing on work-participation, quality of work and unemployment, and on the drivers of defeminization in India in particular, which is an unusual trend in the context of most developing countries. This study primarily uses unit level (household and individual) employment and unemployment data based on large labour surveys over time from government sources from three countries, and follows it up with an exploratory field component to understand the trends visible from the secondary data.

India, Nepal and Bangladesh, have their own statistical data sources that provide time series information on employment and unemployment. However, they do not follow any standard definition, which posed challenges of data comparability across countries. This study made suitable adjustments wherever possible, and in other cases considered the nearest comparable measure. Also, frequent changes in definitions and concepts over the time period have led to problems of comparability across different data rounds within the same source. An analysis of the methodological differences in all three countries has added a new dimension to the study. It leads to the finding that the estimation of labour force using Usual Status (US) approach and majority time criteria provides a broad spectrum which captures the maximum possible number of workers. For women in rural areas in particular, such an approach enables their inclusion in the workforce, which tends to be overlooked due to the part-time and seasonal nature of work. The chances of under counting of female workers increases in the Current Weekly Status (CWS), which the study was compelled to use in case of Bangladesh. Additionally, the ordering arrangement of the questions in the questionnaire also appears to impact the enumeration of female workers.

This study has regionalized the EGB based on selected gender gap criteria including child sex ratio, relative literacy rate and relative work participation rate, showing gender vulnerability as a whole. The spatial variations of these variables indicates the fact that the gender space of the EGB, as expected, is very often shaped by both cultural roots and economic status of the respective country. The performative aspect of gender, in particular, like work, often tends to be shaped by the latter.

There is a clear regional difference in the levels of the three variables, both spatially and temporally. In the terminal period, Bangladesh and Nepal are seemingly at par with respect to the child sex ratio, Bangladesh far exceeding the status of the other two countries vis-à-vis relative literacy rates, while Nepal performs the best in terms of relative work participation rates. India falls behind in all three indicators, more so in the second period. In terms of

improvement in the Gender Vulnerability Index (GVI) over the decade that the study considers, Bangladesh is far ahead of India and to some extent, Nepal. Though the study comes up with broad regional patterns, there are significant sub-regional differences in both Nepal and Bihar; in case of the former, the Terai region of Nepal is worse off compared to the mountain region, while in the case of Bihar, north-western Bihar is worse off compared to the rest of the state. This analysis reveals that the high work participation rates in Nepal should be viewed in the context of a high though improving gender gap in literacy rates, while the low to moderate work participation rate in Bangladesh needs to be evaluated in the backdrop of a relatively low gap in literacy rate. India's case, particularly in Bihar, is worrying, as the high gender gaps in most indicators at the base period, have further widened, leading to a lower status of GVI in the latter period. The de-feminizing trend of agriculture in particular and rural work in general needs to be contextualized in the perspective of a declining status of women in India.

An interesting regional picture emerges after analyzing the levels and trends of WPR and unemployment rates of the three countries. It can be seen that Nepal stands out due to very high female work participation rates, comparable to that of men and still increasing over the years. In Bangladesh, albeit, from a very low base, the female work participation rates have increased appreciably over time. Feminization in both Nepal and Bangladesh is consistent with expected trends in developing countries, where women fill in for men in agriculture as the latter move out of agriculture for higher wage rates. Feminization of agriculture may be a necessary condition for better control over agricultural resources for women, but certainly not a sufficient one. Our study suggests that the quality of work and wages have not sufficiently improved for the women in these two countries, and in the case of share of unpaid family work, women in both countries have experienced an increase.

The absolute fall in men and women's work participation rates (WPR) in rural areas of EGB India, though of general concern, need not have been a gender issue; a fall in economic opportunities and lack of jobs could potentially lead to a fall for both gender categories. However, the sustained fall in the relative WPR, save in the terminal year suggests that more women have been dispossessed/dropped out of work over time, relative to men in EGB India. The declining status of women in India, as observed in Chapter 3, does not suggest increased possibility of an enhanced bargaining power or choices of women that could reverse the defeminizing trend. This region also experienced an increasing unemployment rate of women far higher than that of men, which in the recent period reached more than 8 per cent.

The trend of defeminization in Indian EGB is somewhat counter-intuitive; at the sub-regional level, Bihar more than West Bengal experiences this trend clearly, but has all the potential characteristics that would normally be linked with feminization, such as low agricultural income and male outmigration. A defeminization process linked with higher levels of unemployment is indicative of distress, and is suggestive of displacement from jobs or lack of jobs that women can take up along with the care work. This study reveals that the explanations in the existing literature of defeminization in rural India as a whole, like prosperity-induced withdrawal and education-related withdrawal at younger age groups, can

at best only partially provide an explanation for the trend in EGB India. In this area, the withdrawal of women from the workforce is the highest from the poorest section which cannot be driven by a prosperity-induced withdrawal. The withdrawal from work among the richer groups, albeit at a lower rate, is suggestive of the class-specificity and complexity of the process of defeminization. In other words, such a process in EGB India does not appear to be either unidirectional or uni-faceted. While the explanation of prosperity-induced withdrawal offers a plausible explanation for the reduction of WPR among the economically better-off groups, this also is indicative of the continued practices of restrictive norms for women, in terms of their work and mobility. To explain the withdrawal of women from work from the poorer households, this piece of research offers two additional explanations that have not been explored earlier. Firstly, our study indicates that over time, a higher share of women are engaged in extra-domestic work like collection of water, fuel and fodder particularly from the poorer households in Indian EGB, potentially due to degradation and privatization of common property resources; this added burden of labour may have forced these women out of work, since these are activities crucial for sustenance of the household. Secondly, it has been observed that in the last decade or so, due to an increased incidence of unemployment among men in urban areas, they have been returning to an increasingly impoverished agriculture sector as cultivators, leading to a decline in the share of women cultivators. The defeminization trend observed in EGB India is thus a serious concern. In the terminal period (2015), there appears to have been a reversal of the trend of defeminization in Indian EGB, though it is impossible at this stage to conclude whether this reversal is of a long-term nature.

However, defeminization in India has also been associated with greater participation in wage labour for women, both in agriculture and non-agricultural sectors, the latter spurred to a large extent by Mahatma Gandhi Rural Employment Guarantee Scheme. Though a reduced presence of women in rural work in India does not in a generic sense augur well for the future, the silver lining could be their greater access to cash through wages, unlike in the other two countries which have experienced an increase in the share of unpaid work among women.

For a more detailed analysis, a primary survey was carried out based on exploratory qualitative field work in selected locations of West Bengal, Bihar, Nepal and Bangladesh; the objective of this exercise was to provide location-specific explanations for women's changing role in agriculture. The field insights reveal that the processes of feminization and defeminization are complex as well as multidimensional, conforming what was pointed out in the macro-analysis. It also highlights that the regional plurality of patriarchies leads to qualitatively different outcomes in terms of the type of roles women undertake in agriculture, in addition to the magnitude of their participation. The Bangladeshi farming system can be described as a male-dominated farming system, where women's presence in farm activities are invisible but present. Thus though both Nepal and Bangladesh have indicated a feminization of the work force, the social contexts are very different in both the countries. Though the Purdah system in Bangladesh is still restrictive of women's mobility outside the home space, men's long-term absence has compelled women to take up additional roles in agriculture that they were earlier unused to, including at times managerial roles. Increased participation of women in agriculture, however, has been primarily restricted to unpaid family

labour in the absence of men, which corresponds to the findings based on secondary data analysis. The forced increased participation of women in agriculture, primarily of those from the poorer households challenges the social norms, and could initiate a lasting change in the gender relations observed historically in Bangladesh. The feminization process in Nepal, in contrast, is a continuation of its societal historicity, unlikely to bring about deeper changes in the gender relations in the region.

The primary survey uncovered reasons behind defeminization in EGB India, other than what was pointed out by the secondary data-based analysis. There was evidence of a strong correlation between changing agricultural systems (cropping pattern, changing land use and mechanization) and gender division of labour, which intensifies the defeminization of agriculture in rural areas of West Bengal. The Bihar story reveals that male out-migration has a major impact on women's work, but in a converse way compared to what is typically expected. There are indications that in the initial periods, male out-migration led to women taking over agricultural activities, often at a low wage rate with long working hours. At a later stage, once the male migrant started sending adequate remittances to the family, it has been reported by both male and female respondents that women wage labourers tended to withdraw from agricultural work. We are hesitant to term this 'prosperity-induced withdrawal' as some of the households where the withdrawal happened were not economically well-off, but enough to make choices not to get into adverse working conditions that required tedious work but paid low wages. This choice was also made since the long hours in the available jobs made it difficult to perform the domestic and care-work at home. There is evidence that agrarian distress has a big impact on gender role in agriculture, and impacts women adversely, an effect that is hardly highlighted adequately in existing literature. This adversity stems from low wage rates and lower levels of employment created due to low profits in agriculture; distress-driven migration that takes men somewhat out of agriculture, leaving women to engage in low-paid wage work; agrarian distress combined with urban unemployment, as the case is in India, which brings men seasonally back into cultivation, having a defeminizing effect, as an impoverished agriculture cannot accommodate both men and women.

This study explored the macro and micro connect in terms of the changing role of women in EGB agriculture, responding to a gap in the literature with respect to this. The study achieved this in two ways; first by triangulating observations of the macro analysis through primary observations, and then by adding to explanations of these trends through field insights.

Examples of validations that the primary insights provided to macro analysis are as follows:

- Both analyses reveal that there has been an increase in the incidence of unpaid work, along with feminization in Nepal and particularly in Bangladesh.
- Both the macro and micro insights suggest an increased burden on women due to common property resource (CPR) related work in EGB India. The secondary data provided indication of an increase in the share of women engaged in CPR related work,

while the primary survey revealed examples of aquaculture taking over paddy fields that reduced *de facto* CPRs.

- Both secondary and primary analyses point towards the class specific processes of defeminization; in other words, the reasons for reduced participation among the richer and poorer households are different.

The primary survey complemented explanations provided by the macro analysis in several ways. While the macro analysis suggested an increase in the share of male cultivators which can be interpreted as return of men to agriculture, the primary survey revealed that men are in fact moving back agriculture in the form of seasonal work during the times of peak labour demand due to lower availability of jobs in urban areas; this in turn is rendering the women jobless or leaving them with less than full employment.

One of the puzzles that the research based on the secondary data left us with is that Bihar is defeminizing, in spite of being a state with high male out-migration. The field survey enabled us to explain this by revealing that the remittances, though meagre, often offer a choice to women not to join agricultural work that pays less but requires long hours. This cannot be termed as the 'prosperity-induced withdrawal' as commonly suggested in literature, but a slight widening of choices responding to an unfavourable labour market.

The secondary analysis showed four reasons for defeminization in India. The primary analysis added information not available in labour survey data bases, including the influence of changing cropping patterns, transformation of land-uses, and increasing mechanization.

In the case of Nepal, the secondary analysis assumed a feminization due to male selective outmigration, in accordance with existing literature; the field survey elaborated that all types of migration do not have the same effect on women's work in agriculture.

This study opens up further scope for research on how the rural gender relations change due to the changing role of women in agriculture. The exact effects of agrarian distress, particularly following suicides by male farmers on left-behind women is an area that would also be relevant in connection to this work, particularly in the Indian part of EGB. Finally, the study leaves us with the general finding that both feminization and defeminization are complex processes which cannot be unidirectionally characterized as positive or negative developments in rural South Asia, either from the gender equity or economic progress perspective. It is of utmost importance that the processes behind such trends are analysed in detail, part of which the study has contributed to. However, these complex processes need to be followed up by detailed research based on systematic primary surveys representative of sub-regions, to inform policy makers so that enabling interventions can promote gender equity based on women's meaningful engagement in agriculture in the region, rather than a one size fits all approach.

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