

**SITUATION ANALYSIS FRAMEWORK
UNDER CEDAW APPLICATION FRAMEWORK (CAF)
FOR RE-ASSESSMENT**



**WOMEN IN AGRICULTURE AND
THE IMPACT OF POLICIES**

by

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List of Abbreviations and Acronyms

GDP	Gross Domestic Product
IRRI	International Rice Research Institute
GSP	Generalized System of Preferences
HYV	High Yield Variety
BBS	Bangladesh Bureau of Statistics
GMOs	Genetically Modified Organisms
UNDP	United Nation Development Programme
BLA	Bangladesh Labour Act.
NAP	National Agriculture Policy
NWDP	National Women Development Policy
IPM	Integrated Pest Management
PRSP	Poverty Reduction Strategy Paper
Ha	Hectare
BIRRI	Bangladesh Rice Research Institute
DDT	Dichloro-diphenyl-trichloroethane
UBINIG	Policy Research for Development Alternative
NGP	Narigrantha Prabartana
NGOs	Non Governmental Organizations
BARSCIK	Bangladesh Resources Center for Indigenous Knowledge
BAPA	Bangladesh Poribesh Andolon
BLAST	Bangladesh Legal Aid and Services Trust
NSN	Nayakrishi Seed Network
SWSN	Specialized Women Seed Network
NSH	Nayakrishi Seed Hut
CSW	Community Seed Wealth Centre
CPB	Cartagena Protocol on Biosafety
CBD	Convention of Biological Diversity

Glossary of Local Terms

- a. Nayakrishi Andolon- (New Agricultural Movement) – a biodiversity based farming system is a movement for ecological agriculture.
- b. Bangladesh Cha Sramik Fund- Bangladesh Tea Labour Welfare Fund

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Executive Summary

- In Bangladesh, agriculture is the single largest producing sector of the economy comprising about 21% (as of 2010) of the country's GDP and employing around 48% of the total labor force.
- Women's role in agriculture is very significant in the context of overwhelming presence of the small farm holding families. These are family-based holdings involving family members in different stages of production. But unfortunately women are not recognized as 'farmers' in any national documents – they are the wives and daughters in the farming households.
- As a major occupation of the population of Bangladesh, census of 1961 shows that the number of people depending on agriculture was 86% (with 85% men and 91.8% women) while in the census of 2001 the number of people depending on agriculture reduced drastically to 50.9% (with 52.2% men and 43.9% women).
- Women's work in agriculture remained invisible because , the division of labour in agriculture was that men were engaged in the fields for planting upto harvesting of crops, while women were engaged in post harvest works and seed preservation. Secondly rural women lack ownership of land, the most crucial rural asset. The existing inheritance laws give women lower share in the landed property of the parents as well as husbands.
- women are in general responsible for livestock and poultry rearing. Poultry rearing is a traditional activity performed by women for income generation. Feeding livestock, cleaning sheds, securing them properly for the night, and health care are the activities performed by women.
- The role of women in fisheries encompasses social and economic tasks both within and outside the family in order to sustain the activities of fishing communities

- Green Revolution known as mechanized and chemical agriculture destroyed and undermined the entire traditional skill and knowledge-based agricultural practices of the farmers, particularly women.
- Women role in agriculture is significantly high in the subsistence and marginal farming communities. With more mechanization and commercialization of agriculture, women's role in agriculture reduces or becomes minimal.
- The efforts for introduction of genetically modified seeds will severely affect women as it will be done through corporatisation of agriculture and there are potential health and environmental hazards.
- Different national policies on agriculture and women's development failed to recognize women's role.
- Women as labourers faced discrimination in wages far no statistics are available regarding differences in work as unpaid family labour vs paid worker in the post-harvest commercial activities such as rice mills. Also there is no provision in labour law for unpaid family labour in the post-harvest work.
- Cash crops such as Tea, Tobacco, cut flowers have exploited women.
- Women's knowledge and experience in agriculture has been denied in the policy. In fact, the policies have no reflection of the pre-Green revolution period which indicated that women played crucial role in agricultural production, particularly in seeds keeping, preservation of genetic diversity in crops, livestock and poultry etc.

1. Overview & Background

In Bangladesh, agriculture is the single largest producing sector of the economy comprising about 21% (as of 2010) of the country's GDP and employing around 48% of the total labor force. More than 55% of the total surface area is used for agriculture and 58% of holdings are in farming occupation in Bangladesh. In this assessment we shall include crop production, livestock and poultry and fisheries to some extent as the agricultural sector. The small-scale farmers (holding land between 0.05 – 2.49 acres) comprise 84.27%¹ of the total farming community.² "As a major occupation of the population of Bangladesh, census of 1961 shows that the number of people depending on agriculture was 86% (with 85% men and 91.8% women) while in the census of 2001 the number of people depending on agriculture reduced drastically to 50.9% (with 52.2% men and 43.9% women)³. Yet, it is the small farm households, which has kept the agriculture as a major occupation and continue to produce food for the country. Any effort to increase food security will require enhancing the capacity of the small scale farmers. The major agricultural crops as recorded in the government statistics are Rice, Jute, Sugarcane, Tea, Pulses, Oilseeds, Vegetables, Condiments and Spices and Tobacco.

Women's role in agriculture is very significant in the context of overwhelming presence of the small farm holding families. These are family-based holdings involving family members in different stages of production. But unfortunately women are not recognized as "farmers" in any national documents – they are the wives and daughters in the farming households.

Women's work in agriculture remained invisible for a number of reasons. For a long time, the division of labour in agriculture was that men were engaged in the fields for planting upto harvesting of crops, while women were engaged in post harvest works and seed preservation. Secondly rural women lack ownership of land, the most crucial rural asset. The existing inheritance laws give women lower share in the landed property of the parents as well as husbands. On the other hand, existing social traditions deter women from claiming or taking

¹ Statistical Pocket Book Bangladesh 2010, BBS, GOB, February 2011

² Farm holdings are divided into three categories: small, medium and large. A small farm holding has an operated area between 0.05 and 2.49 acres of land while a medium farm holding has it between 2.50 and 7.49 acres. A large farm holding is one having an operated area of 7.50 acres or above.

³ Population Census 2001 National Report (provisional) Bangladesh Bureau of Statistics, Planning Division, Ministry of Planning July 2003

possession of their legal share. As a result women seldom own the land possessed by the households. Their access is further constrained by the fact that women do not take up share cropping. In 1984-85, less than 1.0 percent of rural females employed population was reported to be share croppers. Thus from official, legal and traditional points of views, role of women in agriculture is considered insignificant⁴ .

2. Role of women in agriculture

In agriculture, rice production is very significant rice. Many studies carried out in the sixties, seventies and even in eighties documented the role of women in agriculture and rice production in particular. These studies showed very clearly that women's involvement in agricultural production was not only a matter of being a member of the farming family, but also because she possesses certain skill and knowledge that is crucial for maintaining the farming system. Women's work can be divided into field and domestic works. The International Rice Research Institute (IRRI) has sponsored studies through experts on rural women in Bangladesh. The main focus was to document women's specific role in agriculture, particularly in rice production. Women are involved in seed germination as a pre-sowing work and post harvesting works including threshing, soaking, parboiling, drying, husking, winnowing and again seed preservation. Husking is the most labour intensive operation in the whole post harvest processing and accounts for more than 50 per cent of the total post harvest labour requirement. The labour requirement of post harvest processing of paddy, which is mainly women's responsibility, is approximately half of total of the labour days required for its cultivation⁵ .

A Study on Water in Women's Daily Lives shows that women spend at least 5:30 hours, walk at least 1 – 5 km daily for bringing water for agricultural works only. (Narigrantha Prabartana Research paper -1

⁴ Rural Women of Bangladesh by Dr. Mahmuda Islam in Rural Development in Bangladesh Strategies and Experiences ed. Md. Abdul Quddus, BARD, 1993, Kotbari, Comilla

⁵ Women in rice farming systems in Bangladesh and how technology programs can reach them by Taherunnesa Abdullah in Proceedings of Conference on Women in Farming Systems Date: 26 – 30 September 1983 The International Rice Research Institute (IRRI), Manila, Philippines

Livestock is an important component of the farming systems in Bangladesh, and cattle, goat and poultry are the most commonly reared animals. Cattle are raised mostly for draft power. Goats and poultry are raised primarily as a source of cash income. In Bangladesh, women are in general responsible for livestock and poultry rearing. Poultry rearing is a traditional activity performed by women for income generation. Feeding livestock, cleaning sheds, securing them properly for the night, and health care are the activities performed by women. Men are involved in the heavy work with the animals such as taking them out of the compound. Owing to their crucial role in livestock care, women are generally consulted while buying and selling the livestock⁶. Women take care of the farmyard manure collection thus reducing recycling, which has important consequences for soil fertility. Women in the poorer families keep goat and cows on share basis and this becomes the source of a yearly earning of the families. So livestock keeping is very much part of women's livelihood.

Rokeya Begum has 2 Cows, 3 Goats and 5 fowls. She brings 10 pots of water (20 litre) for cows & goats from a nearby ditch and spends about an hour for bathing of the cattle 500

Livestock and crop production are complementary

Livestock and crop production have a complementary rather than a substitution relationship. Livestock in any form say cattle, goats and poultry, are helping the farming households to meet the input requirement for cultivation on the one hand and supplement family income and food on the other. It is also a supplier of food and is important in terms of nutrition, in the form of animal protein. Livestock keeping in any rural household is done through a family and social division of labour and women and members of the family have a significant role to play in livestock production, care, consumption and marketing.

Fishing is the second most important sector in the non-farm sector but only 3% of working women are estimated to be involved in fisheries⁷. The role of women in fisheries encompasses social and economic tasks both within and outside the family in order to sustain the activities of fishing communities. Traditionally fishing as a family occupation belonged to

⁶ Abdullah, T. A. and Zeidenstein, S. A. 1982. *Village Women of Bangladesh: Prospects for Change*, Pergamon Press, Oxford.

⁷ BBS, 1996, Statistical Yearbook of Bangladesh, 1995, BBS, GOB, Dhaka

only lower caste Hindus and men were engaged in catching fish and women were engaged in sorting and drying etc. In the villages open water fishing is open to men, women and children and particularly to the poor women who do not own pond. But with commercial shrimp aquaculture, 80% of workforce in shrimp fry collection is women and children⁸.

In the cash crop cultivation such as Tea, Cut flowers, tobacco, Jute women are involved in different stages of production but without proper recognition. It is usually understood that women are not involved in any aspect of floriculture, but on investigation it was found that women are involved in different stages of flower cultivation⁹.

Women are involved in preparing Marigold flowers before selling in the market by tying the flowers together, for rose and gladiolus women and children collect and gather the rose flowers from the field and carefully stack them together. Small girls are employed to sell flowers in the

These crops are mostly for cash earning of the farming families and are done by middle and large farmers. Tea is a specialized crop grown in specialized areas and tobacco is a company-driven crop taking away the land for pulses, oilseeds, vegetables etc. Women's participation in these crops is minimal. In the last decade, floriculture has been added as a cash crop in some region of the country replacing the commercial vegetable. Floriculture as commercial cultivation started in the 1980's. Flowers such as tuberose, gladiolas, marigold and roses are produced as luxurious crops and it has been included in the list of export goods. With good market prospects, a vast area of agricultural land has been turned into flower growing areas with intensive application pesticides. Agricultural products such as flowers also received preferential tariff treatment under the Generalized System of Preferences (GSP). The market has expanded to Europe, Us and Japan as well as good prospects in Middle Eastern and South East Asian countries. The investors in floriculture find it lucrative because of favourable climatic condition

⁸ Women-Led Fisheries Management: A Case Study from Bangladesh by P. Sultana, P.M. Thompson and M. Ahmed, ICLARM – The World Fish Centre, Malaysia and Bangladesh, 2000

⁹ Case Study Bangladesh: Fuley Gondho nei, UBINIG published in Poisoned Blossoms, Withering Hopes: The Floriculture Industry in Asia: A Review, by Pesticide Action Network, Asia Pacific, (PAN AP), 2008

and inexpensive labour. Women are involved in different stages of flower cultivation and processing before marketing¹⁰.

In the 1970s and 1980s tea earned a large portion of foreign exchange earning and till now earns substantial amount of revenue earning as sales tax. Tea plantation is concentrated in 158 Tea Gardens the 4 districts of hilly zones of the country. Tea plantation use immigrants from central India and are known as Mahali, Deshwali, Manda, Bauri and Santals and are working as labours with the Tea Garden as family occupation ¹¹. They do not have any land rights, can stay in Tea Garden if they work¹².

Tobacco cultivation has been increasing indiscriminately in the fertile areas of the country where most winter crops were grown. Tobacco is listed as 'cash crop' although it is nothing but a company-driven crop. Except Value Added Tax as revenue, Bangladesh earns nothing from tobacco cultivation rather there is serious environmental, health and social impacts of tobacco cultivation. It poses a serious threat to food security of the country. Women are involved as unpaid family labour or as cheap labour at different stages of tobacco production¹³.

Changed role of women after Green Revolution

Green Revolution or the modern agriculture was introduced in the 1960's in the name of increased food production and agricultural development. It was a change of the mode of agricultural production from traditional system to chemical and mechanical-based agriculture bringing forth the changes in rural infrastructure to suit the needs of the new mode of agricultural production. Undoubtedly it was a change towards a male-oriented production system, which had its own negative repercussions on the role of women played as family member as well as farming community member. Even the rural development programmes needed to be constituted infrastructure development, irrigation setups, financing, monetization of the rural economy, skill training and development for non-agricultural works, market setups etc. which made women redundant particularly those in the farming households and those who

¹⁰Case Study Bangladesh: Fuley Gondho nei, UBINIG published in Poisoned Blossoms, Withering Hopes: The Floriculture Industry in Asia: A Review, by Pesticide Action Network, Asia Pacific, (PAN AP), 2008

¹¹ Working Conditions in the Bangladesh Tea Plantation Industry by Pratima Paul Majumdar, n.d.

¹² Adivasi Cha Sramik: Lokoj Golpo, by Nibedita Das Purokayastha, published by Narigrantha Prabartana, 2008

¹³ Shifting Out of Tobacco to Food Production, UBINIG Research supported by IDRC, Canada, 2011

were taking farming as a major source of livelihood. The whole system was known as mechanized and chemical agriculture. It destroyed and undermined the entire traditional skill and knowledge-based agricultural practices of the farmers, particularly women.

Green Revolution or so-called modern agriculture was the change in from farmer-saved seeds to laboratory seeds named as high yielding variety (HYV) which required a package of chemical fertilizers, pesticides, tractors, extraction of ground water for irrigation, use of rice mills etc. But the major hit on women was in the introduction of seeds, tractors and rice mills which made their activities of seed preservation, livestock rearing and rice husking as redundant. The rice husking is a major operation in the post-harvest activities. The traditional rice husking is eliminated due to rapid intrusion of the rice mills powered with electric or diesel engines have a displacing effect on women's work. The wage labour women, majority of who earn through Dheki works, have been adversely affected because of its displacement effect.¹⁴ Another study (1981) showed that rice mills displaced 29 percent of the total husking labour in the sample households¹⁵. Therefore, rice mills may have created opportunity for some wage workers but generally have contributed negatively on the employment opportunities of poor and landless women.

Women role in agriculture is significantly high in the subsistence and marginal farming communities (statistically recognized as small farms holding 0.05 – 2.49 acres of land) who comprise 84.27% of the total farm households as of 2008 (BBS, 2010)¹⁶. Even among the landless families, women continue to grow in homestead land, while men migrate to the cities for non-farm jobs. With more mechanization and commercialization of agriculture, women's role in agriculture reduces or becomes minimal.

Recent promotions of Hybrid Seeds and GMOS

At present most of the commercial varieties of vegetables such as cauliflower, potato, cabbage, tomato, okra, egg plants etc. are all hybrid seeds. The traditional and seasonal local vegetables such as pumpkin, sweet gourd, okra, egg plant, beans, chili etc. are getting lost.

¹⁴ Women and Technology by Saleha Begum, in Proceedings of Conference on Women in Farming Systems Date: 26 – 30 September 1983 The International Rice Research Institute (IRRI), Manila, Philippines

¹⁵ Ahmed; J.U. Impact of New Paddy Postharvest technology on the Rural poor in Bangladesh, CIRDAP, Dhaka, 1981

¹⁶ Statistical Pocket Book, Bangladesh 2010; Bangladesh Bureau of Statistics, Ministry of Planning, Government of Peoples Republic of Bangladesh.

Similarly besides few varieties of rice, thousands of local varieties are not promoted by the government. The knowledge of seed preservation is eroded because of dependence on hybrid packaged seeds sold in the market. The efforts for introduction of genetically modified seeds will severely affect women as it will be done through corporatisation of agriculture and there are potential health and environmental hazards.

The genetically engineered rice which is in the research stage is for Abiotic Stress Resistance such as salinity, drought and flood conditions. These are 1. Salt Tolerant Rice for Coastal region, 2. flood-resistant rice, 3. drought- and cold-resistant varieties of rice, and on the grounds of nutritional traits accumulate pro-Vitamin A (beta-carotene) in the seed endosperm tissue. The genetically modified Rice, known as Golden Rice is being promoted in the name of solving nutritional deficiency problems such as Vit.A. which can easily be solved by growing and consuming leafy vegetables, found abundantly in Bangladesh¹⁷.

There is a contradiction at the agricultural field that women as scientists in the Dhaka University are engaged in the research on GMOs, while women farmers are resisting the GMO and hybrid seeds. The Agricultural Minister is a woman, Begum Motia Chowdhury. She has served as agricultural Minister in the Awami League led government both in 1996-2001 and the current period since 2009. However, the introduction of GMOs and hybrid seeds keep on getting approved even if a woman is heading the Ministry.

Following the Cartagena Protocol on Biosafety (CPB) which ensures basic guarantees against the impact of genetically modified organisms (GMOs) on the conservation and sustainable use of biological diversity, The Department of Environment of the government of Bangladesh has formulated the National Biosafety Framework in 2005. The Cartagena Protocol on Biosafety (CPB) was adopted by the international community in Montreal on 29 January 2000 in order to fulfill the objective of the conservation and sustainable use of biological diversity under the Convention of Biological Diversity (CBD). Bangladesh ratified the Protocol in 2004 and following the obligation it has made the Biosafety Guidelines of Bangladesh (2 January, 2008). Many agricultural research institutes (BARI, BRRI, BINA etc.) and Universities (DU, BAU, RU) are engaged in Biotechnology Research. Although Biotechnological research is still in the Field Trial state, there is very little regulation against its promotion. The Bangladesh Biosafety guidelines is

¹⁷ GMOs are not Needed by Farida Akhter, www.ubinig.org

very weak in its regulatory framework particularly in safeguarding against adverse effects on conservation of biological diversity and against human health risks.

3. Situation of women with regard to agriculture: Data requirements

Statistical data on Women in Agriculture in Bangladesh

The gender disaggregation of data depicting women's role in agriculture and non-agricultural works has started only after continuous demands from women researchers¹⁸. As the final report of the 2011 Census is yet to be finalized let's use the data from Census 2001. According to the Census in 2001, the total population is 12,31,51,246. Out of which 6,27,35,988 are men and 6,04,15,258 are women. The sex ratio is 103.8. This figure changes in a different way in the case of rural population. The total number of population in the rural areas is 9,43,42,769 out of which 4,73,75,929 are men and 4,69,66,840 are women. The sex ratio is 100.8. On the other hand other hand, the total number of urban population is 2,88,08,477; of which 1,53,60,059 are men and 1,34,48,418 are women. The sex ratio is 114.2. This fact that rural women constitute the majority among the female population and that they are almost equal to the number of male population is also observed by academicians.

The official labor force statistics did not initially recognize the vital role women play in the national agricultural. The labor force survey of 1984-85 showed that only 8% of women (age 10 and above) were in the labor force compared to 78% of men. The number of females employed in agriculture (0.2 million) accounted for only about 1.2% of total agricultural employment. The definition of female economic activity changed in the labor force surveys conducted in 1985-86 to 1999-2000. Once they included livestock and poultry rearing as important economic activity the crude activity rate of women increased from 6.4% to 40.2% in 1989. However this rate has decreased to 37.5% in 1999-2000-labor force survey. The number of women in economic activities is 22.8 million during this period. There were about 28.1 million who are considered in the category of "housewives".

In Bangladesh there is official recognition to the notion of female-headed households. The Bangladesh Bureau of Statistics (BBS) recognizes women as income earners representing 8 – 12 percent of all households. This is according to the Household Expenditure Survey of 1989.

¹⁸ In this regard the research works carried out by women's organizations like Women for Women may be noted.

Women's reported income contribution is around 9 percent in the rural areas and 14 percent in the urban areas. The proportion of de-facto women headed households, particularly in the rural areas, is substantially higher due to male out-migration to urban areas and also to overseas works as migrant labor. These are not captured by conventional definitions of household headships. One survey reported as many as 16 percent of all rural households headed or managed by women with the proportion rising dramatically among the poor, i.e. the landless and marginal farmers. At ages 60 and over as many as 25 percent of rural households are women headed, because many women are widowed or the husband is too old to run the family. At early ages, women's headship is not static, because even in cases of divorce and abandonment they are not acknowledged as heads of the household because of the possibilities of remarriage. In terms of poverty, the women headed households live in extreme or ultra poverty. Nationally, 24% of women headed households are in the category of ultra-poor (1600 Kcal per person per day), 33% of women headed households in extreme poverty (1805 kcal per person per day) and 45% of women headed households in absolute poverty line (2122 kcal per person per day). Average monthly income is also lower for women headed households. According to the Household Expenditure Survey of 1989, average monthly income is only TK 1760 (as opposed to 2711) in the rural areas for a family of average size of 3.6 members. The bottom 20 – 30 percent of women headed households are among the poorest in Bangladesh.

In the recent past, studies show significant increase in women's participation in agriculture. Between 1999/2000 and 2005/2006, the number of female labour in agriculture increased from 3.76 to 7.71 million (more than 100% increase). As a result the proportion of women in agricultural labour force has increased from less than 20% to 33.6% of the total. However, the rural employed women are mostly unpaid family labour, who comprise over 72% of the female labour force (Birner et al, 2010)¹⁹

According to BBS, 2010 population by broad economic categories such as Agriculture and non-Agriculture shows that there 48.1% (22.8 million) in Agriculture and 51.9% (24.6 million) in non-agriculture. The percentage of male in agriculture is 41.8% as opposed to 68.1% female and for non-Agriculture 58.2% male and 31.9% female. It shows that women's role in agriculture remain higher than men as labour force.

¹⁹ Cross-Cutting Issues: Governance and Gender by Regina Birner, Agnes R. Quisumbing and Nazneen Ahmed presented in Bangladesh Food Security Investment Forum, 26-27 May, 2010, Dhaka

Women's role in agriculture is significantly high in the subsistence and marginal farming communities (statistically recognized as small farms holding 0.05 – 2.49 acres of land) who comprise 84.27% of the total farm households as of 2008 (BBS, 2010)²⁰. Even among the landless families, women continue to grow in homestead land, while men migrate to the cities for non-farm jobs. With more mechanization and commercialization of agriculture, women's role in agriculture reduces or becomes minimal.

In Bangladesh, the total farm holdings are 58.66% (2008) which has significantly reduced from 72.70% in 1983-84. The small farm holdings (0.05 – 2.49 acres) comprise 84% of farm holdings (2008) has increased from 79.87% in 1996. On the other hand the middle farm holdings (2.50 – 7.49) are reducing from 17.61% in 1996 to 14.19%. This shows that over time, farmers are becoming poorer and during 1996 to 2010, the government has adopted policies of technological innovations in agriculture. The small farmer households are basically family farms where women play a major role. It seems, the more commercialisation occurs, there will be more displacement of poorer farm households and therefore women will become redundant in agriculture.

The statistics on agriculture is very much input and product oriented. It has no place for statistics on number of farmers, it only talks about farm holdings. There are information on cultivated land, homestead area, cropped area, crops, animals, fertilizers, pesticides, labour wage, tenancy and details about crop yield and production. Disaggregated by contribution of male and female very rare and in fact started only recently after much discussion on the issue. Therefore it is difficult to present a comprehensive statistical picture on women's role in agriculture. However, from government sources, the total number of labour force aged 15 years and above is 49461000 (as of 2008) in which number of women labour force is 12131000 or 24.5%. Among the rural labour force of 37731000, the number of female labour force is 9285000 or 24.6%.²¹ The concentration of rural female labour force is in the age group of 25 – 29 years (16.81%), which is higher than male (11.81%). On the other hand, the concentration of rural males in labour force is in the age group of 35 – 39 age group (12.51%), yet proportionately female labour force is still higher 14.08%.

²⁰ Statistical Pocket Book, Bangladesh 2010; Bangladesh Bureau of Statistics, Ministry of Planning, Government of Peoples Republic of Bangladesh.

²¹ Report of Labour Force Survey, 2008, BBS, GOB

In terms of number, according to the Bangladesh Labour Force Survey (2005-2006) the total female labour engaged in agriculture, forestry and fisheries there are 279,000.

Though, it was not very common that women were working in the field, but in recent days and due to projects undertaken by Development agencies women's participation in agricultural field work is increasing. In North Bengal UNDP programme has initiated a project for women in agriculture involving over 16,000 women in 16 districts. Some NGOs have engaged over 9,000 women agricultural workers out of which over 5000 are indigenous women (Daily Ittefaq, 12 January, 2010).

4. Listing of relevant laws and policies

There are a number of laws and policies related to agriculture which includes inputs such as fertilizers and pesticides, seed, credit, land use etc.

- i. **Agricultural labour (minimum wages) ordinance 1984:** According to the agricultural labour (minimum wages) ordinance 1984, 'the minimum rate of wages for agricultural labour per day shall be 3.27 kilograms of rice or such amount of money as is equal to the price of this quantity of rice in the local market'. But unfortunately most of our farmers and other related stakeholders don't acquaint with this ordinance and as such in fact there is no implementation of this ordinance in our society.
- i. **Bangladesh Cha Sramik Kallyan Fund Ordinance, 1986:** 7. (1) There shall be established a Fund to be called the Bangladesh Cha Sramik Kallyan Fund, which includes Lump grant in case of death and disablement, Welfare grant for marriage, Welfare grant for education, Special welfare grant etc. But amount of welfare grants shall be such as may be prescribed, and where no amount has been so prescribed, as may be determined by the Board on the merit of each case.
- ii. **Bangladesh Labour Act 2006:** According to Bangladesh Labour Act 2006, This act shall not apply to "Agricultural farms where less than ten workers are normally employed"(under section 1 sub section 4(n)).

Under Section 109 of BLA, 2006: No women shall, without her consent be allowed to work in an establishment between the hours of 10 p.m. to 6 a.m. Payment of equal wages for equal work: Under section 345 of BLA, 2006: In determining wages of fixing minimum rates of wages for any workers, the principle of equal wages for male and female workers for work of equal nature or value shall be followed and no discrimination shall be made in this respect on the ground of sex.

Henceforth 'equal pay for equal job shall be applicable and no discrimination shall be allowed in respect of wages on the ground of sex but practically it is not followed, most of sector women worker do not get equal wages as well as men workers.

iii. National Seed Policy 1997: Passed in 1997 in the National Parliament, The National Seed Policy and the Seed Related Acts & Rules, 1997 includes seeds of food crops, fibre crops, flower and ornamental plant and of forage crops etc. There is no mention of farmers in the Seeds Act, therefore no mention of women. It is an Act for Seed Dealers, who are men or taken for granted as men.

The Seeds Act denies the role played by women in seed keeping and in fact is taking away women's right to preserve seeds.

iv. National Agriculture Policy 2010: The National Agricultural Policy, 2010 deals with the development of Crops sub-sector as there are separate policies related to other sub-sectors. There are two major emphases in the NAP, 2010. These are:

1. keeping in mind that small farms dominate the agrarian sector, the emphasis is given on recognising and developing existing agricultural production system into a more dynamic and viable commercial sector (section 1.6).
2. sustainable intensification and diversification of agriculture through technological change requires an efficient and productive agricultural technology system comprising agricultural research and extension (1.7).

The National Agricultural Policy sees the major challenge of agriculture are to raising productivity and profitability, reducing instability, increasing resource use efficiency, ensuring equity, improving quality and meeting demands for diversification & commercialisation of agriculture (1.8).

The policy is for commercialisation and profitability through technological development. Hence, it will have clear negative impact on the small farm households, where women play a very significant role. Section 11 of the policy is allocated for women. It says, 'the government believes that more women comprising officials and farmers should enter the agricultural workforce. As women have potentials to contribute to agricultural growth, it is obligatory on the part of the Government to meaningfully involve them in agriculture-related income-generating activities and to develop their human resources'. There is no mention as 'women in farming household' or 'women farmers'. It looks like as if women were never in agriculture, it is the NAP that is bringing women into agricultural activities for income generation. The options given to women are

- to ensure women's equal access to agricultural inputs (e.g. seed, fertilizer, credit, education & training, information etc. (11.1.3);
- To encourage participation of the rural poor women in production of crops particularly in agro-processing and agri-business activities (11.2.1);
- Women's participation in agricultural production system to be facilitated through access to agricultural technologies (11.2.2).

Women's knowledge and experience in agriculture has been denied in the policy. In fact, the policies have no reflection of the pre-Green revolution period which indicated that women played crucial role in agricultural production, particularly in seeds keeping, preservation of genetic diversity in crops, livestock and poultry etc.

v. **National Women Development Policy 2011:** The government of Bangladesh has approved National Women Development Policy (NWDP) 2011 at the cabinet meeting March 7, 2011, a day before the International Women's Day. In this policy three specific sections can be analysed to deal with issues related to women in agriculture. These are:

Section 23.7 is about equal wages which is important for women farm workers. However, women farm workers are not specifically mentioned in the policy.

Section 25.2 is about equal rights to acquired property, land, credit etc.

In the section 31 titled as Women and Agriculture is mostly about women as labours in agriculture not as women farmers. The positive aspect is that it mentions recognition of women farm workers contribution in the national economy and talks about elimination of wage discrimination (31.3).

On the other hand, the NWDP does not recognise women farmers and their role in agriculture.

vi. New Agricultural Extension Policy

iii. National IPM policy

iv. Fertilizer Management (Amendment) Act, 2009

v. The Pesticide Act, 2009

vi. Rural Credit Policy

vii. Land Policy & National Land use policy

viii. Poverty Reduction Strategy Paper (PRSP),

In addition, the present government announced an Agriculture Input Assistance Program to make Bangladesh self sufficient in food production, that would allow marginal (0.02 to 0.19 ha), small (0.20 to 1.00 ha) and medium (1.01 to 3.03 ha) farmers to get cash subsidies. Cash subsidies are given mainly based on the type of farmers through the "Input Assistance Card". For receiving the input Assistance, the farmers have to open bank account with only Tk. 10 (0.14 USD). The subsidy is primarily given for diesel and other chemical inputs.²² Undoubtedly this is for farmers practicing modern agriculture. A total of 1.82 crore (18.2 million) farmers of the country are supposed to get the incentives. Under the scheme, first-ever such agriculture-welfare agenda in the history of Bangladesh, some 10 million Boro farmers will be given money through banks

²² Agricultural Input Subsidy Card: Direct Input Subsidy Disbursement by Jhinuk Pervin, Unnayan Onneshon, Dhaka n.d.

as direct subsidy on diesel used for irrigating croplands for the dry-season rice farming.²³ Of the total 18.2 million farmers of Bangladesh, 9.1 million marginal, small and medium farmers will get the cash subsidy under the program.²⁴ Although there is no mention of providing any assistance to women farmers, it is assumed that out of marginal and small farmers women are receiving the incentives.

5. Qualitative Information and Analysis

As Labourers in comparison with men

The per day wages of the labour are given with or without food. Without food men get Tk. 158 and women get Tk. 109, while with food it is Tk. 151 for men and Tk. 108 for women. Generally the wages are lower for women compared to men, but this rate varies in different districts. While the range of difference between wages between men and women is Tk. 20 to Tk. 75, but in some areas the differences are very high e.g. in Noakhali Tk. 153 male and Tk. 90 female with food and in Bogra it is Tk. 159 male and 152 female with food.

So far no statistics are available regarding differences in work as unpaid family labour vs paid worker in the post-harvest commercial activities such as rice mills. Also there is no provision in labour law for unpaid family labour in the post-harvest work.

In the cultivation of certain 'cash' crops such as tobacco and floriculture, women's involvement is quite high but remain uncounted as they play the role of unpaid family labour. These crops are considered 'profitable' mostly because the labour cost for women and children are not paid, not even estimated.

Results on women and men of current policies/ laws etc. (macro policy environment

For a long time, women suffered from lack of recognition of their role in agriculture. Now that there are policies in place, it is a matter of concern that women are not taken into account as important stakeholders and also the decisions taken by the government are detrimental to women's livelihood and will cause displacement. The major impacts on women are caused by:

²³ Agri Input cards to farmers launched The Daily Star, February 17, 2010

²⁴ Bangladesh Streamlines agricultural subsidy, Oneworld South Asia, 21 November 2011

- The commercialisation of agriculture is based on monoculture and cash crops which are heavily dependent on chemical fertilizers, pesticides, extraction of ground water, mechanised tilling and post-harvest activities. The emphasis is on profit maximisation and so-called productivity. They do not consider the losses in terms of harmful impact on human health, loss of biodiversity and degraded environment which is directly linked with women's livelihood and their well-being. Women become cheap labour and are forced to do wage works that are not based on their experiential and knowledge base.
- At present most of the commercial varieties of vegetables such as cauliflower, potato, cabbage, tomato, okra, egg plants etc. are all hybrid seeds. The traditional and seasonal local vegetables such as pumpkin, sweet gourd, okra, egg plant, beans, etc. are getting lost. Similarly besides few varieties of rice, thousands of local varieties are not promoted by the government. The knowledge of seed preservation is eroded because of dependence on hybrid packaged seeds sold in the market. The efforts for introduction of genetically modified seeds will severely affect women as it will be done through corporatisation of agriculture and there are potential health and environmental hazards.
- Women's Development Policy, unfortunately, is not addressing the issues from the perspective of women's rights to preserve seeds, keep healthy environment and preserving biodiversity. They are also taking the patriarchal values of thinking that women should be part of the new technological development in agriculture. This is contradictory to women's empowerment because the new corporate technologies are basically displacing women, making them cheap and exploited labour and also creating harmful impacts for their health.

Contributory factors

The major contributory factors are the lack of clarity about women's contribution in the economy vis-à-vis agriculture. The patriarchal social structure and an elite education system has made the policy makers who are based in the cities and make policies on the basis of their own thinking structure have contributed to the non-recognition of women's contribution. On the other hand, since the sixties of the last century, when modern agriculture was promoted, the

emphasis was on the utilization of chemicals such as fertilizer, pesticides, using technological equipment – these were all based on corporate interest, which are against the poor and women in particular. The male-dominated policies emphasized on so-called productivity, efficiency, profit and growth but not on the sustainability, environment and ecology and also not on social justice.

Women's movement has been busy with dealing with discriminations at social, political and economic level, but did not identify agriculture sector as one major sector where majority of women are involved. Since the International Women's Conference in 1975 in Mexico, women demand for equal rights were more for white-color jobs, education etc. without dealing with the problems faced by the rural women. The women's movement has also been led by urban educated women therefore lacked the knowledge about the need for rural. However, there have been some important studies carried out by urban who have at least brought to light issues of rural women.

The donor agencies had particular mandates over different time and the NGOs working with women followed those directions in order to receive funds. So there were hardly any initiatives supported by international donor agencies to support women in agriculture.

However, rural women continued their own works despite the negligence from the government and the development organizations. Their knowledge on seed keeping, biodiversity and environment have helped keep the diversity of seeds and use of uncultivated and cultivated crops and plants for food and medicine.

▪ **Analysis of reasons for the differential impact on women and men**

Participation of Women and Men in Biodiversity Based Agriculture

Steps of activities

1. Must have land (own, share, lease)
2. Must have arrangement for cultivation with country plow
3. Land selection based on crop suitability
4. Production of compost or organic manure
5. Selection of seeds of local varieties
6. Seed Sowing/Seedling transplanting
7. Arrange for necessary irrigation
8. Intercultural operations
9. Crop harvesting
10. Crop threshing
11. Crop collection and preservation
12. Collection of seeds
13. Conservation of seeds
14. Maintenance of seeds
15. Storing grains
16. Marketing
17. Decision in favor of adopting Nayakrishi
18. Seed exchange
19. Seed regeneration
20. Plowing

21. Marking and raising borders
22. Laddering
23. Harvesting crops
24. Storing grains
25. Feeding the cow
26. Providing seed from the home
27. Supplying food to the farmers in the field
28. Collecting raw materials for making compost
29. Harvesting and cleaning grains
30. Identification and selection of seeds
31. Soaking seed
32. Season based crop planning
33. Breaking the pebbles and cleaning the trashes
34. Threshing grains

If we look at how men and women perform, in a biodiversity-based agriculture there is more sharing between men and women as compared to modern agriculture.

Only male members	Only female members	Both female and male members
<ol style="list-style-type: none"> 1. Land selection 2. Plowing 3. Marking and raising borders 4. Laddering 5. Seed sowing/Seeding transplanting 6. Provide irrigation and weeding 7. Avail experiences of Nayakrishi and the advice of the farmers 8. Harvesting crops 9. Storing grains 10. Marketing 	<ol style="list-style-type: none"> 1. Feeding the cow 2. Providing seed from the home 3. Supplying food to the farmers in the field 4. Collecting raw materials for making compost 5. Harvesting and cleaning grains 6. Conservation of seeds 7. Identification and selection of seeds 8. Seed drying and seed conservation 9. Soaking seed 10. Seed exchange 	<ol style="list-style-type: none"> 1. Season based crop planning 2. Breaking the pebbles and cleaning the trashes 3. Marking compost and organic manures 4. Using cow dining , organic manures on land 5. Both women and men together sowing seeds and transplanting seedlings. 6. Winnowing and cleaning grains 7. Threshing grains 8. Parboiling and drying paddy 9. Preservation of grains 10. Storing food 11. Taking decision 12. Seed collection 13. Land preparation 14. Caring land 15. Seed selection

Comparative involvement of women and men workers in modern agriculture

(Ittefaq 26 April, 2009)

Women	Men
<ol style="list-style-type: none"> 1. Threshing paddy with the help of cow 2. Managing straw 3. Heaping paddy 4. Rice drying 5. Husking paddy by husking pedal 6. Sweeping 7. Cooking 8. Collection of grains 9. Serving seeds 10. Rearing cow and goat 11. Mixing pesticides 12. Growing vegetables in the homestead area 13. Transplanting rice in the field 14. Preparing fertilizer 15. Weeding in crop field 16. Harvesting paddy 17. Carrying harvested paddy from the field to home on head load 	<ol style="list-style-type: none"> 1. Plowing land 2. Seed sowing 3. Weeding crop field 4. Transplanting rice seedlings 5. Harvesting paddy 6. Threshing paddy 7. Applying fertilizer and pesticides in the field 8. Marketing

In modern agriculture, women carry out more as well as hard works, but are less recognized and not supported by any policy.

6. Effects of the situation

Green revolution or chemical-based and mechanized agriculture led to unsustainability in the livelihoods of people, particularly those of women. Through the green revolution, monoculture of rice production led to the loss of genetic diversity of the country. Out of 15,000 traditional local varieties of rice, presently 50 varieties are promoted as HYV varieties. In the Bangladesh Rice Research Institute over 7000 varieties collection are still found. Although the collections in the National Genebanks are impressive, the National Genebanks have absolutely no connection with the farmers. The seeds and germplasm are kept in cold storage without any effort to regenerate²⁵.

It is well known that rice is the "staple food" of the majority of people in Bangladesh. The notion of "staple food" has mainly been constructed during the early years of green revolution to justify the technological intervention of monoculture to produce few cereals as a solution to food requirement. The notion displaced the rich diversity of the food system people traditionally enjoyed. The diversity relates not only in terms of *what* are consumed, but *how* food are produced and consumed. The role of cultural diversity has been systematically denied. The question of food need has been reduced into quantitative statistics and numbers totally ignoring the diverse ways communities manage their livelihoods²⁶.

Despite the claim of higher yields of modern agriculture there is clear evidence of declining productivity. The tragedy is that farmers have been complaining for a long time that higher fertilizer inputs can not maintain the production level of the past years, an alarming sign of degraded soil. World Bank data shows that despite rising input levels, yields have been declining or stagnant on about two-thirds of the area planted to modern varieties in the *boro*

²⁵[11] "Bonera Beez Hat Chara korben Na" "Keep Seeds in your Own Hands, Sisters...": A Report on Enhancing Community Seed Wealth & Agro-biodiversity of Bangladesh through farmer-based Strategies linking in-situ and ex-situ conservation of plant genetic resources by UBINIG study sponsored by IDRC, Ottawa, Canada, June 2003

²⁶ Food Security in Bangladesh by Farhad Mazhar submitted as a country paper in SAARC Peoples Forum, in Colombo, 1998

season in the last decade, and stagnant throughout the country in the *aman* season²⁷. The Bangladesh Rice Research Institute has also disclosed the results of long term trials. *It indicates that intensive rice cultivation can result in declining yields, even under good management and with full recommended doses of all nutrients being applied.*

While productivity is declining, the use of fertilizers and pesticide has increased creating severe ecological crisis pushing the agriculture of Bangladesh to a situation of no return unless immediate policy measures are undertaken. The source of open water fish is more or less destroyed and no more available for the poor families. The general ecological degradation has made it impossible for the farming household to raise livestock, since there is a crisis of fodder as well due general decrease in biomass.

Encroachment on wetlands started with actions to reclaim land for boro rice cultivation. The boro rice cultivation takes most of total rice area. This means an encroachment upon wetlands, shallow water bodies and areas where farmers could apply irrigation in the dry season either from surface or ground water. This has resulted in serious impact on the entire hydrology, agro-ecology and entire biosphere of the country. The old natural environment that has existed 200 years or so with its deep forests, diverse plants and many wild animals and expansive wetlands are mostly vanishing. The arsenic contamination has affected women's lives severely.

Flood control, drainage and navigation structures as well as road construction networks with high ways have caused water logging and the agricultural land ceased to get alluvium from the river during monsoon. Under these conditions most crops cannot grow. Due to increased cropping intensities, water logging, indiscriminate use of fertilizers, pesticides and other chemicals, and poor irrigation management, organic matter in the soil has depleted extensively in the crop lands. The export-oriented shrimp culture resulted in shrimp mono production has destroyed agro-ecological zones of the coastal belt. Poor farmers lost their farms.

Climate change is a threat to agriculture and food production. There are many literatures on climate change and its effects particularly in relation to natural disasters. But there very few studies on Climate and agriculture in relation to women. However, few documents show clearly that climate change affects different regions, generations, income groups and genders differently. Poor people, a disproportionate amount of which are female are

²⁷ Pagiola, World Bank

particularly vulnerable, and at the same time key actors. Gender issues have been neglected so far in local and national climate policy-making.

But Women and communities have their own visions and knowledge on how to build and strengthen their resilience to climate change. Many fishing communities have lost their livelihoods due storms and floods cause by rising sea levels. Rain has become unpredictable so that cultivating land has become unprofitable. Poor farmers are hardest hit. The livelihoods of the poor are going to be increasingly destroyed which will force people to migrate.

Women will bear the brunt of the negative effects of these developments; their vulnerability is disproportionately higher than that of men. In 2009, the government of Bangladesh passed a climate change strategy and an action plan. Several years before a National Adaptation Programme of Action' (NAPA) was developed, in order to further advance climate friendly development and adaptation measures.

Until now, main activities on climate change lack gender sensitivity. The position of the Ministry of Women and Children Affairs is relatively weak, and cannot enforce women's rights which fall into the responsibilities of other government departments. Gender issues were not taken up in the Ministry of Environment and Forest, which is responsible for climate change. This can be traced back to lacking awareness and capacities within the ministry. Thus, women have had little chance to express their needs and opinion and get involved in climate relevant decision-making.[<http://www.gendercc.net/about-gendercc/national-activities/bangladesh.html>]

Genetic erosion

It was estimated by Agricultural Research station in Dhaka in 1915 that there were about 15,000 germplasm of rice. After 70 years BRRI could find only 6000 germplasms. In mid-50s, modern pesticides, particularly DDT began to be used on a mass scale for the eradication of malaria and crop pests. These toxic chemicals with longer residual toxic effects found their way to the remaining water bodies, canals and rivers and caused enormous decimation of fish and aquatic fauna and those birds and reptiles which fed upon the dead fishes.

Introduction of modern agriculture through Green Revolution resulted in a policy to provide assistance to farmers who use improved technology including power pumps and tube wells, fertilizers, power tillers, pesticides and HYV and Hybrid seeds. Seed import is restricted for

five notified crops. One of the main impacts of the so-called modern agriculture is that since the modern crop production is based on limited high-yielding varieties of uniform genotypes, it had displaced and led to the gradual extinction of traditional land races.

Bangladesh has been the abode of about 5000 species of higher plants. There were some 8500 cultivars of rice alone in the early 60's. But current estimates show only a few dozens of rice cultivars that can be found on farmers' fields. The erosion of genetic resources imperils future development of plants that are used for food, fiber, fuel, fodder etc.

The livestock and fisheries production have been severely affected due to the modern agriculture because of lack of fodder and feed and also indiscriminate use of pesticides in the open fields and water bodies. The poor people lived on livestock rearing mostly on the grassing sources and also from the byproducts of crop production. Diversity of fish which was available in the open paddy fields, beels, lakes, canals are severely affected but as a sources of livelihood of poor people and also as food sources. These sources are gradually eroding thereby leading to the extreme forms of food insecurity.

Women's works become harder and exploitative. In modern agriculture, women have to work more than the non-mechanised agriculture. In modern agriculture out of 22 different kinds of work in agriculture women perform 17 (77%); while in biodiversity-based agriculture there are 16 different kinds of work out of which 10 (62) are performed by both men and women, and only three but most important tasks of seed preservation are done exclusively by women.

Affects on women

The affects on women are the following:

- i. Women become redundant family members as they have less to contribute to market-based seeds, and chemical based agriculture.
- ii. Poor women as provider of food for the family depended on the uncultivated sources of food, including green leafy vegetables, partner crops, small fish found in the water bodies cannot find these anymore because of loss of biodiversity. It is to be noted that 40% of the food consumed by poor families comes from uncultivated sources.
- iii. Women are not involved in decision making of crops to be cultivated as these are decided by the kind of seeds available in the market, not at home.

- iv. Farmers have to undercount family labour cost as they have to incur cash costs for inputs like fertilizers, pesticides, irrigation water and husking at the mills.

7. Actions and interventions for positive changes

- **Organisations working on women and agriculture**

Although it is difficult to find specific women's group to take initiatives and actions to deal with the negative impacts of unsustainable practices in agriculture, there are examples of various actions taken up by research and policy advocacy organizations such as UBINIG (Policy Research for Development Alternative) and NGOs working with rural women such as BARSCIK. Examples are also there for working with women farm workers and the issues of wage discrimination. Some women's organization and human rights organizations such as BLAST and Kormojibi Nari are active in these works. The Environmental organization such as BAPA has also taken up awareness raising programmes on the harmful impacts of pesticides in food production.

8. Positive initiatives

Initiative by UBINIG: Seed and Genetic Resource Conservation through Nayakrishi Seed Network

The Nayakrishi Andolon (New Agricultural Movement) - a biodiversity based farming system is a movement for ecological agriculture. It is based on simple principles like no use of pesticides and chemicals, soil management rather than external input of fertilizers and practice of mixed cropping and crop rotation for pest management and risk reduction. Mixed cropping is also crucial to increase productivity through management and production of biodiversity, rather than quantitative yield of a single monoculture crop. The central approach of the initiative squarely lies in the conservation, management and use of local seed and genetic resources and adopting and improving production techniques suitable for farmers' seed. Thus hundreds of local varieties of rice, vegetables, fruit and timber crops, etc., have been reintroduced within a short period of



time. For example, farmers in Nayakrishi area cultivate at least 3000 varieties of rice, and the number is increasing. The movement has been negotiating with the national gene bank to help them regenerate the collected germplasm and internalize the conservation of genetic resources as an in built operation of the movement. At least 300,000 farmers in 19 districts of Bangladesh practice Nayakrishi. In all the farming households' women are the key persons to preserve seeds and therefore have taken up the lead in the movement. They have formed the Nayakrishi Seed Network in a systematic structure to involve women at different levels of their expertise.

The Nayakrishi Seed Network (NSN) is the active farmers' network within Nayakrishi Andolon with specific responsibility of ensuring both in-situ conservation of biodiversity and genetic resource in the farming field and ex-situ conservation at the household and community level. It builds on the farming household, the focal point for in-situ and ex-situ conservation. Farmers maintain diversity in the field, but at the same time conserve seed in their homes for several years to be replanted in the coming seasons. The next step is the formation of the Specialized Women Seed Network (SWSN) comprised of women farmers who have specialized knowledge and skill of the seed preservation and genetic resource conservation.

Activities of Nayakrishi Andolon are constituted as a system of relations between farming households. The category of Nayakrishi household, as the basic unit of the movement, is very important to understand the working methodology of Nayakrishi Andolon. Farmers maintain diversity in the field, but at the same time conserve germplasms within the household to be replanted in the coming seasons. This is where women members of the households assert their role and power. This is the basis upon which Nayakrishi Seed Network (NSN) has been built. The individual plans and decisions are made into collective decisions through meetings and collective sharing of information. In these meetings decisions are taken to ensure that in every planting season all the available varieties at the farmer's households are replanted and the seeds have been collected and conserved for the next season.

The Network is structured in the following way:

Nayakrishi Seed Huts: From the individual farmers' seed collection at the household level, Nayakrishi Seed Huts is established by the independent initiative of one or two households in the village, belonging to Nayakrishi Andolon, who are willing to take responsibility to ensure that all common species and varieties are replanted, regenerated and conserved by the farmers. These households are known as Nayakrishi Seed Huts (NSH).

Specialized Women Seed Network: To enhance the capacity of the community the Specialised Women Seed Network (SWSN) has been formed. These are the women who are specialised in certain species or certain varieties. Their task is to collect local varieties from different parts of Bangladesh. They also monitor and document introduction of a variety in a village or locality. They keep the information up to the date about the variability of species for which they are assigned. The SWSN often shares their finding in large meeting organised by the Nayakrishi Andolon.

Community Seed Wealth Centre: Community Seed Wealth (CSW) is the institutional set up in the village that articulates the relation between village and the National Gene bank. The CSW also maintains a well-developed nursery. The construction of CSWs is based on two principles: (a) they must be built from locally available construction materials and (b) the maintenance should mirror the household seed conservation practices. Any difficulty encounter in the CSW reflects the problem farmers are facing in their household conservation. Any members of the Nayakrishi Andolon can collect seed from CSW with the promise that they will deposit double the quantity they received after the harvest.

Nayakrishi and Biodiversity: As an agricultural practice Nayakrishi Andolon is based on 10 simple principles. In addition to poison and chemical free agricultural practice, the production of biodiversity is in-built in the method of Nayakrishi food production. As a fundamental principle of agricultural practice Nayakrishi farmers reject monoculture and ground their practice on mixed cropping and crop rotation. It has immediate effect in overcoming the present narrow genetic base. It is also highly effective method for pest management and contributes to the nutritional health of the soil. With regard to the productivity, output from Nayakrishi practice is either of the same level or more than the conventional chemical agriculture. Apart from the ecological gains, the main reason for the acceptance of Nayakrishi is economic return to the farmers. The local species and varieties are always preferred than those that are introduced from external sources. Hybrid varieties are avoided mainly because farmers can not use the seed for the next season. Hybrid seeds dis-empower farmers, specially the women, and make them dependent on the seed companies. Nayakrishi farmers are not against the new varieties introduced by the formal system, but they do not accept the category "high-yielding" as an adjective to the laboratory seed. There is always a substantial gap in the claim and the actual performance of a HYV variety in the farmers' field. The calculation of yield by the

Nayakrishi farmers is done firstly not on single crop based on monoculture calculation; secondly, the energy used as input and the energy produced as an output are taken into account to bring the category of "sustainability" as the fundamental parameter to assess "productivity". Since the "high yielding" varieties consume more inputs or energy to perform than what they reasonably can produce, the terms "high yielding" is a misnomer. Thirdly, a biodiversity-based farming system responds to diverse need of the community that can not be satisfied by increasing quantitative yield of a particular crop. However, addition of a new variety from the formal system to the existing genetic resource base of the farming community is seen as a contribution and its integration into the Nayakrishi farming practices is based on totally different parameters than proposed by the conventional mainstream agriculture. Among the rice varieties a few from the Bangladesh Rice Research Institute (BRRI) has been doing quite well without pesticide, chemicals and pumped ground water.

9. Way Forward

Despite non-recognition, discriminations and lack of policies, women have been able to keep their positive contribution in agriculture livestock and fishing. They will continue to do so because of the need of livelihood and survival. Also in the context of global changes in policies in relation to Climate Change, Sustainable Development and critical assessments of Millennium Development Goals, women's role in agriculture and as food provider will become more visible and be recognized. However, this has to be recognized by the national level women's organizations, the Ministry of Women's Affairs and the government and the development partners in general.

The future of agriculture is in the preservation of local varieties of seeds and genetic resources and therefore the future of agriculture is in the hands of Women. The Nayakrishi women have a slogan:

SISTERS KEEP SEEDS IN YOUR HANDS