

Social Factors Affecting Modern Inputs in Agriculture and Non-farm Activities in Village Shimulia

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Abstract

Non farm activities plays vital role to increase family income immediately after agricultural profit in rural areas in Bangladesh. It confirms social stability, economic sufficiency and reduction of social problems in rural areas. After technological adaptation in agriculture, the production increased. But the price hike of necessary commodities and increasing demand of consumption bound the rural people to rethink about rising household income. Non-farm activities create a mode to increase family income, reduce poverty, increase educational rate, increase labour productivity, increase women participation, and reduce migration. Present paper will go beyond the social and economical power strength of using modern inputs in agriculture and doing non-farm activities. Besides it will explore social impact of non-farm activities on village life in Bangladesh.

Introduction

After green revolution, farmers started to use modern inputs in agricultural production that resulted high rate of production though the farmers of Bangladesh was happy enough before using it in rural areas. But it was seen farmers need more income besides agricultural profits. They tried to fulfill the basic need doing non-farm activities in rural areas in Bangladesh. Non-farm activities are so dominated and essential for the farmers that all of them either choose to do and other bound to do that in rural areas. The present paper will seek the elements of social structures and types social forces that contribute to do non farm activities in rural areas.

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Bangladesh is primarily considered as an agro based country where most of the people live in village area. 'Around 75% of the total population directly or indirectly depends on agriculture and near about 84% of the total population lives in rural areas almost depend on agriculture for livelihood'.¹ The agricultural sectors comprise with crops, livestock and fisheries. Present paper deals with only crops excluding the fisheries and livestock sectors. As crop sector is mostly dominated sectors in agriculture. After liberation, Bangladesh counts a significant progress in production of crops specially rice 'The crop sector accounts for 12 per cent of GDP, 60 per cent of the agricultural value addition and occupies over three-quarters of the cropped area. Rice production tripled from 11 million tonnes in 1972 to 32 million tonnes in 2009'.² Recent use of modern inputs in agricultural sector advanced the growth of rice production in Bangladesh. 'The widespread use of modern or high yielding varieties has helped Bangladesh to move away from serious import dependence on rice, despite a severe increase in population and a decrease in arable land since its independence in 1971'.³ Again 'with the introduction of green revolution technologies in the late 1960s, rice production increased at the expense of many other crops including jute, pulses, oilseeds and spices. On the other hand, cropping intensity has now surpassed 180 percent'.⁴ On the other hand farmers need to increase yield to tackle with increasing population and decreasing agricultural land. Other reasons are 'due to economic, demographic and modern market situations, the farmers need higher production ...Cultivation of HYV is unavoidable for them'.⁵

But recently 'cultivable land decreased slowly which was 9.78 million hectare in 1990 and has been reduced to 7.32 million hectare in 2005'.⁶ In rural area, most of the farmers cultivated their land for their own household consumption which is called subsistence production without thinking to surplus or sale. But recent commercialization in agriculture with the investment of modern inputs creates an opportunity to trade the surplus crops for the farmers. 'The traditional subsistence crop production system is currently transforming into commercial agriculture and this is clearly visible nowadays in the production systems being followed by the farmers of the country'.⁷ In traditional production system the farmers usually

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- 1 Noor Mohammad, (2012), The Agricultural Governance in Bangladesh: A Case Study, *International Journal of Social and Human Sciences* 6 2012
 - 2 Government of The People's Republic of Bangladesh, June 2010, OUTLINE PERSPECTIVE PLAN OF BANGLADESH 2010-2021: MAKING VISION 2021 A REALITY, General Economics Division, Planning Commission
 - 3 Hossain, M., M. L. Bose, and B.A. Mustafi. (2006). "Adoption and Productivity Impact of Modern Rice Varieties in Bangladesh." *The Developing Economies* 44(2): 149–166.
 - 4 Dr. Md. Abdur Razzaque (Member Director (Crops) Bangladesh Agricultural Research Council), February 2007 'Final report on the establishment of the national information Sharing mechanism (NISM) on the implementation of the global plan of action (GPA) for the conservation and utilization of plant genetic resources for food and agriculture in Bangladesh', Bangladesh Agricultural Research Council, Ministry of Agriculture, FAO/government Cooperative Programme, AG-GCP/RAS/186/JPN FIELD DOCUMENT NO.2007/04, p – 37.
 - 5 Mahbub Rabbani, Salah Uddin Siddiquee, Sourovi Zaman and Hiroshi Nakamura, (2007), Agriculture in Bangladesh, -Recent Trend and Agroenvironment toward Sustainability, *Journal of the Faculty of Agriculture SHINSHU UNIVERSITY*, vol. 43, No. 1-2 (2007), p - 24
 - 6 SHAIKH KHOSRUZZAMAN, M. ALI ASGAR, K. M. REZAUR RAHMAN AND SHAWKAT AKBAR, (2010), ENERGY INTENSITY AND PRODUCTIVITY IN RELATION TO AGRICULTURE – BANGLADESH PERSPECTIVE, *Journal of Bangladesh Academy of Sciences*, Vol. 34, No. 1, 59-70, 2010
 - 7 Dr. Md. Abdur Razzaque, *ibid*, p-28

cultivated jute, sugarcane and tobacco. But after introducing commercialization into agriculture, the farmers pay now more attention in producing rice, fruit, vegetable and wheat for commercial production. The commercial production needs short time, labor efficiency, lowest investment and highest profit. Inadequacy of labor absorption in the formal sector of the economy, high percentage of workable population, unskilled labour make it abundant and availability of labour in rural areas.

After green revolution, farmers faced a new challenge towards them; price hike of modern agricultural inputs and basic substances, growing members in the household, miniature of cultivable land etc. that forced them to earn extra income besides cultivation in rural area. These new challenges create a path to move in a way of doing non-farm activities in rural areas. Most of the cases, farmers are continuing their cultivation. Either some family members are doing non-farm activities or all the members are doing non-farm activities at the period of off-season in crops. That indicates a preferred and unique survival strategy of the rural people in Bangladesh. 'It is expected that the increased reliance on off-farm employment affects the allocation of family labor, and thus exerts an influence on farm productivity. On the other hand, off-farm work provides an opportunity for farm households to stabilize household income and reduce the uncertainty associated with agricultural production. It is a generally held belief that off-farm employment provides a risk management tool to reduce the income variability associated with the farm household.'⁸

Cultivation in Bangladesh is still primitive in the sense of using traditional knowledge in agriculture, using local seeds and bio-fertilizer and depends on nature for irrigate. It is not the Bangladeshi farmers who have thousands hector of land that use for farm. The lands are fragmented, labours are unskilled and farmers have to cultivate in tiny land that he owned. There are several types of farmers available in rural areas; (1) *rich farmer* (who have enough land to feed household members and make surplus crops to sale), (2) *medium farmer* (who have enough land to feed the household members and can not surplus), (3) *Marginal farmer* (who have too land to feed the household members), (4) *borga chashi* (who may have their land or not but cultivate a temporary lease of land on the basis of sharing the crop between the cultivator and the land owner), (5) *landless farmer* (who do not have any agricultural land at all).

Methodology

The study was conducted in a remote village named Shimulia. It is situated in the division of Khulna under the district of Narail. Village Shimulia is in Narail Sadar Upaziala under the union of Korola. There are 516 households in the village where 296 are Muslim households and rests of the household (220) are Hindu. There are 39 Hindu *rishi* (cobbler) and 21 Hindu *karmakar* (blacksmith) households. Again there are 29 Muslim *tati* (weaver) households. There are about 4300 population which comprises 1667 voters. Socio-demographic characteristics, time period of using modern agricultural technology, geographical location of the village are the main concern of choosing the sample village. A semi-structured questionnaire schedule, Participant observations and Key Informant Information were used to collect primary data. The data were collected in two folds 1. Collect 516 household questionnaires from every household with a view to see whether the family are engage in

8 El-Osta, H., Mishra, A., Morehart, M., 2008 Off-farm labor participation decisions of married farm couples and the role of government payments. *Rev. Agric. Econ.* 36, 291–304. sited in Hung-Hao Changa, Fang-I Wen, Off-farm work, technical efficiency, and rice production risk in Taiwan, *Agricultural Economics* 42 (2011) 269–278, Received 7 October 2009; received in revised form 16 July 2010; accepted 13 September 2010

non-farm activities or not and types of household like *rishi* (cobbler), *karmaker* (blacksmith), *tati* (weaver) etc. and 2. Collect 1220 individual questionnaires with a view to see types of non-farm activities, reasons of choosing non-farm activities and perception about the social effect of non-farm activities. The data were collected from January 2011 to June 2012. Some secondary data were collected from *naeb office* (union land office).

Literature

Modern Inputs in Agriculture

Sometimes, technology is replaced by machines or tools used by man in a narrow sense. Wider definition of technology includes variety of technical terms; production system, work organization, division of labor and so on. But sociologists typically agree ‘the practical application of knowledge and use of techniques in production of activities’⁹ to identify the term technology. The uses of modern agricultural technology by the farmers in village Shimulia is divided in two; agricultural technology before HYV cultivation and the modern technology after HYV cultivation.

Farmers in village Shimulia used traditional knowledge (TK) and primitive tools to grow their crops that are inherited from their last generation. As ‘Bangladesh Academy of Agriculture (1997) documented 100 useful indigenous agricultural technologies that encompass crops, forestry, fisheries and livestock’.¹⁰ To the farmers, unconscious uses of technology in agriculture were available because they mostly used their common sense and experiences to cultivate the crops. They had knowledge about off-farm activities rarely or even never.

‘Prior to the introduction of HYV rice since late 1960s and 1970s, *Aus* and *Aman* rice grown in the hot and wet months of the year (*Kharif season*) were the most important crops. There was very little *Boro* (winter) rice cultivation.’¹¹ Besides the villagers cultivated pulses, oilseeds, winter vegetables and spices like onion, garlic and vegetables for their own consumptions. Very few farmers dared to produce extra rice for sale. However this traditional production system of knowledge and primitive production technology appeared as a hindrance of positive social change or economic development. ‘A number of problems and tensions have resulted in indigenous knowledge not being as useful as hoped for or supposed’.¹² The reasons behind the problems arise today as a result of ensuring the standard life style, competition of agricultural production, modernization of agricultural system and for so called green revolution.

9 David Jary and Julia Jary, ‘Collins Dictionary of Sociology’ Third Edition, Harper Collins, India Ltd, pp (628 – 629).

10 Farid Uddin Ahmed (Member director Bangladesh Agriculture Research Council) (2000), ‘SYSTEM AND NATIONAL LEVEL EXPERIENCES FOR PROTECTING TRADIITIONAL KNOWLEDGE, INNOVATIONS AND PROTECTIONS: EXPERIENCE OF BANGLADESH’, Paper Presented in UNCTAD expert meeting on System and National Experiences for Protecting Traditional Knowledge, Innovations and Protections, Geneva 30 October – 1 November 2000.

11 Dr. Md. Abdur Razzaque (Member Director (Crops) Bangladesh Agricultural Research Council), February 2007 ‘Final report on the establishment of the national information Sharing mechanism (NISM) on the implementation of the global plan of action (GPA) for the conservation and utilization of plant genetic resources for food and agriculture in Bangladesh’, Bangladesh Agricultural Research Council, Ministry of Agriculture, FAO/government Cooperative Programme, AG-GCP/RAS/186/JPN FIELD DOCUMENT NO.2007/04, p – 37.

12 Briggs, J. (2005), The use of indigenous knowledge in development: problems and challenges. *Progress in Development Studies* 5(2):99-114.

Though, HYV was introduced in 1960s in Bangladesh, the village farmers still remained intact with TK to cultivate crops. In 1980s, they had ever seen the magic power of HYV. With small land and short time, they can produce huge amount of rice. Surprisingly, they saw that modern irrigation with shallow pump (powered by diesel), pump (powered by electricity), power driller, chemical fertilizer, pesticides, spray machine, irrigation pipe and credit facilities associated with agricultural production. 'The country reached virtual self-sufficiency in rice, for the first time in the living memory, towards the end of 1990s'.¹³ ... 'The introduction of photo insensitive HYV rice varieties grown with irrigation during the drier cooler months of the year (*Rabi* season) paved the way to a rapid increase in *Boro* rice cultivation, for that matter in total rice production in the country'.¹⁴ Using modern technology and tools, the farmers can produce (2-2.5) kg. of rice per decimal compared to (.5-1) kg. of rice per decimal using the traditional method of farming. Farmers now use various types of chemical fertilizers like Nitrogen, phosphorus, sulfur, and pesticides like Dymacron, diozinon, labacida, furadan (Banned), Asataf, Dustban, feady, fantox, taugh goor, indofine, babistin, teal, poalax, etc.

'I own this loaf of bread. Why is this ownership accepted? Because I got it by exchange through paying some money I owned. Why is my ownership of that money accepted? Because I got it by selling a bamboo umbrella owned by me. Why is my ownership of the bamboo umbrella accepted? Because I made it with my own labour using some bamboo from my hand.'¹⁵ An individual earn only for fulfill his basic needs as 'a person is not entitled to unemployed benefit if he exchanges his labour power for a wage, i.e. becomes employed'.¹⁶ Before introducing the HYV cultivation, the common scenario of labour uses in agriculture is to cultivate own crops in own hand in village area. Likely the husband, wife and children are the labourers to cultivate crops. As the *aus* (autumn) and *aman* (winter) seasonal crops were much enough to feed themselves. Farmers habituated to cultivate for self reliance. Surely 'family labour is more productive than hired labour ...family and hired labour as distinct inputs since in Bangladesh hired labour is only used when there is a shortage of family labour in the farm'.¹⁷ Hired labour depends on farm size, investment on cultivation, workable men in household etc for cultivation.

Surprisingly, HYV needs more labour as it takes less time and more investment than the traditional one. 'Organic agriculture tends to require somewhat more labour than conventional systems and in areas where there is a labour shortage this may be a limiting factor. Conversely, where workers are abundant and migration occurs, it can help contribute to rural employment and possibly to community stability'.¹⁸ It does not appear that HYV cultivation promotes unemployment, poverty and encourages non-farm activities. Traditional

13 Dr. Md. Abdur Razzaque , ibid, p – 8

14 Dr. Md. Abdur Razzaque , ibid, p – 8

15 Amartya Sen (1987), '*Poverty and Famines: An Essay on Entitlement and Deprivation*, Oxford University Press, p - 1.

16 Amartya Sen (1987), ibid, p – 6

17 Nasima Tanveer Chowdhury, (April 15, 2010) *The Relative Efficiency of Hired and Family Labour in Bangladesh Agriculture*, Department of Economics, Gothenburg University, Gothenburg, Sweden., p- 3

18 Daniele Giovannucci, (March 2007) *Organic Farming as a Tool for Productivity and Poverty Reduction in Asia*, Prepared for the International Fund for Agricultural Development /NACF Conference Seoul, 13-16

occupation like *karmakar* (black smith), *Rishi* (cobler), *tati* (weaver) are unchanged; holding their occupation by born. Increasing number of members in household, price hike of necessary commodities, depends on exported goods demand non-farm activities to the people of village farmers. 'About 52 percent of the total labor force is engaged in agriculture'¹⁹ found in labor force survey in Bangladesh. Because 'employment opportunities or the labour absorption capacity in the formal sector of the economy is inadequate in comparison with the size and growth of the workforce (high percentage of working age population) in Bangladesh'.²⁰ Micro credit, youth training encourage the people for income earning activities by doing non-farm activities but there are no vital effects seen to reduce huge abundant labor force in the village areas.

Non-farm Activities

'Off-farm employment is crucial to the rural poor, off-farm activities not only provide a significant share of the total income of rural households, but also increase the proportion of the rural poor in the labour force. Participating in off-farm activities offers a diversification strategy for the household and off-farm incomes provide a source of liquidity in areas where credit is constrained'.²¹ Again 'the rural non-farm economy plays a critical role in the income generation of rural households'.²² Recent trend in off-farm activities are noticeable in the village. The commonly seen off-farm activities in three different types are 'a) manual labor-based activities, such as self-employment in cottage industries, mechanics, wage employment in rural business enterprises, transport operations, and construction labor, b) Human capital based occupations, such as salaried service in public and private sector institutions, teachers, religious leaders, lawyers, village doctors, and various types of personal services (barbers, laundry services, mid-wives etc), and c) Physical and human capital intensive activities, such as agro-processing, shop keeping, peddling, petty trading, medium and large scale trading, and contractor services'.²³ It is crucial because 'rural non-farm sector is reported to account for 40 per cent of rural employment, and more than 50 per cent of rural income. In 2021, the rural labour force aged 15 years or more will reach 48.8 million'.²⁴

Results

Increasing demand of life style and price hike of the basic needs, farmers demand more money to survive. In 1990, the value of labour was not as high as present time. The total amount per *bigha* (1 *bigha* = 48 decimals) land for cultivate *boro* rice is 9,335 tk. now which is 691% in comparison with the cost of 1990. The cost of fertilizer increased 958% where the cost of seed increases 211% (table 1) to cultivate rice production in the village. Unfortunately the profit from that *boro* production increases only 132%.

19 Labour Force Survey, 2006-07.

20 Nasima Tanveer Chowdhury, (April 15, 2010) *ibid.*, p- 1

21 Norsida Man and Sami Ismaila Sadiya,(2009), OFF-FARM EMPLOYMENT PARTICIPATION AMONG PADDY FARMERS IN THE MUDA AGRICULTURAL DEVELOPMENT AUTHORITY AND KEMASIN SEMERAK GRANARY AREAS OF MALAYSIA, Asia-Pacific Development Journal Vol. 16, No. 2, December 2009, p-143

22 Gero Carletto, (2007), Rural income generating activities in developing countries: re-assessing the evidence, *electronic Journal of Agricultural and Development Economics*, Vol. 4, No. 1, 2007, pp. 146-193

23 Mahabub Hossain2, july 2004, RURAL NON-FARM ECONOMY IN BANGLADESH: A VIEW FROM HOUSEHOLD SURVEYS1, CPD Occasional Paper Series 40. p-3

24 Government of The People's Republic of Bangladesh, June 2010, OUTLINE PERSPECTIVE PLAN OF BANGLADESH 2010-2021: MAKING VISION 2021 A REALITY, General Economics Division, Planning Commission

Households are dominantly Muslims and Hindus. But the village Shimulia comprise a distinguish groups of household within the same religion. Like among Hindu there are four distinguish types of groups; *rishi* (cobbler), *karmaker* (blacksmith), Schedule caste and higher caste. Almost all of the groups from Hindu household found at least one non-farm labour. All the households of higher caste comprise with at least one non-farm labour. Rishi and Karmakar household comprise with 94.8% and 95.2% doing non farm-activities respectively. Whereas only 2.7% of the schedule caste household found not to do any type of non-farm activities. Among the Muslims a noticeable number (37.92%) of the *tati* (weaver) respondents' household do not engage any non-farm activities. A total of 91.8% of the Muslim household engage with non-farm activities in comparison to 96.8% Hindu household engage with that (table 2).

At least one of the members of the Borga chashi/Landless farmer/Other households engage with non-farm activities. The village comprises with 17 rich farmers' household, 89 medium farmers' households, 282 marginal farmers' households. Among them the highest (98.9%) households from marginal farmers have non-farm activities. The highest (29.4%) households from rich do not engage their members with non-farm activities. Around 74% of the medium farmers' households are engaged with non-farm activities (table 3). Around 71% of the members of non-farm activities in the village are male and the rest (29%) are female (figure 1).

There are 56 persons in the village engage themselves in self employment cottage industry which is only 4.5% of the total non-farm activities. Twelve persons in the village are mechanics whereas 68 persons engage themselves in wage employment in rural business enterprises which is only 5.5% of the total non-farm activities. There are 5.6% of the people engage with the transport related work. In village Shimulia 35 persons are identified as various construction labour where 14 persons are teacher. Six of the respondents practice as village doctors. There are nobody found as religious worker, lawyers, barbers and laundry service workers. The highest and most of the respondent comprise with 70.7% who engage themselves in agro-processing jobs as non-farm activities. Seven women found to practice as mid-wives. Seventeen people have small shop at their nearby house. There are 21 peddlers live in the village Shimulia where 11 people found as petty trader (table 4).

The reasons behind choosing the non-farm activities of the people of village Shimulia are diversified. Most of the respondents (75.79%) answered to invest more on agricultural inputs are one of the reasons of choosing non-farm activities. Non-farm activities meet their basic needs as 30.81% to buy food, 49.61% to maintain educational cost, 91.08% to buy cloth, 9.30% to build house and another 32.75% to maintain medical costs. Insufficient employment in farm (40.69%) also influences people to choose non-farm activities. Most of the respondents (93.02%) suppose to engage non-farm activities to increase family income of the household. Around 18.6% of the respondents engage in non-farm activities for supporting family in disaster time and another 15.31% of the respondents engage to buy assets. A substantial percent (30.42%) of the respondents do non-farm activities to pay the micro-credit loan. And lastly, very few percent (1.93%) of the respondents do non-farm activities to pay dowry (table 5).

Most of the people (96.39%) in village Shimulia decided to engage in non-farm activities spontaneously. There are 32.45% influenced by friend to do non-farm activities where as 69.42% influenced by family members. A very few percent (3.44%) of the respondents engaged to do non-farm activities influenced by religious leaders. Around 10.32% of the respondent influenced by relatives to engage non-farm activities where 10.57% of the respondents influenced by Non Government Organization. More than half (53.03%) of the respondents influenced by neighbors engage themselves in non-farm activities where 42.13% of the respondents encouraged by older person. Lastly very few percent (2.86%) of the respondents are influenced by government (table 6).

Most of the village people (79.1%) accepted that after non-farm work agricultural revenue increased and rest of them (20.9%) did not accept. More than half of the respondents (61.5%) did not find any increasing seen in rural labour productivity and the rest of them (38.5%) find it. More than half (57.3%) of the people in the village argued rate of employment in rural areas increased and the rest of them (42.7%) did not argue. Around 26.9% of the respondents used local agricultural raw materials to activate their non-farm activities and the rest (73.1%) did not use. Almost all (92.6%) of the respondents believed that non-farm activities increased investment in agriculture and very few (7.4%) did not believe. Only 12.1% of the respondents perceived non-farm activities developed their local markets and most of them (87.9%) did not perceive. Around 83.2% of the village people thought non-farm activities created surplus agricultural labour force and the rest (16.8%) of them did not think. Only 24.3% of the village people saw non-farm activities brought employment opportunities for poor rural groups and the rest of them (75.7%) did not see the same. Most of the respondents (60.4%) believed non-farm activates used local labour and the rest (39.6%) did not believe. People of the village found 27.96% increase of women's participation in non-farm activities and the rest (72.04%) did not find the same. Almost all (90.08%) of the respondents did not believe that non-farm activities reduced migration and the rest (9.92%) them believe. Very few (5.7%) of the respondents agreed non-farm activates promoted equality and justice in the village and the rest (94.3%) did not agree. Most of the respondents (64.5%) argued that non-farm activities reduced rural poverty and the rest (35.5%) did not agree. Most of the respondent (98.5%) thought non-farm activities ensured food security and very few of them (1.5%) did not think. Non farm activities reduced 26.97% income difference and where integration of households is increased by 10.5%. Around 20.3% of the respondents supposed non-farm activities promoted the welfare of villagers and the rest (79.7%) did not suppose the same. And lastly 22.6% of the respondents found non-farm activities developed new skills to the villagers and the rest (77.4%) did no suppose the same (table 7).

Discussion:

It seemed that farmers have been producing HYV since 1990. They had used *langal* (plough), *Jual* (yoke), *kudal* (spade), *kachi* (scissor), *lathi* (stick) and their own hand to cultivate their land before HYV was introduced in the village. They had happy enough with their traditional knowledge and primitive tools to cultivate and grow crops before 1990s except in the year of 1974 when two *Longorkhanas* had been settled to support the extremely hungry people in the center of the village. As Sen sited 'the largest group of destitute in the Langarkhanas were laborers (45 percent), followed closely by farmers (39 percent). If the laborers are split into agricultural and non – agricultural workers, the groups of farmers would appear to be the single largest category'.²⁵

Village Shimulia remained immobilized, dark and stable place where there were very little connection with other villages and urban people as well. Now a total of 13 power drillers are used to cultivate land in village Shimulia. And all power drillers are bought by rich farmers but three which are bought by small farmer with agriculture loan. Besides, 27 ploughs are still counted to cultivate land rarely in village Shimulia. One motor pump powered by electricity, two deep shallow and 27 shallow powered by diesel are seen to irrigate frequently in Boro season. There are 71 power thresher machines available to thresh paddy. Usually, the farmers thresh their paddy in own compound. There are 420 households who have at least some agricultural land from whom only 123 households need hired labour to cultivate in

25 Amartya Sen (1987), 'ibid, p - 141.

village Shimulia. Rests of them finish their cultivation either their family labour or *gata labour* (agreed labor like everyone is for oneself and one is for everybody). After the year 1990, people of the village started to move with urban economic competition which encouraged themselves do the non-farm activities (industrial work, service work either government or NGO, Small and Medium entrepreneurs etc.).

Price hike of the basic needs, farmers and the people of village Shimulia demand now more income to survive. In comparison with 1990 profit from rice production and now, it was found increase by 132% (table). The table 1 clearly shows the percentage of price hike of different agricultural inputs before. Before introduction of modern inputs in agriculture the village people entirely depended on agricultural production. Modern inputs brought high production but not high profit which appeared as main weapon to force people doing non-farm activities in village Shimulia.

Non farm activities among higher caste of 11 educated Hindu households in village Shimulia are noticeable. The higher caste member, generally think the highest moral people among Hindu usually do not cultivate their own land; either they lease their land or cultivate entirely by hired labour. They usually engage themselves large or medium business enterprises with better income sources. *Rishi* (cobbler) and *Karmaker* (blacksmith) bound to work their inherited work. *Rishi* members repair shoes, make winnowing fan, basket and scuttle made of bamboo which is considered low level works by other people of the village. Rate of early marriage is the highest and the rate of education is the lowest among *Rishi* households in the village. They struggle most of the time to manage their basic needs. Among the 39 households, very few of them have agricultural land and thus non-farm activities are the only option to survive. The tools that are made up of iron (plough share, scissors etc.) made by the *karmaker* (blacksmiths) mostly depend on their inherited labour rather agriculture. But 149 schedule caste households, mostly depend on agricultural land often engage themselves non-farm activities (97.3%). They have too tiny land to feed themselves round the year and thus work non-farm activities and agricultural activities simultaneously. This simultaneous work mostly seen in 29 Muslim *tati* households whose 37.92% households do not work their inherited business (weaving) rather engage entirely in agricultural. Rests of the households in village Shimulia are the different types of farmers who (95.1%) engage themselves in non-farm activities to survive themselves. Mostly they work in agro processing activities.

At least one of the members of the Borga chashi/Landless farmer/other households engages with non-farm activities because they need money to manage basic needs. Prior to agricultural revolution these types of households in village Shimulia entirely depend on agricultural labour money. Now they are hired seasonally hired for agricultural labour and rest of the time work with outside the village for industrial and other physical labour. Around 98.9% of marginal farmer households have non-farm activities which comprises the largest people who engage themselves both in agricultural and non-farm activities. the highest 29.4% households do not engage in non-farm activities who often hired labour to cultivate their land.

Around 71% of the total non-farm labour is male and the rest (29) are female. Female, usually cook food, look after their children and often help their husband in agricultural activities which are not considered as labour at all by the patriarchal society of village Shimulia.

There are 4.5% engage themselves in self employment cottage industry, twelve persons in the village are mechanics, 5.5% wage employment in rural business enterprises, 5.6% of the people engage with the transport related work, 35 persons are identified as various construction labour where 14 persons are teacher, six of the respondents practice as village doctors, 70.7% engage themselves in agro-processing jobs, seventeen people have small shop at their nearby house, 21 peddlers and 11 people found as petty trader. There are no religious workers, lawyers, barbers and laundry service workers (table 4). In Shimulia cottage industry, self employment business

enterprises and petty traders are too small in size to dominate the total non-farm activities like outside villages. Almost all of the labour engage themselves in agro processing jobs which rarely productive for their households.

The reasons behind choosing the non-farm activities of the people of village Shimulia are diversified. To invest more on agricultural, to fulfill basic needs, insufficient employment in farm activities, to increase family income of the household, to support family in disaster time, to buy assets, to pay the micro-credit loan and to pay dowry are the main reasons of non-farm activities done by people of village Shimulia. Where increase family income, clothing for family members and invest more to agriculture are the dominant reasons. Family members, neighbors and older persons are more likely encourage to engage in non-farm activities to the people in village Shimulia rather the Non Government organization and Government people.

Modern technology in agriculture comprises High Yield Varieties of rice, chemical fertilizer, pesticides, irrigation and water control technologies that led a higher yield of crops in village Shimulia. Since, 1990 non-farm activities played a vital effect on economic, social and environmental setting of village Shimulia. It creates additional income far from non-agricultural sectors that secured households' basic needs. The actors of non-farm activities mostly come from the marginal farmers that indicate a clear move up of village labour efficiency. Women, unemployed young people and poor farmers have now a diverse employment or work opportunities. With the help of non-farm civilities of other members in household, medium and poor farmers can invest more modern inputs in cultivation of crops that increase yield in their tiny land. It is obvious that local labours remain abundant and cheap if non-farm activities are not introduced. So, the effective uses of local labour indicate high GDP growth rate in household. Non-farm activities encourage people to live in village Shimulia that diminish rural to urban migration and tension of income which helps to poverty reduction in the village. It creates sufficient money in hand for the head of household that promotes education for next generation and food security. Previously, income distribution is so unequal that large farmers acted as money lender through interest. These lend money was used in agriculture to produce crops by the small farmers who remain in same economic stage for life long. But non-farm activities decrease earnings inequality among the people in village Shimulia. Doing non-farm activities, people can expand their new skills and new business entrepreneurship. These effects are very similar to the study of Rashidpur Village like as economic benefit, non-farm activities increased revenue, increased rural labour productivity, increased employment in rural areas, created background to increase value-added agriculture, reduced waste in agriculture, proportional distribution of inputs, mutual development of agriculture and non-farm jobs, use of local agricultural raw materials, increased investment in agriculture, development of local markets, product supply to local markets, development of rural tourism, sustainable rural economy. As social effect, non-farm activities absorb surplus agricultural labour force, employment for poor rural groups, use of local labour, increase women's participation, reduce migration, promote equality and justice, rural poverty reduction, food security, preservation of rural values and traditions, reduce income difference, increase integration of households, promote the welfare of villagers, develop new skills, socialization of productive activities in rural areas, contribute to social stability, improving economic – social indicators. As environmental effect, non-farm activities increase proper use of agricultural inputs, prevention of the degradation of natural resources, reduce pressure on fragile resources, reduce use of chemical inputs, conservation of natural resources, environmentally sustainable building.²⁶

26 Logman Rashidpour, 19 January, 2012, A study on the role of non-farm activities on rural sustainable development in West Azarbaijan Province of Iran, *African Journal of Agricultural Research* Vol. 7(3), pp. 475-481, Available online at <http://www.academicjournals.org/AJAR>

Conclusion:

Use of modern agricultural inputs increased the production of rice and other crops in rural areas in Bangladesh but besides using these there are economic, social competition which leads people to earn extra income for the family members. Traditional labour force like *Rishi* (cobbler), *Karmaker* (blacksmith), *dopa* (laundry service), *Napit* (barber) are looking straggling to maintain their inherited labour because of price hike of basic needs. Village Shimulia still maintains some of them but they are diverting to physical labour to fulfill their basic need. The *medium farmer* (who have enough land to feed the household members and can not surplus), *Marginal farmer* (who have too land to feed the household members), *borga chashi* (who may have their land or not but cultivate a temporary lease of land on the basis of sharing the crop between the cultivator and the land owner), *landless farmer* (who do not have any agricultural land at all) are at struggle most to survive in rural areas like village Shimulia. It seems they will not able to hold their village land because of insufficient profit of modern agricultural system, price hike. Thus to maintain agricultural production and to reduce social stability, they need self employment industries or short and medium enterprises to maintain their family members and stay thereby in agriculture. Female are far behind in non-farm activities as only 29% females engage in village Shimulia engage with it. More female members need to engage in non-farm activities to increase income of the household which will increase the rate of education rate. If husband and wife and their two children belong with a marginal farmer's household and wife is a housewife, husband will need the children in non-farm activities. But, if the wife engages in non-farm activities, there will be more change to educate the two children. Wage employment in rural business enterprises, self-employment in cottage industries, shop keeping and petty trading are still in small scale found in village Shimulia which bound most of the labourers to do agro based work as non-farm activities. But agro based work is seasonal and after the agro season, the labourer are unemployment. Thus it is urgent to engage the village people to engage some of the permanent types of non-farm activities. Non farm activities are still negative by the peoples' perception of village Shimulia like increased rural labour productivity (61.5%), development of local markets (87.9%), employment for poor rural groups (75.7%), increase women's participation (72.04%), reduce migration (90.08%), promote equality and justice (94.3%), reduce income difference (73.03%), promote the welfare of villagers (79.7%) and develop new skills (77.4%). Thus it requires rethinking about the nature and types of non-farm activities in large scale and its effects on society, economy and social relation.

Appendix:

Table 1: Comparison of production and cost in 1990 and 2012

Agricultural inputs	Cost in 1990 (tk)	Cost in 2012 (tk)	% Increase
Seed	270	570	211.1111
Fertilizer	120	1,150	958.3333
Plough	300	960	320
Irrigation	0	2,800	0
Pesticide	0	125	0
Labour	200	1,980	990
Threshing	460	1,750	380.4348
Total production cost	1,350	9,335	691.4815
Total Income	7,500	17,500	233.3333
Profit	6,150	8,165	132.7642

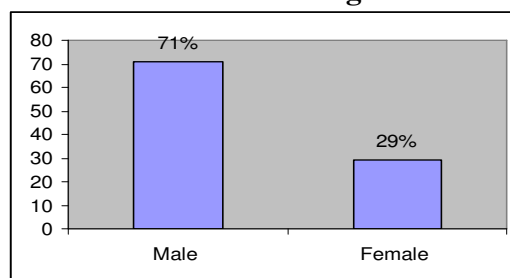
* Cost and production are estimated for 1 *bigha* (48 decimal) rice cultivation

Table 2: Types of groups' household doing non-farm activities

Types of groups	Doing non-farm activities	Do not doing non-farm activities	Total
Hindu	213 (96.8%)	7 (3.2%)	220
Rishi (Cobbler)	37 (94.8%)	2 (5.2%)	39
Karmaker (Blacksmith)	20 (95.2%)	1 (4.8%)	21
Schedule Caste	145 (97.3%)	4 (2.7%)	149
Higher Caste	11 (100%)	0 (0%)	11
Muslim	272 (91.8%)	24 (8.2%)	296
Tati (Weaver)	18 (62.08%)	11 (37.92%)	29
General Muslim	254 (95.1%)	13 (4.9%)	267
Total households	485 (94%)	31 (6%)	516

Table 3: Types of household doing non-farm activities

Types of household	Doing non-farm activities	Do not doing non-farm activities	Total
Rich farmer household	12 (70.6%)	5 (29.4%)	17
Medium farmer household	66 (74.1%)	23 (25.9%)	89
Marginal farmer household	279 (98.9%)	3 (1.1%)	282
Borga chashi household	49 (100%)	0 (0%)	49
Landless farmer household	11 (100%)	0 (0%)	21
Others household	58 (100%)	0 (0%)	58
Total	485 (94%)	31 (6%)	516

Figure 1: Percent distribution of doing non farm activities by sex**Table 4: Types of non-farm activities in the village**

Types of non-farm activities	Number	%
Self-employment in cottage industries	56	4.590164
Mechanics	12	0.983607
Wage employment in rural business enterprises	68	5.57377
Transport operations	69	5.655738
Construction labor	35	2.868852
Teachers	14	1.147541
Religious leaders	0	0
Lawyers	0	0
Village doctors	6	0.491803
Barbers	0	0
Laundry services	0	0
Mid-wives etc	7	0.57377
Agro-processing	863	70.7377
Shop keeping	17	1.393443
Peddling	21	1.721311
Petty trading	11	0.901639
Medium and large scale trading	39	3.196721
Contractor service	2	0.163934
Total	1220	100

**Table 5: Percent distribution of the respondents by the reasons of doing non-farm activities
n = 516**

Reasons of doing non-farm activities	Number of household	Percent
To investment in agriculture inputs	388	75.1938
To buy food	159	30.81395
To maintain educational cost	256	49.6124
To buy cloth	470	91.08527
To build house	48	9.302326
To maintain medical cost	169	32.75194
Insufficient employment in farm	210	40.69767
To increase family income	480	93.02326
To support family in time of disaster	96	18.60465
To buy assets	79	15.31008
To pay micro credit loans	157	30.42636
To pay dowry	10	1.937984

Multiple responses

Table 6: Percent distribution of the respondents by the influenced person to do non-farm activities

Persons	Number	Percent
Self influenced	1176	96.39344
Influenced by friends	396	32.45902
Influenced by family members	847	69.42623
Influenced by religious leaders	42	3.442623
Influenced by relatives	126	10.32787
Influenced by neighbors	647	53.03279
Influenced by older person	514	42.13115
Influenced by govt.	35	2.868852
Influenced by NGO	129	10.57377

Multiple responses

Table 7: Impact of non-farm activities in social life

Impacts	Perception	Percent
Increased revenue from agriculture	Yes (965)	79.1%
	No (255)	20.9%
Increased rural labour productivity	Yes (469)	38.5%
	No (751)	61.5%
Increased employment in rural areas	Yes (699)	57.3%
	No (521)	42.7%
Use of local agricultural raw materials	Yes (327)	26.9%
	No (893)	73.1%
Increased investment in agriculture	Yes (1129)	92.6%
	No (91)	7.4%
Development of local markets	Yes (147)	12.1%
	No (1073)	87.9%
Surplus agricultural labour force	Yes (1015)	83.2%
	No (205)	16.8%
Employment for poor rural groups	Yes (296)	24.3%
	No (924)	75.7%
Use of local labour	Yes (482)	60.4%
	No (738)	39.6%
Increase women's participation	Yes (341)	27.96%
	No (879)	72.04%
Reduce migration	Yes (121)	9.92%
	No (1099)	90.08%
Promote equality and justice	Yes (69)	5.7%
	No (1151)	94.3%
Rural poverty reduction	Yes (786)	64.5%
	No (434)	35.5%
Food security	Yes (1201)	98.5%
	No (19)	1.5%
Reduce income difference	Yes (329)	26.97%
	No (891)	73.03%
Increase integration of households	Yes (128)	10.5%
	No (1092)	89.5%
Promote the welfare of villagers	Yes (247)	20.3%
	No (973)	79.7%
Develop new skills	Yes (275)	22.6%
	No (945)	77.4%

Multiple responses

