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Major Challenges of Agricultural Practices in Northwestern Bangladesh: Peasants' Perspectives

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Abstract

The rural poor of Bangladesh are overwhelmingly peasants. The country has tripled its food production with a wide expansion of the food market since its independence in 1971, and has made an enormous progress in the economic sector over the last decades. Despite all these advancements, peasants face numerous challenges in making a sustainable living. This paper focuses on peasants' perceptions of key challenges facing peasants in northwestern Bangladesh. Using a mix-method approach, this study examines the types and nature of challenges peasants face in two agrarian villages of Tanore Upazila of Rajshahi District. Peasants identified a total of 15 challenges in 5 domains related to their agricultural practices in the group discussions. In a follow-up questionnaire survey, 287 peasants described and prioritized their challenges in agricultural production and required management activities. Almost all the respondent peasants (97%) found higher input costs for seeds, fertilizers, pesticides, labor, and agricultural machinery as major challenges. Pest attacks, erratic rainfall, droughts, dense fog, and other hazards affect nearly 84% of respondents annually. The lack of labor supply and degradation of soil fertility are both cited as major challenges by almost 71% of the respondents. The market affects peasants negatively in many ways. An exploitative and middle-man-driven market arrangement prevented half of the respondents from generating adequate profit. According to 41% of the peasants, the volatile market is another major challenge. About 31% of respondents mentioned they lack investment funds. Overall, all these risks, coupled with prolonged subjugation in socioeconomic and political sectors, increase peasants' investment risk, first by reducing the expected output from agriculture, and second by limiting their investment capacity. A number of challenges have pushed peasants to work themselves to exhaustion and use excessive fertilizers and pesticides to increase yields. In the end, it threatens the natural environment, human health, and soil fertility. The research findings suggest that peasant farming should be taken under institutional frameworks at different levels (household, farm, market and state) to mitigate their challenges comprehensively.

***Keywords*:** Peasants, Agricultural Challenges, Rural Poverty, Livelihood, Bangladesh.

Introduction

Agriculture has been a foundation of civilization for thousands of years, with peasants[1] at its center. There is a staggering number of more than 570 million farms spread across the globe, with a significant majority, precisely 90%, falling under the category of smallholder farms (Food and Agriculture Organization of the United Nations [FAO], 2014). In developing countries, approximately 500 million smallholder farms provide livelihood and food for

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almost 2 billion people. These small farms produce around 80% of the food consumed in Asia and sub-Saharan Africa (Hazell, 2013).

Since the middle of the twentieth century, the economic and agricultural sectors have witnessed tremendous growth. Yet, poverty and hunger remain widespread across countries, particularly among smallholders and peasants (The High Level Panel of Expert [HLPE], 2013). There were approximately 821 million undernourished people around the world in 2018. The current trend will result in one out of two people being malnourished by 2030 (HLPE, 2019). The difficulty increases when we realize most of these people are smallholders or peasants who produce food.

The rural sector of Bangladesh's economy accounts for 77% of its workforce and 70% of its population. Around 87% of rural households rely at least partly on agriculture, and nearly half of all Bangladeshi workers are directly employed in agriculture (Gautam et al., 2016). Economic progress has been significant for Bangladesh since independence, especially in the last decade. Gross food production tripled between 1972 and 2014, from 9. 8 to 34. 4 million tons in Bangladesh[2]. The country reached a saturation point for agriculture-driven growth during the early 1990s (Bangladesh Bureau of Statistics [BBS], 2023). The agricultural, forestry, and fishing sectors contributed nearly 11. 63% to the national economy in 2022, compared to approximately 60% in 1972). Throughout the decade from 1980 to 1989, the same sectors contributed between 30 and 32% to the national income (Bangladesh Bureau of Statistics [BBS], 2019).

Several structural adjustment policies have been implemented in Bangladesh since then. To develop the economy, it was essential to open up new markets, such as the garment industry. As a result, the garment industry contributes significantly to national income while agriculture plays a smaller role. The agriculture sector is still responsible for more than 30% of male employment and 58% of female employment in the country despite its low contribution to national income (BER, 2022). To put it another way, the importance lies in promoting food security and creating jobs. Bangladesh has approximately 17 million peasants (Thapa & Gaiha, 2014) who are primarily responsible for feeding most of the country's population. But, in the face of neoliberal economic policies and exclusive competition, peasants face numerous challenges to their survival and livelihood. Since peasants have limited resources, they are directly or indirectly affected by instability and risks in different sectors (social, economic, and political) at different levels (from the household level to the global level). Hence, this study aims to explore the challenges faced by peasants in Northwestern Bangladesh.

Peasants and their Challenges: A Review

The definition and characteristics of peasants or peasantry vary across time and space, depending on the social, economic, and political context (Kearney, 1996; Edelman, 2008). In general, Peasants or peasantry are rural people who produce food and other goods, mostly for their own consumption (Chayanov, 1919/1991; Wolf, 1955; Shanin, 1966, 1987), and portrayed as poor agricultural practitioners under multiple oppression around the world (Freedman, 1999; Schuren, 2003; Bernstein, 2003; Singharoy, 2004; Amin, 2012). Social scientists have studied peasants from different perspectives and identified some common and unique traits (Edelman, 2013). Some of these traits are:

- Peasants produce mainly for subsistence, not for the market (Kautsky, 1899/1988; Wolf, 1966). They have a different logic and mode of production than petty commodity producers or commercial farmers (Redfield, 1953, 1956).
- Peasants rely on family labor, but sometimes also hire or cooperate with other peasants (Chayanov, 1919/1991). They have different types of households, depending on the size, composition, and division of labor of the family (Wolf 1955).
- Peasants have a strong attachment to their land, culture, and community (Redfield, 1953). They value their traditions, ancestors, and collective interests, and have a sense of dignity and resistance (Shanin, 1987, 1990; van der Ploeg, 2017).
- Peasants have limited access and control over land, which is a scarce and non-reproducible resource (Vanhaute, 2021). They face the threat of land concentration and dispossession by capitalist forces (van der Ploeg, 2010).
- Peasants are exploited by various agents, such as landlords, moneylenders, traders, and the state (Shanin, 1990). They pay rents, taxes, interests, and other fees that reduce their income and autonomy (Akram-Lodhi & Kay, 2009).

Still, agriculture plays a vital role in the global economy, with the peasantry being an essential component of this sector. However, the peasantry faces numerous challenges that hinder their income generation and overall well-being.

The peasantry often struggles with meager income due to various factors. Fluctuating market prices, unpredictable weather conditions, and limited access to modern farming techniques contribute to income instability (Haggblade et al., 2010). Additionally, small-scale farmers often lack bargaining power, resulting in them being unable to negotiate fair prices for their produce (HLPE, 2019; Madalgi, 1969; Magdoff et al., 2000).

The cost of agricultural inputs such as seeds, fertilizers, pesticides, and machinery can be prohibitively high for the peasantry (Lutz, 1998). Limited financial resources make it difficult for small-scale farmers to invest in modern machinery and technologies that could enhance productivity and reduce production costs. Peasant farmers face challenges in selling their produce at fair prices due to market exploitation as well. Middlemen and intermediaries often take advantage of the lack of direct market access for small-scale farmers, resulting in unfair pricing and profit margins. This exploitation further exacerbates the income disparity within the agricultural sector (FAO, 2014; Rapsomanikis, 2015). Besides, the market economy challenges peasants at first by displacing them from their roots and separating them from their social relationships (Bernstein, 2010; van der Ploeg, 2017). Mottaleb and Mohanty (2015) showed that farmers had to constantly adjust their budgets to cope with rising input costs. The FAO global input price index data shows that both agricultural output costs and input costs (energy, feed, fertilizer, seed, and pesticides) reached record levels in 2022 due to COVID-19 and the invasion of Ukraine. This increase in output price may be offset by rising input costs which ultimately squeeze producers' margins. These high input costs worsen poverty and malnutrition among millions of smallholder farmers (FAO, 2023).

Peasants rely heavily on family labor to carry out agricultural activities. However, the availability of family labor is often limited, especially in regions where the younger generation is migrating to urban areas in search of better economic opportunities. This

scarcity of labor can significantly affect productivity and overall farm management. As Rouf et al. (2015) show that the peasantry often lacks access to modern farm machinery and equipment, which hampers their productivity and efficiency. Traditional farming techniques require significant manual labor, limiting the scale and quality of agricultural output. The high cost of machinery and the lack of availability in rural areas make it challenging for peasant farmers to mechanize their operations.

Peasants frequently encounter difficulties in accessing essential services such as agricultural extension, training, and technical support. Lack of knowledge about modern farming practices and limited access to credit facilities hinder their ability to adopt improved techniques and technologies. This lack of support further perpetuates the cycle of poverty and low productivity. The peasantry often faces the challenge of limited land ownership. Small landholdings restrict the scale of agricultural operations and limit the potential for increased income generation (Mottaleb & Mohanty, 2015). Additionally, fragmented land ownership makes it difficult for farmers to implement efficient farming practices and benefit from economies of scale (Scoones, 2009).

Peasants heavily rely on fertile land for agricultural activities. However, land degradation and soil erosion have become significant challenges for them. Climate change poses a significant challenge for peasants worldwide (Wreford et al., 2010). According to Salinger et al. (2005), climate change and variability, drought, and other related extremes can negatively affect agricultural production systems. Erratic weather patterns, including droughts, floods, and extreme temperatures, have adverse effects on crop yields and livestock production (Lutz, 1998). Peasants often lack the necessary resources and technologies to adapt to these changes, making them more vulnerable to food insecurity and economic instability.

To address all these issues, the underdeveloped and developing world has traditionally faced many social, economic, and political challenges related to peasants. According to Stavenhagen (2007), underdeveloped and developing countries are facing two challenges in the agricultural sector: (a) the need to increase production to meet the increasing demand for food, and (b) the need to increase rural incomes in order to meet the basic needs of most of the poor, the peasants. It has become apparent over the past few decades that agricultural development in poor or developing countries does not require a connection between these two goals. It is observed that agricultural production, and in particular food production has grown at a slightly faster rate than the world's population, but incomes of the poorest part of the population (the peasants) have not kept pace with these growth rates. Some regions of the developing countries are experiencing a decline in rural income. According to the HLPE report (2012), smallholder livelihoods are usually affected by three levels of risks or challenges: (i) domestic risks that affect the well-being of families, especially in terms of food, health, and nutrition security; (ii) risks associated with agricultural production and natural resources; (iii) risks associated with the different markets where smallholders operate.

Agriculture of farming generates most of the peasants' livelihoods in Bangladesh. Peasants in Bangladesh, for whom agriculture serves mainly as a source of food and labor rather than economic growth, face enormous challenges ensuring their livelihood. Since they suffer from

poverty and marginalization, they are more likely to be affected by different agricultural constraints.

Bangladesh, being recognized as one of the most susceptible nations globally (Ericksen et al., 1997), experiences heightened vulnerability to the consequences of climate change due to its limited ability to effectively mitigate the impacts of shifting environmental conditions. Belonging to a sub-humid zone and drought-prone area, northwestern Bangladesh's agriculture sector struggles to deliver sustainable livelihoods to most peasants. According to Hassan and Islam (2015), the region experiences extreme weather conditions and frequent droughts. There have been eight major droughts in the last 45 years (Shahid& Behrawan, 2008). The area experiences a dry period every year from November to April due to a lack of rainfall. Climate change is predicted to increase the intensity and frequency of this disaster in the near future. Due to the high sensitivity of agriculture to climate change, it negatively impacts the agricultural sector (Salinger et al., 2005) and peasants' livelihood. During the past few years, uneven rainfall distribution, lack of soil moisture during the dry season, and excessive groundwater abstraction has threatened peasants in this region severely.

A well-functioning market can shape the livelihoods of the farming community through many avenues, including generating their incomes (Rapsomanikis, 2015). Market irregularities, however, remain a serious concern in Bangladesh. Peasants suffer from poor returns due to exploitative and unstable market arrangements. They face seasonal price variation (lower prices during the immediate post-harvest months and higher prices during the pre-harvest or off-season months) each year (Dorosh & Shahabuddin, 2002; Salam et al., 2012). Many of them have to sell out a major share of their products immediately after harvesting as they lack funds. A chain of intermediaries also controls agricultural marketing. Decelerating future investments in productive sectors ultimately hinder peasants' ability to engage in productive activities. 'Distress sales' also illustrate the vulnerable situation of farmers when forced to sell their products at a low price or in advance if they are in debt (Noman & Joarder, 2011).

Labor shortages and high wages are among the other constraints for small farmers. As crop production processes vary with geography and ecological framework, agriculture cannot be classified as a specialized industry. In agriculture, labor is generally required to possess traditional skills and knowledge passed from generation to generation. Numerous factors are contributing to a complex labor situation in agricultural practices. According to Rahman et al. (2021) despite proven benefits, farm mechanization has not been widely adopted in Bangladesh. As far as farm mechanization is concerned, the country has made only significant progress in irrigation and tillage. Agricultural operations still require a significant amount of manual labor, which inhibits the efficient production of farms. Furthermore, with a population density of 1,239. 7 people per square kilometer, Bangladesh has a low land-to-man ratio. It is obvious that this land-to-man ratio adversely affects agriculture. Furthermore, since the 1980s, agricultural land and production has been exploited to its limit. Land-tenure systems also have a major impact on agricultural productivity. About 40% of farmland in Bangladesh is cultivated under different kinds of tenancy arrangements (Taslim, 1995). Peasants as tenants have limited say in the arrangement of contracts and are exploited by the landowners in many cases. There are a lot of other services that smallholders do not

have access to, such as training, knowledge of effective farming methods, credit systems, irrigation facilities, and storage facilities (HLPE, 2019).

Methodology

The study employed amixed-method approach to gain a holistic understanding of the research problem. Using secondary information and the availability of peasants with similar characteristics to those in other parts of Bangladesh, two villages in Rajshahi, Ratoil and Chanduria, were selected purposively.

The research applied two different sampling methods in order to collect data. The first strategy used in this study was “complete enumeration sampling”[3] to ensure that each of the primarily selected peasant households had an equal chance of being included in the study. As part of this strategy, a rapid baseline survey identified a total of 331 “peasant households”[4] in two villages. Out of these, 299 households participated in the interview as there were 22 households unavailable for the interview, while 10 households declined to take part in the study. “A pre-tested questionnaire”[5] was used to interview 299“heads”[6] of peasant households in order to collect accurate, sound, and reliable data. After careful consideration, 287 questionnaires were deemed suitable for analysis. This decision was made due to the presence of mismatches in twelve of the questionnaires, which could have potentially skewed the results. The second sampling strategy employed was “purposive sampling”, specifically for conducting Focus Group Discussions (FGDs). By employing these two distinct sampling strategies, the researchers aimed to ensure a comprehensive and well-rounded data collection process.

As part of a mixed methods approach, the questionnaire includes both closed-ended and open-ended questions. In order to gain a more comprehensive perspective on the difficulties encountered by smallholders, five FGDs were conducted. These FGDs were structured around a predetermined set of guidelines and included open-ended questions to encourage in-depth responses. Out of the five FGDs, two were carried out before the questionnaire survey, while the remaining three were conducted simultaneously with the survey. This approach allowed for a more holistic examination of the challenges faced by smallholders, combining qualitative insights from the FGDs with quantitative data from the survey.

The data analysis in this study employed a mixed-method approach, combining both quantitative and qualitative methods. The quantitative approach utilized descriptive statistics to analyze the data, while the qualitative approach involved text analysis based on the findings from FGDs. This combination of methods allowed for a comprehensive analysis of the data. To generate, classify, and present tables, a sociological analysis known as the 'typological procedure' was employed. This analytical framework was used to identify patterns and categories within the data, which were then organized and presented in the form of tables. During the data analysis process, certain variables were selected for further examination, while others were deemed less relevant. This selection process ensured that the analysis focused on the most important and meaningful variables.

Results and Discussion

The first two FGDs that were conducted initially revealed a total of 15 challenges that were associated with agricultural practices. In a following questionnaire survey, peasants were asked to express their opinions about the agricultural challenges they face. Table 1 demonstrated that all respondents had to encounter a total of 15 challenges, but at varying levels. Following "OECD framework (2009)"[7], the respondent peasants' challenges are divided into five categories: market-related risks, agricultural production risks, institutional risks, domestic and institutional risks, and domestic risks, and levels of expression range from respondents' holdings to local, regional, national, and international.

Table 1: The Major Agricultural Challenges Peasants Face

Domain of challenges/ risks	Level of expression	Serial	Type of challenges	Respondent peasants N=287			
				Challenges faced		No challenge faced	
				n	%	n	%
Market-related	Local, regional, national	1	High production costs	279	97.21	8	2.79
		2	Exploitative market arrangement	142	49.48	145	50.52
		3	Volatile/unstable market	118	41.11	169	58.89
Agricultural production	Regional and national	4	Risk exposure to hazards and disasters	241	83.97	46	16.03
	Local and regional	5	Degradation of soil fertility	203	70.73	84	29.27
		6	Lack of irrigation facilities	35	12.20	252	87.80
	Holding, local, regional and national	7	Lack of mechanized equipment	81	28.22	206	71.78
		8	Inadequate labor supply	203	70.73	84	29.27
Institutional	Local	9	Lack of access to formal credit system	59	20.56	228	79.44
	Regional and national	10	Lack of agricultural training facilities	125	43.55	162	56.45
		11	Unfavorable tenancy arrangement	5	1.74	282	98.26
Domestic and institutional	Holding, local and regional	12	Lack of funds to invest in agriculture	88	30.66	199	69.34
		13	Lack of knowledge for effective farming	62	21.60	225	78.40
		14	Inadequate storage facilities	46	16.03	241	83.97
Domestic	Local and regional	15	Small or fragmented farmland	33	11.50	254	88.50

The market related domain faces three challenges: high production costs, exploitative market arrangements, and volatile or unstable markets. More than 97% of the peasants reported that their overall production costs have increased significantly (Table 1). Production costs include all input costs such as seeds, fertilizer, pesticides, machinery, and labor wages. Half of the

respondents (49. 5%) claimed that an exploitative and middle-man-driven market arrangement prevented them from generating adequate profit.

Another major challenge mentioned by 41% of peasants is market volatility. The FGD findings indicate that peasants have faced constant high production costs of 10-20% for the past few decades. The production costs, however, spike to an all-time high after 2022. On the other hand, the access of peasants to markets is controlled by different intermediaries at the local and regional level, and peasants do not receive the fair price for their products. Peasants also face seasonal price fluctuations (lower post-harvest prices, higher pre-harvest prices, off-season). The lack of funds forces many of them to sell out most of their products immediately after harvesting. So, all these three challenges range from local to regional to national levels. As a result, peasants will be less likely to put effort into farming if input prices rise, which will lead to a reduction in yield. Consequently, food availability will be reduced (putting further upward pressure on prices), as well as farmer incomes—with the effects likely to be greatest among low-income farmers.

These findings of the study are consistent with other studies by various scholars and organizations (Madalgi, 1969; Magdoff, Foster & Buttel, 2000; HLPE, 2019). The cited sources provide evidence supporting the notion that small-scale farmers frequently encounter challenges when it comes to negotiating prices that adequately reflect the value of their produce. As FAO (2014) and Rapsomanikis (2015) claimed earlier, this exploitation further exacerbates the income disparity within the agricultural sector. In addition, the introduction of a market economy poses a significant challenge to peasants as it uproots them from their traditional way of life and severs their social connections. This phenomenon has been extensively examined by scholars such as Bernstein (2010) and van der Ploeg (2017).

There are five challenges identified directly related to the agricultural production domain—risk exposure to different hazards and disasters (e. g., pest attack, erratic rainfall, dense fog, heat wave and drought), degradation of soil fertility, lack of irrigation facilities, lack of access to modern/effective machinery, and insufficient labor supply. In this study, nearly 84% of respondents reported being exposed to hazards and disasters each year. It was reported that approximately 71% of respondents considered inadequate labor supply and degradation of soil fertility as major challenges they faced in their agricultural practices. It is evident from the group discussions that there is seasonality in agriculture, manifested in unequal labor demands throughout the year and concentrated in sowing and harvesting times. Rural agricultural laborers migrate in search of better employment and seek employment elsewhere as a result of seasonal unemployment in the agriculture sector. Like other rural areas of Bangladesh, the study villages are affected by this temporary labor migration, which complicates labor issues. As new generations of respondent peasants, who are becoming educated, do not find their career in agriculture, they seek out more lucrative jobs. Family-labor and reciprocal-labor-driven peasant farming are therefore in short supply. The study villages are increasingly experiencing labor shortages during harvesting seasons. In agriculture, it ultimately results in higher wages during peak seasons. This scarcity of labor can significantly affect productivity and overall farm management as well.

Furthermore, the FGD with peasants revealed a mixed perception regarding the increasing use of fertilizers and pesticides in agriculture. While the majority acknowledged the benefits in terms of increased yields and pest control, concerns were raised about the environmental impact, health hazards, and rising costs associated with these inputs. Participants expressed the need for sustainable alternatives, such as organic farming and integrated pest management, to strike a balance between enhancing agricultural productivity and preserving the environment. These insights can serve as valuable inputs for policymakers, researchers, and agricultural extension services to develop strategies that address the concerns and aspirations of peasants while ensuring sustainable agricultural practices.

According to about 28% of respondents, agricultural practices are hampered by a lack of mechanized equipment. FGD findings show that most peasants in the study villages have access to two-wheelers for plowing the fields, and also to deep tube-wells installed by the Bangladesh government's Barind Multipurpose Development Authority for irrigating the cropping land. In addition, most households have locally manufactured pesticide sprayers that are inexpensive in continuing their agricultural activities. Planting and harvesting are some of the other farm tasks that are heavily done manually. Due to the small and fragmented size of the land, there are also difficulties in applying planting and harvesting machinery.

Peasants reported three institutional domains of challenges, including the absence of formal credit systems, a lack of training facilities, and unfavorable tenancy arrangements. Approximately 44% of participants indicated that they faced restricted availability of training facilities aimed at aiding them in effectively managing their agricultural operations. This limited access hindered the ability of farmers to apply scientific and efficient knowledge, ultimately impacting their capacity to efficiently oversee their farms. The FGD participants expressed their belief that through training, individuals can acquire the necessary knowledge and skills to effectively manage these challenges of rainfall shortages, climate change, and pest attacks. Furthermore, the lack of access to formal credit systems (operated by the government) impelled about 21% of peasants to borrow money from local moneylenders, non-governmental organizations, and/or non-formal sources at very high interest rates.

There are also three different challenges associated with the domestic and institutional domains of risk. The lack of funds for investment was cited as a major challenge by approximately 31% of peasants, followed by the lack of knowledge concerning effective farming (21. 6%) and the lack of storage facilities (16. 0%). Out of 287 peasants, more than 11 %claimed that fragmented and small farmland was their major challenge in maintaining an effective farming system. This assertion is consistent with the research carried out by Scoones (2009) and Mottaleb and Mohanty (2015).

FGD participants reported that their livelihood arrangements were influenced by differences in their income, total operated land, and educational qualification within the same group. Their approach to agricultural production and management is also influenced by it. Hence, the following cross-tabulation analysis is done to determine whether peasants as distinct economic and social groups face any significant challenges different from each other.

To begin with, Table 2 examines four major agricultural challenges are based on peasants' income levels. Household income is calculated based on income sources. Income derived from

irregular sources and income received in kind are excluded. The categorization of income was based on a group discussion. According to the discussion, an increase in household income of 50 thousand Taka may positively affect household welfare. Table 2, however, shows that there are no major differences in opinion among them regardless of their income. The similar percentage of peasants of all income levels mentions high production costs as their greatest challenge. Hazard and disaster exposure among peasants of the highest income bracket is slightly lower. Downgrading soil fertility is less of an issue for households with an income between 250 and 350 thousand BDT. The two lowest income groups, however, are less concerned about inadequate labor supply. This is due to the fact that these groups rely heavily on family labor for farming.

Table 2: Association between Household Income and Four Major Challenges Peasants Face

Total HH income (in thousand BDT)	High production cost (N = 287)	Exposure to hazards and disasters (N = 287)	Downgrading soil fertility (N = 287)	Inadequate labor supply (N = 287)
50 to <100 (n = 34)	34 (100.0%)	30 (88.2%)	27 (79.4%)	18 (52.9%)
100 to <150 (n = 56)	55 (98.2%)	51 (91.1%)	41 (73.3%)	31 (55.4%)
150 to <200 (n = 61)	60 (98. 4%)	51 (83.6%)	46 (75.4%)	46 (75.4%)
200 to <250 (n = 46)	44 (95.7%)	36 (78.3%)	29 (63.0%)	35 (76.1%)
250 to <300 (n = 23)	22 (95.7%)	20 (87.0%)	13 (56.5%)	18 (78.3%)
300 to <350 (n = 21)	18 (85.7%)	19 (90.5%)	12 (57.1%)	16 (76.2%)
>350 (n = 46)	46 (100.0%)	34 (73.9%)	35 (76.1%)	39 (84.8%)
Total (N = 287)	279 (97.2%)	241 (84.0%)	203 (70.7%)	203 (70.7%)

Table 3 illustrates the relationship between four major challenges that peasants face and the total land they operate. There are five types of farmland ownership (owned, sharecropped, and/or leased) that can be classified as follows: less than one acre, one to less than two acres, two to less than three acres, three to less than four acres, and four to five acres. No obvious differences of opinion can be found irrespective of the number of acres farmed.

Table 3: Association between Household Total Operated Farmland and Four Major Challenges Peasants Face

Total farming land of the respondents (in acre)	High production cost (N = 287)	Exposure to hazards and disasters (N = 287)	Downgrading soil fertility (N = 287)	Inadequate labor supply (N = 287)
<1 (n = 67)	65 (97.0%)	60 (89.6%)	52 (77.6%)	34 (50.7%)
1 to <2 acres (n = 125)	123 (94.9%)	108 (86.4%)	89 (71.2%)	88 (84.7%)
2 to <3 (n = 59)	56 (94.9%)	45 (76.7%)	39 (66.1%)	50 (84.7%)
3 to <4 (n = 19)	18 (94.7%)	15 (78.9%)	12 (63.2%)	18 (94.7%)
4 to 5 acres (n = 17)	17 (100.0%)	13 (76.5%)	11 (64.7%)	13 (76.5%)
Total (N = 287)	279 (97.2%)	241 (84.0%)	203 (70.7%)	203 (70.7%)

The research findings presented in Table 4 demonstrate a connection between the challenges faced by peasants and their level of education. The peasants included in the study were divided into six different educational levels. Upon analyzing the data, it becomes evident that there are no significant differences among most of the educational levels. However, it is worth noting that the group of peasants with lower levels of education displayed a lesser degree of concern regarding issues such as soil fertility and insufficient labor supply. This finding highlights the potential impact of educational attainment on the perception and prioritization of challenges within the agricultural sector.

Table 4: Association between Respondent's Educational Attainment and Four Major Challenges Peasants Face

Educational qualification of the respondent	High production cost (N = 287)	Exposure to hazards and disasters (N = 287)	Downgrading soil fertility (N = 287)	Inadequate labor supply (N = 287)
No formal education (n = 38)	38 (100.0%)	34 (89.5%)	29 (76.3%)	22 (57.9%)
Literate (n = 58)	57 (98.3%)	46 (79.3%)	39 (67.2%)	39 (67.2%)
Primary passed (n = 97)	94 (96.9%)	79 (81.4%)	68 (70.1%)	67 (69.1%)
SSC passed (n = 47)	44 (93.6%)	36 (76.6%)	32 (68.1%)	37 (78.7%)
HSC passed (n = 24)	23 (95.8%)	24 (100.0%)	17 (70.8%)	19 (79.2%)
Graduated/Higher education (n = 23)	23 (100.0%)	22 (95.7%)	18 (78.3%)	19 (82.6%)
Total (N = 287)	279 (97.2%)	241 (84.0)	203 (70.7%)	203 (70.7%)

Hence, it can be inferred that the majority of peasants encounter similar difficulties, irrespective of variations in their income levels, access to farmland, and educational achievements, although there may be a few exceptions.

The factors mentioned above have a significant impact on the income stability and livelihood challenges faced by the peasant population. These factors contribute to the constraints faced by peasants in maintaining a stable and secure source of income (Haggblade et al, (2010).

Since agriculture and its associated industries generate the majority of employment in developing economies (Sivakumar & Hansen, 2007) and future food production and poverty reduction depend largely on improving the productivity of peasants or smallholder farmers (Spoor, 2015), peasant farming should be taken under institutional frameworks at different levels (household, farms, markets and state) to mitigate their challenges comprehensively.

Conclusion and Recommendation

Peasants, who are the primary investors in their own production systems, usually face a number of constraints since they are usually the last to enjoy returns. In agriculture, risks due to plant pests, diseases, climate variability, and rainfall irregularities combined with market price volatility, reduce production substantially. This increases peasants' investment risk, first by reducing the expected output from agriculture, and second by limiting their investment capacity. In response to shocks, they might be forced to sell some of their existing assets to cover urgent needs. Although all farmers have to invest (in seeds, fertilizers, and labor for

production), peasants' limited income and assets impede both direct investments and credit access.

As a result, peasants are being driven to take a variety of actions to adapt differently to different challenges. Since they do not count the hours they worked, they intensify production by having the family perform more work. In many cases they are working themselves to exhaustion and using excessive fertilizer and pesticides to increase their yields due to rising living and production costs. In the end, it threatens the natural environment and human health, as well as degrading soil. In addition to farming, they also work outside of agriculture on a temporary or permanent basis for a living.

Thus, it is important to address these issues in order to improve the livelihoods of the peasant community and reduce their vulnerability to income instability. The study suggests that policymakers and stakeholders should consider the subsequent recommendations to support the peasants and enhance their overall well-being.

To tackle the problem of steep production expenses, it is recommended that the government gives due consideration to the creation of a dedicated fund. This fund would be dedicated to providing low-interest loans to peasants, which would enable them to invest in modern farming techniques and technologies. By doing so, the production costs can be reduced, thus benefiting the agricultural sector.

To address the inequitable and uncertain conditions of the market, it is imperative to improve the storage infrastructure. This will help minimize post-harvest losses and ensure that farmers are compensated fairly for their crops. Moreover, the government has the potential to promote the establishment of Farmer Producer Organizations (FPOs) to empower small-scale farmers and enable them to collectively negotiate in the market, thereby ensuring fair prices and minimizing exploitation.

To mitigate the potential dangers arising from hazards and climate variability, it is recommended to strengthen the promotion of climate-smart agricultural practices, which can enhance resilience in the face of these challenges. One effective strategy is to encourage the adoption of crop diversification, as it helps to mitigate risks and ensure sustainable agricultural production.

It is imperative for the government to encourage the adoption of sustainable soil management methods to tackle the problem of soil fertility decline. This can be achieved by promoting organic farming techniques, advocating for the use of bio fertilizers, and establishing accessible soil testing facilities.

The government has the potential to offer monetary incentives and subsidies to encourage the use of farm machinery and equipment to address the issue of labor scarcity in the agricultural sector. This would help to reduce the reliance on manual labor. Additionally, the government could establish training programs aimed at enhancing the skills of farmers in modern agricultural techniques. By equipping them with these skills, farmers would be able to achieve higher levels of productivity while minimizing the need for extensive labor.

It is crucial for the government to guarantee convenient accessibility of rural credit institutions to farmers. These institutions should be easily reachable for peasants, ensuring that they have access to affordable credit specifically designed for agricultural needs. The promotion of land consolidation initiatives can empower farmers to attain economies of scale and enhance productivity levels and to overcome the difficulties linked to small and fragmented land holdings.

Furthermore, the preservation of traditional farming practices and indigenous knowledge is another important aspect of supporting the peasantry. Peasants often have deep-rooted knowledge and expertise in traditional farming methods that have been passed down through generations. This knowledge is valuable for sustainable agriculture, biodiversity conservation, and climate change adaptation (Pretty et al., 2018).

In summary, taking into account the aforementioned concerns and acknowledging the significance of supporting the peasants, Bangladesh has the opportunity to utilize its valuable traditional knowledge and combine it with modern agricultural techniques. This integration will play a crucial role in securing the long-term viability of the agricultural sector.

End Notes

1 There is no universally accepted definition of peasant, family farm or smallholder, and their meanings vary from country to country (Garner & de la Campos, 2014; Shanin, 1971, 1987). As a result of some common characteristics such as limited landholding, subsistence farming, and heavy reliance on family labor, and taking into consideration of' the classical definition of peasantry given by Djurfeldt and Sircan (2017), the term 'peasant' is used interchangeably in this study with the terms smallholder and family farm.

2 https://www.worldbank.org/en/results/2016/10/07/bangladesh-growing-economy-through-advances-in-agriculture#:~:text=More%20than%2070%20per cent%20of,least%20part%20of%20 their%20income.

3 According to Cochran (1977), complete enumeration sampling is appropriate when the population size is manageable, and easily accessible.

4 Along with a consistency assurance process, four criteria were established for labeling, identifying, and selecting the sample peasants. According to the criteria: (a) the respondent must primarily be a small-scale farmer who practices agriculture for survival; (b) the household head must own land between 0. 50 acre and 2. 5 acre; (c) total farmland ownership (owned as well as sharecropping, leased, and/or other arrangements) does not exceed five acres; (d) a minimum of 25% of the production must be reserved for household consumption.

5 The questionnaire was pre-tested with 30 peasants (about 10% of the total sample) from a nearby village with similar characteristics to those of the final sample for clarity and validity assessment.

6 This study employed household heads as respondents to maintain a standardized reference point throughout. In this study, household was considered as unit of analysis.

7 The categorization is based on the OECD framework (2009), which identifies several challenges faced by small-scale farmers, which can be generally classified into two categories: domains of risks and levels of expression. The domain of risks has four levels - holding, community, national, and international. In level expression, there are five tiers: domestic, market-related risks, agricultural production, non-farm activities, and institutional and legal issues.

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