Journal of Business and Development Studies (ISSN: 2790-0703 & E-ISSN:3006-2195)
Volume: 04, Issue: 01 & 02, 2025 Web: www.isu.ac.bd/journal

RESEARCH ARTICLE

Local Food Production, Crop Diversification, and SDG-1 (No Poverty) in the Global South: Lessons from Selected Areas of Bangladesh

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ABSTRACT

This study focuses on the extent of local food production and crop diversification, and their association with poverty reduction (SDG-1: No Poverty) in the northern region of Bangladesh. It adopts qualitative methods to explore research questions and study specific objectives. Employing non-probability purposive sampling, the study chooses 15 Key Informant Interviews (KIIs) and 4 Focus Group Discussions (FGDs) from deliberately selected study areas. It targets informants with specific knowledge and experience relevant to local food production, crop diversification, and poverty reduction. The collected data underwent thematic analysis, identifying key themes and sub-themes central to the study's objectives. We analyzed and organized the data to identify important patterns and insights, and found that local food production methods, including traditional practices and diversified farming suited to the local environment, significantly contribute to poverty reduction. These methods enhance farmers' daily income by improving yields, reducing production costs, and providing better market access for locally grown products. Rural communities establish stable and reliable streams of income through diversified farming. This economic stability is crucial for pulling individuals and communities out of poverty and supporting SDG-1 objectives. The findings advocate for policies and interventions that support and strengthen local agricultural practices. Such policies include investment in agricultural infrastructure, access to credit and inputs, extension services for sustainable farming techniques, and market development initiatives.

ARTICLE HISTORY
Received: February 08, 2025
1st Revision: April 12, 2025
2nd Revision: June 18, 2025
3rd Revision: Sept. 21, 2025
Accepted: October 22, 2025
Online Publication: 2025

KEYWORDS
Local Food Production, Crop Diversification, Poverty Reduction, Northern Region, Bangladesh.

1. Problem Statement

Bangladesh is largely an agricultural country where over 70% of the people in rural areas are directly or indirectly involved in farming-related activities

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(Bangladesh Bureau of Statistics [BBS], 2021). Various sub-sectors of agriculture and agricultural proceeds are dominated by rice; roughly three-quarters of the gross crop area is dedicated to rice production (BBS, 2021). The ongoing practice of farmers focusing solely on rice cultivation leads to various significant issues, such as deficiency of nutritious food options and decrease in the number of agricultural laborers, among others (Rosset, 2011).

In addition to these challenges, the country has been experiencing significant shortages of various essential crops such as wheat, vegetable oils, sugar, and onions (Food and Agriculture Organization [FAO], 2022). This situation is further exacerbated by the absence of robust small-scale and local food production systems, along with the recurring bans on the export of high-demand food items by neighboring countries. Furthermore, the rapid expansion of privately controlled agribusinesses has promoted organic farming practices in ways that restrict the general population's access to a diverse range of affordable food items. The growing influence of large corporations in the agricultural sector has displaced local farmers from the market, pushing many below the poverty line (Nath, 2015). In a broader context, global food systems continue to rely heavily on industrial modes of production and extensive international supply chains.

These are typically organized and overseen by multinational agri-businesses and are characterized by competitive pricing conflicts (Sperling et al., 2020). The FAO (2022) noted that the COVID-19 pandemic and the ongoing conflict in Ukraine have increased uncertainty in global food markets, leading to continued disruptions in the international trade of key food items such as wheat, vegetable oils, and lentils. Also, the heavy use of chemical fertilizers are adversely impacting land fertility in South Asian countries, particularly Bangladesh, causing the production of various food items to decline (Rahman, 2023). The rising food prices in the global market have directly impacted imports for many countries that depend on food import for their national food supply (Clapp, 2015). With global economic inflation and unstable world food prices, some countries like Bangladesh were forced to spend additional amounts of money to

meet the increasing costs of importing agricultural products, such as wheat, sugar, vegetable oil, onion, etc., to feed its large population. In this context, Mamun et al. (2022) argue that given the limited purchasing capacity, many people in Bangladesh experience the prospect of falling under the poverty line, since the country is heavily dependent on importing those food items (Nath, 2015). Due to current financial restrictions, the COVID-19 pandemic, and the high cost of everyday food items, Bangladesh is one of 45 countries where poverty and food security have worsened (FAO, 2022). As a consequence, the present food crisis has drawn increased attention to the local food system. According to scholars (Stein & Santini, 2022; Khan and Rahman, 2024), internal supply chains and local food systems—such as growing, processing, and selling inside a certain geographic area—can greatly boost the resilience of the food system, particularly in developing nations. Research indicates that the local food production system (Misra, 2018) and crop diversification (Harris & Orr, 2014) are the keys to reducing poverty, boosting rural incomes and job development (Feliciano, 2019).

The United Nations Organization set SDG 17 in 2016 and developed plans to eradicate poverty in all of its manifestations in the member states. Atlieri et al maintains that agriculture is the main source of income in rural parts of the global south, where around 85% of the poor reside (Altieri et al., 2015) (Losch et al., 2011). According to FAO (2022), in spite of producing significant yields, small-scale farmers in the Global South are less secure and significantly poorer than farmers elsewhere in the world. According to a report of the Food and Agricultural Organization (FAO) in 2022, 31% of Bangladeshis experience moderate to severe food insecurity due to a lack of funds to purchase necessary food grains (Rahman, 2021). The General Economic Division opines that 29.5% of people in the nation live below the poverty line (BBS, 2021). The recent increase in food grain prices has intensified their challenges (FAO, 2022). As a result, many households risk falling into hard-core poverty (Ibid). So, it becomes clear that the way out of this problem is paying attention to the local food production system.

A review of the existing literature reveals that studies identifying the existing barriers to local food production and crop diversification are scarce. Therefore, it is essential to explore, recognize, and clarify the major obstacles that hinder the cultivation of diverse crops and support localized food production, as this can lower nutritional insecurity and poverty in a nation such as Bangladesh. This research articulates the relevant particular objectives, which are (i) to illustrate peasants' knowledge and insights on the current state of local food production and crop diversification, and (ii) to examine the impact of local food production and crop diversification in reducing the level of poverty in rural Bangladesh.

1.1 Local Farmers' Decision Making on Local Food Production and Crop Diversification: Knowledge and Values

This study outlines and adopts small-scale farmers' knowledge and values regarding decision-making on local food production and crop diversification. Goddard et al. (2016) emphasized the importance of understanding knowledge and values when analyzing farmers' choices regarding local food production and diverse agricultural practices. Values represent farmers' objectives and preferences, which could be related to taste, monetary potential, visual aesthetics, heritage etc.. For instance, Zimmerer (1991), studying potato and maize diversity in Quechua communities in Peru, observes their decisions regarding culinary, commercial, and household-economic objectives. Sinha et al. (1988) defines values as a concept of 'fuzzy goals', or 'imprecise aspirations' of stakeholders. Crops are valued 'within a larger economy of signification, which crucially shapes their modes of appropriation. They are also resources for collective representation that exceed the concern with immediate material use (Baviskar, 2003).

On the other hand, knowledge denotes 'evidence, beliefs, and judgments about how the socio-ecological system works, an understanding of future changes and the consequences of different decisions' (van Kerkhoff, 2017). Farmers draw on different kinds of knowledge when making decisions. For instance, Bellon and Taylor (1993) argued that indigenous farmers in the Mexican state of Chiapas employ an understanding of 'varietal response to ecological conditions (drought,

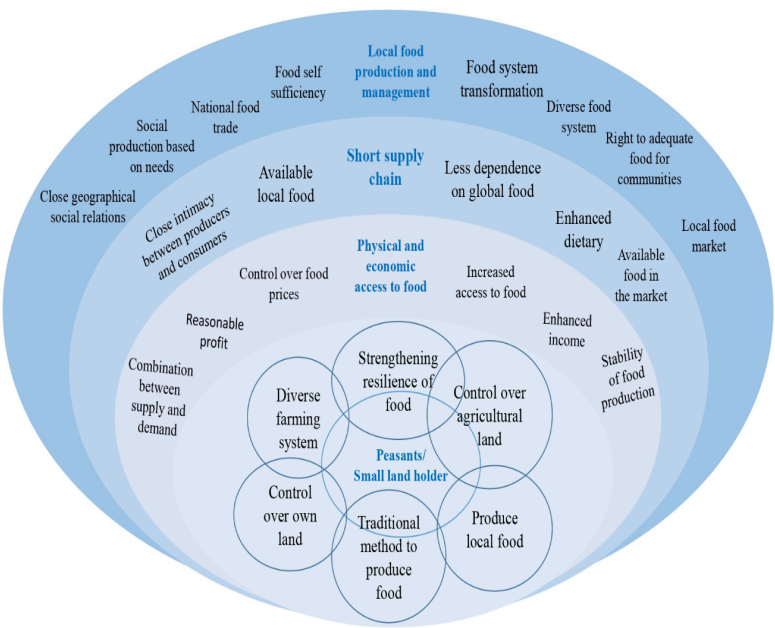
wind, weeds, performance with intercropping), technological requirements (input intensity, timing of cultural practices), and yield and use (aptness for subsistence or market, storage properties, taste)'. Also, smallholder farmers draw on constantly evolving knowledge, integrating 'traditional ecological knowledge' with information on modern developments and technology (Escobar, 1998; Gomez-Baggethun et al., 2013). Individuals, in addition, may internalize information in their own ways, which may produce knowledge different from that of other people, communities, institutions, or Western science (Dove, 2003). The study demonstrates the values and knowledge to explore agricultural decision-making among small-scale farmers of different village communities in the northern region of Bangladesh. These communities traditionally cultivate several species and varieties of crops, and also experience cropping, environmental, cultural and culinary changes, a situation that applies to several agricultural communities in Bangladesh (Bisht et al., 2020; Dweba and Mearns, 2011; Food and Agriculture Organization of the United Nations, 2017; Lacy, 1994; Zhang et al., 2017). This paper evaluates the current state of local food production and diversification of crop yields in the northern region, and examines how small-scale farmers make local crop portfolio decisions, specifically about the diversity of crops they cultivate in their small pieces of land. It also analyses peasants' perceptions of the linkages of local food and crop diversity with nutrition and household incomes. The findings finally lead to a discussion on the implications of farmers' decision-making in debates regarding the current scenario of local food production and crop diversity in Bangladesh and beyond. Additionally, exploring local food and crop diversity conservation in different village communities also makes sense, given the global emphasis on biodiversity conservation in the northern region of Bangladesh.

2. The Conceptual Framework: Local Food Production, Crop Diversification and SDG-1 (No Poverty)

The study has generated the 'Onion Model of Local Food System' by examining a range of relevant studies conducted by Clapp (2016), Agarwal (2014), and Sachs, W. et al. (2007). The model aims at explaining the central research

questions and specific research objectives. At the core of the model (see Figure 1), it is found that small-scale farmers have control over agricultural lands, traditional food production methods, diverse farming systems, and the capacity to strengthen the resilience of food. In the second cycle, peasants work in several economic spheres, including access to food, food prices, controlling food prices, and control over supply and demand of foods. The peasants play a role in the local food production supply chain, supplying available foods to the local market, which allows for a close connection between producers and consumers. Also, the macro level of the model, (local food production and management level) involves local food market, food safety sufficiency, and food system transformation, where small-scale farmers play a vital role. The model is illustrated below.

Figure 1: The Onion Model of Local Food Systems



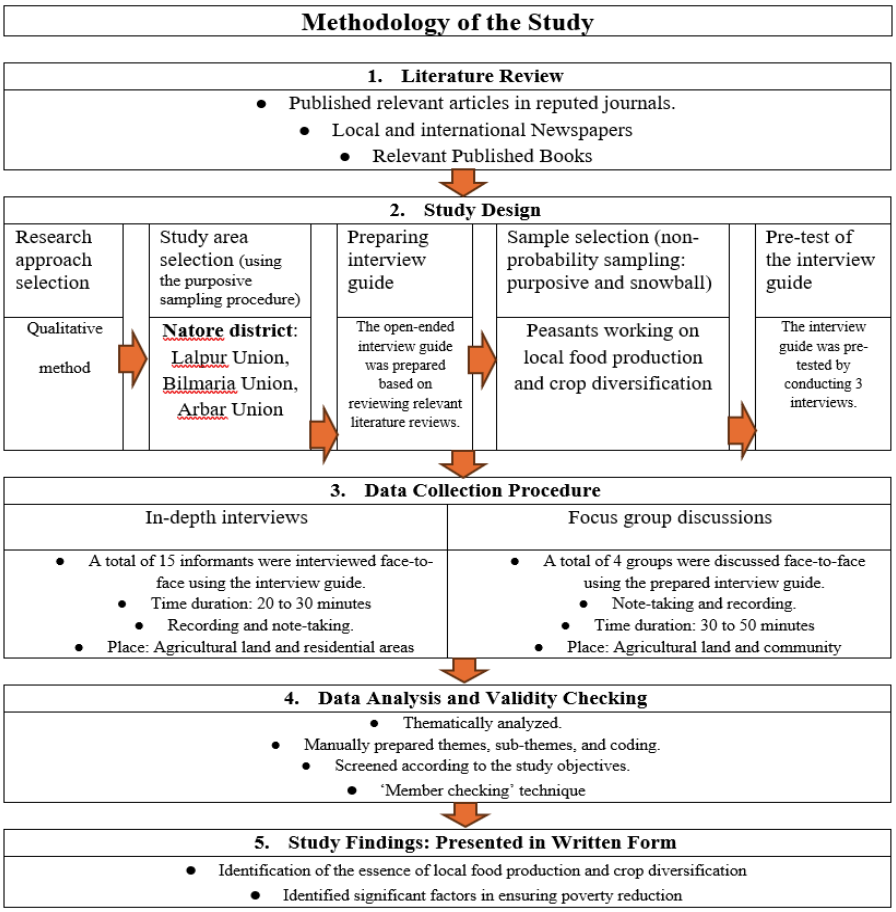
(Source: Author's generated framework, 2024)

3. Methods, Materials, and Sampling Procedures

3.1 Research Design

Table_ 1 demonstrates the methodological framework of this research on local food production and crop diversification. Initially, we conducted a review of the existing literature - relevant journal articles, local and national newspapers, and published books- on food production and crop diversification. It also shows the qualitative tools, like interview guides and checklists, that were used for data collection from the selected informants. As the table shows, we framed an interview guide with open-ended questions for informants to answer the research-specific objectives. Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs) were utilized to obtain primary data, while secondary data was collected from already published relevant literature.

Table 1: Chronological steps of the methodology



(Source: Authors' generated framework, 2024)

In-depth information was collected and analyzed deeply to explore perception of peasants' experiences and viewpoints on local food production, crop diversification and the current state of poverty status. This strategy, mentioned in Table 1, helped us to investigate the impact of local food production and crop diversification on poverty reduction (SDG 1) in the northern region of Bangladesh. It also facilitated us to understand the factors behind crop diversification and local food production to reduce poverty.

3.2 Population and Sampling Procedure

To conduct this research local farmers and individuals associated with the local food production system of the study areas were considered as informants. The research design argues that 15 informants are an appropriate number for directing the interview (see Table 1). An overall recommendation for in-depth interviews is to have a sample size of 20 to 30 in number (Tembo, 2023). Some researchers also assess between 10 and 50 participants as an adequate number depending on the type of research and research questions.

3.3 Selection of Participants

For this research, informants were selected using purposive sampling techniques. Purposive sampling allowed us to involve informants with experience and knowledge of local food production and crop diversification. Following the sampling process, 15 informants were selected as KIIs and 28 participants were chosen to take part in 4 FGDs (illustrated in table 1).

3.4 Data Collection Techniques

3.4.1 In-Depth Interviews (IDIs)

Based on the purposive sampling method, the study selected the informants who were the residents of the study area such as small-scale farmers and local agricultural workers, who possessed extensive knowledge of local food production and crop diversification. The data were collected using the interview guide between February 11, 2024, and April 26, 2024. The native language of the participants (Bengali) made it possible for the lead researcher to carry out the interviews with care. We used a tape recorder to record every interview with the participants' full consent. Each discussion took 20 minutes to 30 minutes and was recorded to protect the authenticity of the data. Transcriptions of the recordings were then duly completed.

3.4.2 Focus Group Discussions (FGDs)

We conducted four Focus Group Discussions (FGDs) with twenty-eight participants of various socio-economic backgrounds. To accommodate their preferences for participating in the Focus Group Discussions, the study participants were consulted before the FGDs to choose the place and timing of

these sessions. To guarantee a homogeneous group for every FGD session, we ensured that participants in each session had similar attributes. Each FGD session was audio-recorded and documented by one of the co-researchers. Seven informants participated in every Focus Group Discussion (FGD). The first and second FGDs were held in the *Lalpur Union*, and the third and fourth FGDs were conducted in the *Bilmaria Union* of the study area.

3.5 Data Analysis Techniques

Analyzing the large quantity of data collected through interviews and focus group discussions was challenging. To minimize this, we conducted a thorough data curation process, excluding information that did not directly correspond to the study's objectives. We listed the significant ideas related to the study's central objectives. The data was then carefully observed for any errors, incompleteness, or irrelevance, and those that were so identified were eliminated. After that, a thorough examination was done to ensure everything complied with the main ideas. Whenever information deviated from the main principles, an attempt was made to reinterpret the data to align it with the essential concepts. Using a thematic approach to data analysis (see Table 1), we identified recurring themes and patterns in the narratives that emerged from the interviews. With this theme analysis, we highlighted the data's shared and unique appearances. To support the informants' sense-making, we organized for them a forum to draw from knowledge, viewpoints, and experiences gained from their own experiences. We employed the "member checking" method to confirm the reliability and validity of the data gathered by sharing a summary of the main findings with the study participants.

3.6 Data Sources and Ethical Considerations

To prevent awkward or embarrassing situations, the interviewer tried to get the informants' oral consent and have a friendly conversation with them. When further clarification was needed, the questions were repeated, and examples were provided. A checklist and interview guide were made to conduct the interviews. In-person interviews with the informants took place at their preferred locations.

Table_ 2: Selection of Themes and Sub-Themes

Themes	Sub-themes	Coding	Informants
(i) Local Food Production and Resilience of Food Production	Homegrown food cultivation	Regional crop production, such as rice, wheat, eggplant, lentil, potato, onion, green chilli etc.	R2, R5, R8,
	Resilience of food production	Fulfil the demand for necessary foodstuffs, and provide some extra food to other areas.	
(ii) Local Food and the Control of Food Prices	Domestic crop production	Small-scale farmers produce homegrown vegetables, rice and other food.	R1, R2, R3, R11
	Stable food prices	Keeping food prices normal, sometimes lower than its regular prices.	
(iii) Local Food Production and Peasants' Daily Income	Local food production	Producing diverse local food, cultivating proper local food in the proper time.	R8, R9, R10
	Peasants' daily income	Receiving more daily income, increasing monthly income.	
(iv) The Production of Local Food and Its Impact on Global Food Stability	Local food cultivation	Producing different kinds of local food, and cultivating local vegetables.	R3, R6, R7
	Impact of local food on global food	Exporting extra food to other regions, transferring local food to other countries.	
(v) Diverse Food Production and Poverty Reduction	Varieties of Food Production	More types of crop production, and different categories of food production.	R1, R3, R4
	Reducing Poverty	Meeting up family's food needs, financially solvent.	
(vi) Crop Diversification and Stabilization of Local Food	Producing diversified food	Cultivating various crops, producing all kinds of local food.	R6, R7, R15
	Balancing of domestic food	Fulfilling all needed food for families, maintaining the local food market.	
(vii) Mixed Method for Food Production and Poverty Reduction	Modern methods for crop production	Using modern technology, the latest cultivation system.	R12, R13, R14
	Poverty reduction	Receiving more crops decreases poverty.	
(viii) Local Food Production and Crop Diversity	Native crop production	Producing home-grown food, not cultivating overseas food.	R6, R7, R9
	Varied food production	Producing different types of food, more than three crops cultivation.	
(ix) Diverse and Local Foods and Fundamental Rights for Food Consumption for Communities	Diverse local food production	Cultivating diverse local food such as rice, wheat, potato, lentil, onion, vegetable etc.	R12, R15
	Fundamental Rights for Food Consumption	People buy food according to their demand; the community happily consumes all foods.	

(Source: Author's generated framework, 2024)

4. Data Findings and Analysis

4.1 Local Food Production and Resilience of Food

Table 2_ shows that the local foods cultivated in the study area are transported to other districts after fulfilling the needs of the people living in that area. For example, several items of local foods, such as rice, wheat, eggplant, lentil, potato, onion, and green chilli, are produced in the local area. These foods meet the required needs of the peasants, and they sell extra amounts of food to other districts. “The local food strengthens the resilience of food in our area, and it also meets the food crises in other areas," pointed out by R2, R5, and R8. According to the study, these foods help to meet the local population's demand for essential food items. In this connection, R5 and R8 argued that “the local food produced in the area fulfills the demand for essential foodstuffs and provides some extra food. This meets the demand of the local people and supplies extra food for the people in other areas.”

4.2 Local Food and Control over Food Prices

The study assumed that local foods play a vital role in controlling food prices effectively (see Table 2). Several informants said, “Local foods, which are produced by the small-scale farmers keep food prices normal most of the months in a year" (R1, R2). Food prices can occasionally drop from their usual prices during specific seasons of the year because of overproduction. The price of Malabar spinach, for example, is kept lower than its usual price since peasants produce more of it than the local demand. "The syndicate business sometimes causes the food price to be higher than usual in a given year." During that time, people face trouble managing necessary foodstuffs. For example, the potato price was higher than its regular price because of the syndicate. Currently, the onion market faces these challenges." (Opined by R2, R3, R11).

4.3 Local Food Production and Peasants' Daily Income

The study sfocused that local food production helps to increase peasants' daily income. The peasants who produce local food in sufficient quantity, generally receive more daily income. Table_ 2 reveals that the peasants' daily income increases only when they produce local and diversified foods around the year.

Sometimes, food prices are lower than usual because of the overproduction of the same food items each year. As a result, peasants cannot get the expected prices of their grown food items and fail to receive adequate profit. In this regard, peasants can earn steady income by diversifying their food production in a given year.

4.4 The Production of Local Food and Its Impact on Global Food Supply

Many informants pointed out that "local food significantly impact the global food supply process. For example, peasants produce diverse foods on their lands and these local foods, after meeting people's daily needs, are exported to other countries across the globe." The study further stated that if small-scale farmers did not produce local food, they would have to import necessary food from another country to fulfil people's demands. In fact, local food production can reduce dependence on food imports from other countries. Moreover, several respondents (R3, R6, and R7) argued that "some local foods are exported to other countries, especially mango. As a result, demand from other countries is being fulfilled by exporting mango from our area". On the other hand, a few informants argued that "the peasants produce diverse local food and keep necessary food for their family, and they sell surplus food in the market" (R3, R7). As a result, there are now more varied food items available in our local market. Furthermore, after guaranteeing food availability, peasants export regional yields to other regions of our nation.

4.5 Diverse Food Production and Poverty Reduction

Table 2 illustrates that varieties of food production can significantly reduce the level of poverty among the people living in the study area. Several informants opined that "it is possible to reduce poverty remarkably by producing diverse foods. The peasants produced only one to two crops (wheat, lentil, rice, sugarcane, etc.) on their small pieces of agricultural land in our area a few years ago. The peasants who produce only one crop a year are not financially solvent", added a few informants. R1, and R5 argued that "Those who cultivate one or two crops annually in their agricultural fields are financially stable for a few months. However, they subsequently encounter economic difficulties for the

remainder of the year." These circumstances have significantly changed in recent years. Now, the cultivators harvest four to five or more types of yields from one agricultural land in a year. Few informants argued, "we are producing nine different crops on one agricultural land simultaneously. For instance, we are growing corn in certain areas of the land, cultivating onions in another section, planting eggplants, green chilies and red amaranth in other areas of the land. As a result, we can harvest diverse foods every month enabling them to meet our respective family's food needs, and we are now financially well off by selling surplus crops in the market. Like me, many peasants cultivate diverse food on their agricultural land and are financially well off" informed R1, R3, and R4. Not only did peasants gain financial strength, but also day laborers improved their financial capabilities. The farmers are employing additional workers in their fields to grow a wider variety of food compared to previous years. As a result, laborers have been able to improve their economic condition.

4.6 Crop Diversification and Stabilization of Local Food

"Our peasants produce different crops at a time on their land in our area, and these significantly contribute to our local food stabilization," stated R6, R7. "Some peasants cultivate sugarcane, onion, potatoes, and other vegetables on the same agricultural lands. In doing so, peasants provide all types of food needed for their household by producing diversified food," commented R6, R7, and R15. Crop variety thereby maintains local food supplies in the region. The study found that the nutritional needs of the local population are efficiently met by the variety of local food production. For instance, when a small-scale farmer grows a variety of local foods, his or her family can eat a variety of meals and meet their nutritional needs. However, he or she also purchases additional food that is required for his or her family and sells excess food to the market. As a result, dietary food consumption is rising every day in the research area (shown in Table 2).

4.7 Mixed Methods of Food Production and Poverty Reduction

Many informants argued that "it is possible to reduce poverty at a high rate by producing crops using modern methods. Because it is not possible to receive

more food from an agricultural land if traditional tools are used for producing food." (R12, R13, R14). It is possible to produce more food from agricultural land if peasants use both traditional and modern methods. Table 2 shows that the peasants have started producing food using mixed methods. These mixed method processes help them to produce more food and contribute to reducing their poverty day by day.

4.8 Local Food Production and Crop Diversity

Table_ 2 illustrates that local food production plays an important role in enhancing crop diversity. “Most of the local foods produced in the area are cultivated on land simultaneously" (R6, R7, R9). For example, R7 and R9 argued that "we produce corn, lentils, eggplant, onion, and some vegetables at a time on one of our agricultural lands. It would not be possible to calibrate crop diversity if we produce only one kind of crop on our land." Several FGD participants stated, "The peasants in the area properly control and maintain their agricultural lands. They have been producing local food on their agricultural lands continuously. The small-scale farmers properly cultivate their land in our area and do not abandon them. Cultivating their land ensures local food production, which is crucial for producing diverse food" (FGD1 and FGD 2).

4.9 Diverse and Local Foods and Fundamental Rights for Food Consumption for Communities

Many FGD participants (FGD 3 and FGD 4) pointed out that "our local food, as well as diverse food production, ensure the fundamental rights for food consumption for our communities.” The study argued that peasants produce the local foods of their areas, such as, rice, wheat, potato, lentil, onion, vegetable, meat, etc., and extra food cultivated by the small farmers are sold off at a specific price. The extra produce meets the needs of the people of the local community. Every person in the community can purchase food according to their demand, which ensures their fundamental rights to food consumption (please see Table 2).

5. Discussions

For a long time, policymakers, scholars, and civic communities around the world have given poverty, hunger, and malnutrition a great deal of attention. By 2030, the Sustainable Development Goals (SDGs), the newest global endeavor, seek to end hunger, poverty, and undernourishment while fostering peace and prosperity for all. A number of SDGs, especially the reduction of poverty depends on agriculture, which is impacted by institutions, markets, technology, regulations, and climate change (Rao et al., 2018). Agricultural food production works as a pathway towards achieving Sustainable Development Goal 1 (Barghouti et al., 2004; Birthal et al., 2013). Researchers throughout the world are putting a lot of effort into developing ways to improve agricultural output using a variety of tools and methods in order to promote resilient, adaptive, and sustainable farming lifestyles. Bangladesh has made significant strides toward attaining the Millennium Development Goals (MDGs), mainly due to increased income generation, poverty reduction, diversification of food production, and increased consumption of non-cereal foods like fruits, vegetables, and animal products—all of which are essential to the MDGs' success (Rahman et al, 2024; Susmita et al.; P. C., 2018).

The findings of the study point out that local food production and crop diversification play a crucial role in reducing poverty among the participants in the study area. Cultivating various crops can significantly enhance household income in the study areas. Research indicates that smallholder farmers can effectively reduce their income risks by producing a variety of crops (Feliciano, D., 2019). Crop diversification and poverty reduction have been the subject of numerous research (e.g., Bravo-Ureta, Solis, Cochi, & Quiroga, 2006; Harris & Orr, 2014; Oladele, 2011; Weinberger & Lumpkin, 2007), which have looked at how it affects rural incomes and job prospects.

Crop diversification, as suggested by various researches, plays a direct role to reduce poverty. Crop diversification is promoted in agriculture as a practical means of reducing poverty (e.g., Birthal, Jha, Joshi, & Singh, 2006; FAO, 2011; Perz, 2004). It is acknowledged for being accessible, affordable, and ecologically feasible, particularly for small-scale farmers (Mugendi Njeru,

2013). Crop diversification is recognized for its capacity to influence several aspects of peasants' life, including income levels, gender equality, food security, nutrition, and climate change resilience. Many people in the developing world, especially the impoverished, depend significantly on agriculture for both food and income, making it a vital aspect of their daily lives. Land ownership and control over natural resources, which are vital for agricultural practice, are crucial to reducing poverty in developing nations in Asia, Africa, and Latin America. Since the beginning of human civilization, it has been essential to agriculture, cattle, aquaculture, fisheries, and forestry, and it is the main source of employment worldwide (Bhavani et al., P., 2020).

The study argues that the local foods cultivated in the area are transported to other districts after fulfilling their area's needs. Local food guarantees access to essential food items, enhances the area's food resilience, and helps to address food shortages in other regions. Studies (Rahman et al., 2023, Rahman et al., 2024) also found that local food systems can ensure food security if they are more resilient. Less than one-third of the global population would be capable of meeting its food demand from local crop diversification (Stein, A. J., & Santini, F. 2022).

Then, the study found that local food production increases peasants' daily income, controls food prices, helps to significantly decrease the rate of poverty, and develops the local community. When production and processing occur locally, it is influenced by local heritage and consumption patterns (Galli et al., 2015). Moreover, it contributes to the revitalization of rural areas, provides new job opportunities, boosts farmers' self-esteem, and helps create relationships between city and countryside (Mancini et al., 2019; Mundler & Laughrea, 2016), which can promote community development (Karg et al., 2016). Local food production contributes to rural development and helps create employment, which benefits rural populations. The study also points out that local food systems help farmers increase their production viability, thus earning more income. These findings were also supported by other researchers, such as Stein, A. J., & Santini, F, 2022.

6. Conclusions, Limitations, and Future Research

This study makes a number of important arguments regarding the significance of local food systems, varied food production, and their influence on reducing poverty in rural Bangladesh. To begin with, the study shows how local food systems help reduce poverty through stabilizing local food supplies and raising daily income. It highlights how important varied food production and local food systems are for boosting resilience and regulating food prices in rural Bangladesh.

According to the findings of this research, it can be asserted that food production systems become more resilient when they are local and diversified. Only through a local and diversified food production system communities will be better equipped to endure and bounce back from shocks like natural disasters, changes in the market, or other interruptions that impact the supply of food. Communities can have more stable and predictable food prices by diversifying local food production. This is because they can meet a large amount of their food needs internally and are less reliant on outside markets. Additionally, by giving rural people more options for daily income, traditional food production techniques help to reduce poverty. This could be by working in agriculture, selling extra crops, or taking part in value-added food processing and marketing operations. Additionally, crop variety is necessary for maintaining the local supply of basic foods. Communities may guarantee a more varied diet and lessen reliance on single crops that might be susceptible to pests, diseases, or climatic unpredictability by cultivating a variety of crops that are appropriate for the local area. By ensuring that essential foods are available locally, local food production helps to improve food security in rural regions and lessen reliance on imports. This is especially crucial in situations where access to outside food sources may be restricted due to infrastructure and transportation issues.

The study emphasizes that there are many advantages of funding the regional and varied food production systems in rural Bangladesh. These advantages go beyond simple financial gains and include durable and advantageous poverty reduction tactics, food security, and shock resistance. The study acknowledges

that information obtained from interviewees who were specifically chosen may not fully represent the range of viewpoints on local food production and crop diversification in rural Bangladesh. Although useful for focusing on certain knowledge holders or important informants, purposeful sampling may not yield a representative sample of the opinions and experiences of the larger community.

7. Future Research Avenues

Future research could take into account the following strategies to solve these shortcomings and improve the study's findings:

(i) Conducting quantitative study can offer a more methodically and statistically validated investigation of small-scale farmers' viewpoints regarding crop diversification and local food production. By conducting a survey, an extensive and representative sample of peasants can be derived across different regions and socioeconomic backgrounds, researchers can collect information that will better represent the overall population's views and practices.

(ii)Implementing comprehensive surveys with a large number of random sampling methods can ensure the participation of all respondents and an inclusive representation of community perspectives. This strategy will allow researchers to have various views, perceptions, practices, and challenges central to crop diversification and local food production.

(iii) Conducting longitudinal studies can contribute to the changes in peasants' views and practices over time, providing insights into the dynamics of local food production and crop diversification within evolving socio-economic and environmental conditions,

(iv) Studies in combinations of different disciplines, for instance, agriculture, economics, sociology, development studies, and environmental science can provide a holistic understanding of the complex interactions among crop diversification, local food systems, poverty reduction, and environmental sustainability.

It is believed that by using these techniques, future studies can gain a more accurate and thorough understanding of how local communities view and

interact with local food production and crop diversity. In rural Bangladesh and other similar contexts throughout the world, this improved understanding is essential for guiding policies and actions that support sustainable agricultural practices, improve food security, and lessen poverty.

8. Recommendations

Future initiatives aimed at promoting national food consumption in rural Bangladesh, reducing poverty, and promoting local food production will be addressed by the findings of the study, which can help small-scale farmers or peasants create appropriate strategies and tactics for crop diversification and local food production. In turn, it will encourage diversified farming methods that include the production of many food items, including the cultivation of different crops, livestock and aquaculture. Peasants can improve their livelihoods, meet local nutritional needs, and increase food security by diversifying their agricultural operations. In order to reduce poverty and assist small-scale farmers in implementing multi-food production systems, legislators and policymakers can benefit greatly from the findings. Policies can include training programs on sustainable farming methods, infrastructure improvements for storage and market access, incentives for diversification, and access to capital and agricultural supplies. Planners can support sustainable rural development and the reduction of poverty by coordinating policies with the study's suggestions. The study emphasizes how crucial it is to implement programs that support regional and multi-food production. By promoting regional food production and multi-food projects, stakeholders may help reduce poverty in rural Bangladesh. Peasants who engage in diversified agricultural practices have access to several sources of income and are less susceptible to changes in the economy. Additionally, better access to wholesome regional foods can improve rural residents' general well-being, which will aid in the fight against poverty.

In conclusion, the study's findings will provide useful directions for advancing regional food production, strengthening food security, lowering poverty, and boosting patterns of national food consumption in rural Bangladesh. In agricultural communities, stakeholders can promote resilience, inclusive growth, and sustainable development by incorporating these results into policy frameworks and community-level activities.

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Declaration of Interests

We, the authors of this research manuscript, declare that we have no financial interest. We have provided written consent to publish the paper in this journal.