

Role of Rural Women in Environment Conservation: A Case Study of a Bangladesh Village

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Abstract: This paper explores the participation of rural women in conservation of environment in rural Bangladesh. On the basis of survey conducted on some randomly selected rural women in a typical coastal based rural area in Bangladesh, the study demonstrates a number of important conclusions that women are mostly involved in the activities relating to the conservation of environment along with their traditional household activities. They are interested in such activities because they obtain substantial benefits as food security, income, health care and above all in maintaining a sustainable and balanced eco system. Findings suggest that involvement of women to a larger extent in such activities can augment the socio-economic development of Bangladesh and it is imperative for preserving sustainable development.

Keywords: Women, environment, conservation, eco system, sustainable.

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I. INTRODUCTION

The world is unique for every human being, but, in general, women's lives vary greatly from those of men because of patterns of socialization related to gender (www.unep.org). Bangladesh is a densely populated country where women form a significant portion. They play a vital role in the development of the family, community and above all, the nation. Women in our country, particularly those living in rural area, play a major role in conservation of environment. Usually women are close to the nature and this relationship makes them perfect managers of an eco-system in a country. Perhaps since the inception of human history, women have contributed essentially to the conservation, use and management of natural resources. Natural resources are the integral part of rural household. In Bangladesh rural women are the primary users of natural resources, they play distinct roles in managing agricultural lands, plants, animals and forests, in making home gardens, in collecting water and fodder for domestic use and income generation, in the collection and use of firewood and other bio-fuels. With their extraordinary skills and indigenous knowledge, women have proved how land, water, forest and other natural resources can be used and managed properly. By doing so, they contribute time, energy, skills and personal visions to family and community development. Women's such contributions are directly linked with the socio-economic development of the country. Hence the objective of this paper is to ascertain the contribution of rural women in preserving a sustainable environment. This is an endeavor to focus on the substantial areas in which women are playing their key role in conservation of environment. The study examines how a rural woman contributes in maintaining a balanced ecosystem. It also seeks to investigate whether women's contributions in the environment conservation are really compatible in maintaining a sustainable development in Bangladesh.

II. LITERATURE REVIEW

There is a vast literature that seeks to focus on the significance of relationship between women and environment, although literature in this area is inadequate in Bangladesh. It is emphasized that being closely related with the nature involvement of women would help societies develop the sense of responsibility needed to maintain a good balance between human's and earth resources (discussion on women's commission on status of women 46th session 6th meeting, 2008). Chandra, Rakesh, Kandari 2009 deals with gender relationships and gender sensitive strategies in promoting village eco system management. It examines the role of women in home garden and community livelihood programs in enhancing household food security. It also records indigenous knowledge and perceptions of women about endangered plants including food and medicinal plants. Akter, Alamgir, Islam, Rana, Ahmed, and Chowdhury, 2010) analyze the different dimensions of the role of women in home gardens such as the participation of women in management activities, understanding the impact of home gardens on women's income and livelihoods and women's awareness of home garden oriented activities

that support environment conservation. Butt et al (2009) highlights the role of rural women in agricultural development and their constraints while examining a case study in Depalpur Okara Pakistan. The major findings of the study indicate that for the betterment of rural women in agricultural sector, women's literacy rate should be enhanced; they should have direct access to agricultural credit, should be properly trained, organized and motivated. Tyagi states that women have vital role in conservation and management of sustainable eco-system as mountain women are traditionally involved in protecting and conserving their natural resources. It identifies a number of commonly encountered constraints such as lack of access to information, resources, decision making, lack of institutional education, non recognition of women's contribution towards environment which is to be considered in planning of greater participation by women in environment protection. One of the major findings of this work is that integration of women in environmental initiatives builds sustainability across many sectors. Sultana, Thomson and Ahmed focus on the contribution of women in fisheries which encompasses social and economic tasks both within and outside the family in order to sustain the activities of fishing communities. The study conducted in five villages in a District in Southwest Bangladesh. It is basically an NGO named *Bachte Shekha* (Learn to survive) which is an all women NGO in Bangladesh. Its objectives are to train and educate the women of the particular areas and then motivate them to involve in fish culture, fisheries management and find a way of income generation.

Sinha (2004) describes the role of women in natural resource management. She reports, the beneficial impact of women's presence on conservation outcomes is attributable especially to women's contribution to improved forest protection, their knowledge of plant species, methods of product extraction and cooperation among themselves. She further emphasizes on an utter need of women participation in natural resource management. Women also need greater control of environment for which they need information. Since women bear the major responsibility of household activities and field activities, they are to be encouraged or educated to manage natural resources in the most effective way. Gupta (2008) suggests that women be trained in identifying, collecting, treating and marketing the medicinal plants. Omobuwajo et al (2008) studies the knowledge and practices of Nigerian herb sellers, who are mostly women. Zahan (2008) argues that environmental degradation affects the third world countries adversely because of the vicious circle of the poverty. Naturally they are the worst victims of environmental degradation as they depend upon the renewability of natural systems to provide them with food, fuel, water and shelter. Keeping in line with the above literature the major focus should be to prove a strong and robust relationship between rural women through their household activities and indigenous knowledge with environment conservation.

III. METHODOLOGY OF THE STUDY

The study is based on empirical survey conducted in some of the villages of a coastal based area in Bangladesh. The name of the study area is Anwara Thana, Chittagong which is situated in the south of Chittagong district. It is an area which is situated in southern Chittagong and within the coastal based area of Chittagong. Anwara is selected as the survey area as it is a coastal based area and naturally the population of this area is the victims of environmental degradation, climate change. Specially women in such place are the worst sufferer in this regard. Survey was conducted during April 2012. A sample size of 144 women of different villages were drawn through some structured questionnaire.

IV. ENVIRONMENT CONSERVATION IN BANGLADESH

Bangladesh is a country of flora and fauna where lives of people are largely dependent on agriculture. Being a tropical country in the world facing crucial environmental degradation in recent years due to many reasons amongst which urban air pollution, encroachment of rivers and other water bodies, and land erosions, improper and unauthorized disposal of industrial, tannery, medical and household waste, carbon gas emission etc. Besides these deforestation, loss of bio-diversity, unplanned urbanization due to high density of population, natural disasters like flood, tornado, cyclones tidal surges have resulted in severe socio-economic and environment degradation. In many respects, this situation is appearing as crisis. This degradation of Bangladesh's environment has taken place at a time when the developed countries have been improving their environment in many respects. (Islam, 1999) The Poor in Bangladesh are the worst victims of degradation of environment which is an obstacle to ensuring social justice in Bangladesh. Hence in order to ensure social justice and economic growth Bangladesh has to give concentration on environment protection. In Bangladesh common people are environment friendly because of their connection with the traditional way of life and women are not exception to this. Involvement of women in protecting the environment is helpful for societies to develop the sense of responsibility needed to maintain a good ecological balance.

V. RURAL WOMEN AND ENVIRONMENT CONSERVATION IN BANGLADESH

Worldwide women have manifested themselves as agents of change for environment and sustainable development. (Dankleman).

In terms of environment women around the world play distinct roles. Environment in Bangladesh is valued by a rural woman in a very special way. They look to the environment for food fuel water medicine and sources of their income generation activities.(www.hpervis.nic.in/reports/women%20&env).

Nearly 82% women in Bangladesh live in rural areas. (Jahan, 2008) Only nineteen percent of rural women are educated in rural Bangladesh. (Saadullah. and Paul,1991) since time immemorial in Bangladesh also rural women are traditionally involved in protecting and conserving their natural resources and thus contributing in the sustainable development. With their traditional knowledge women have proved how land, water, forest and other natural resources can be used and managed. They have devised their own system and ways to sustain and manage the resources, which are the basis of survival for their families and communities. Their task in agriculture and animal husbandry, as well as their central role in the household make them daily managers of living environment. Through their practical experiences and managerial skills, they have acquired immense knowledge of the various types of plants. They know better than any scientist that what grass, herbs, shrubs, trees are best for them and should be planted to maintain a balanced eco-system and well being of their families and communities. However, the study focus on some of the important sources of contribution of women through their domestic activities in conserving environment like women's role in agriculture, home garden, fishing, forestation etc. The Study justifies the actual role of women in conservation of environment.

Data Analysis

Randomly selected 144 females were interviewed from a typical rural area of Bangladesh. Descriptive statistics are reported to analyze the basic characteristics of the sample. The major investigated features include, but not limited to educational level, age of the participants, number of male earning members in the family, main occupation of the household, supplementary economic activities etc.

Participants are female adults (age ranging from 17 to 71 years with a mean of 38.8). A histogram of different age groups shows that significant number of data points is clustered around the mean value though the distribution is slightly skewed to the right.

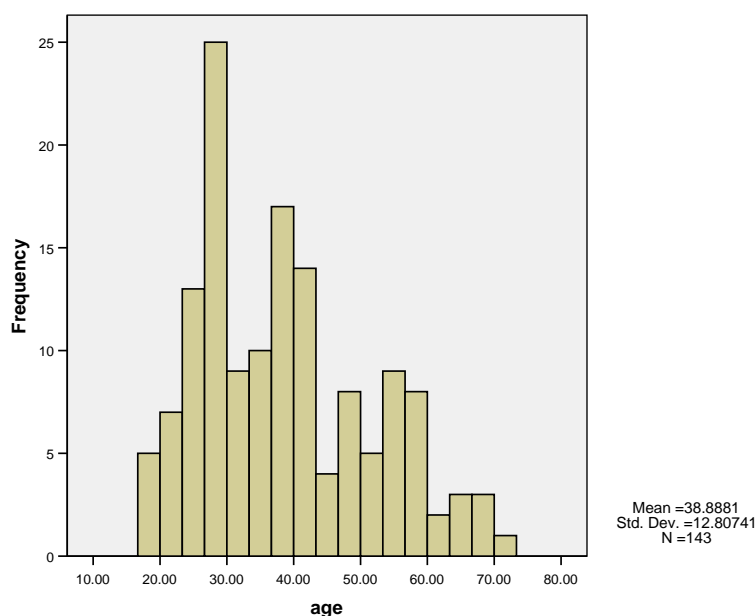


Diagram I

Data also reveal that most of the participants do not have any formal education (58.3% have never gone to school). The mean years of schooling is about 3 which shows very little formal education.

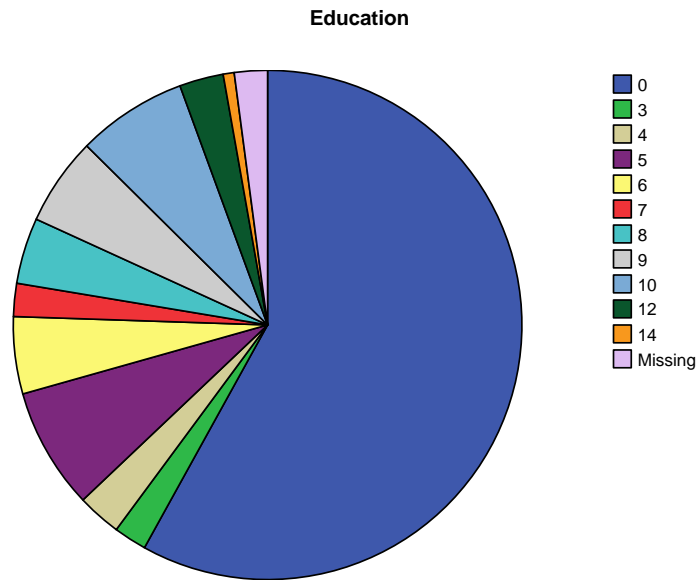


Diagram II

The above pie chart shows that the largest share (Blue Area) is captured by people with no education. Most households are involved in some other economic activities viz. agriculture, home gardening, animal husbandry etc.

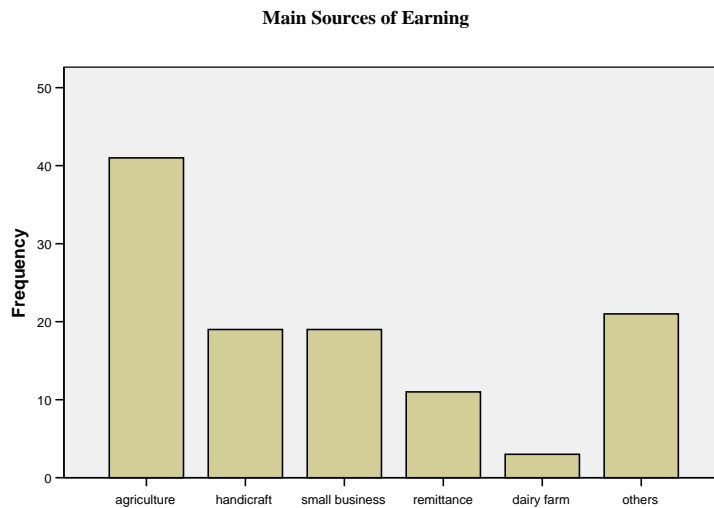


Diagram III

Data reveal the fact that a typical household has about one earning male (mean number of earning male being 1.14) which is shown in Diagram III. The main sources of income of the households are agriculture (28.7%), handicrafts (13%), small business (13%), remittances (7.7%) etc.

5.1. Women and Agriculture

Agriculture contributes 30% of the GDP in Bangladesh and it is one of the key source of livelihood. It is also a major field of employment. Women in Bangladesh, especially rural women play predominant role in agriculture along with their household works. Their tasks in agriculture and animal husbandry as well as in the household make them daily managers of the living environment (Ahmed, 1995). The survey reveals that women of different villages in the Anwara thana, despite their routine household work are actively involved in cultivation, they usually plant fruits, green vegetables, crops like paddy etc. They do it to assist the male members either or where the male members are outside the home due to work or even in migration due to livelihood. It is also observed that some of the women do it for economic purpose as they need to take care of their child and for their own economic emancipation and sometimes also to assist their husbands. It is found that a lot of women contribute in cultivation process for helping husband who are the either owner of the land or work on the land as share-cropper. Basically they help husband at the season of harvesting. When they were asked about the source of funding they replied that they get the funding by own or as loan from different NGOs, working over there. It is found that during cultivation they perform a variety of tasks like preparing the land for planting, ploughing, sowing seeds, applying fertilizers, mowing, weeding, transplanting, irrigating, harvesting, threshing etc. It is also found that traditionally chili pepper, tomatoes, green peas, egg plants and tropical fruits like water-melon are planted for commercial purpose as well as for home consumption. In most of the cases women are responsible for the storing and keeping of the crops and vegetables that have been harvested. If necessary they supervise the arrangement of the sale of the plants, vegetables, crops etc.

5.2. Women and Fishing

Fishes are a vital source of food for people and fishing is also a significant occupation sector in Bangladesh. Bangladesh has an extensive marine fishery potential mainly in the Bay of Bengal South of the country. Almost 80% of rural household in Bangladesh catch fish for food or to sell while people receive about 60% of their animal protein from fish. Fishing is traditionally a task of men in our country but it is interesting to state that women are increasingly become involved in fishing activities as well as fish conservation which not only limited to catching or collecting fish but rural women do fishing as a big source of their income generation. That means women play diversified role in fishing by substantial participation. Though a very small number of women are found to be involved in fishing in the survey area but women specially Hindu women of the villages named Barakat, Gundip Para, Bot Tola, Rustam Hat, Parki Bazar of Anwara being inhabitants of coastal area are found to be actively involved in cultivating different kinds of fishes for business purpose in their own ponds or leased one either within or near the homestead. For these they used to buy the fish seeds, they apply the feeds to the fish and ultimately prepare them for sale in the market. Besides these women are also used to collect fish by hook, line, net, or by traps from different sources like canals, beel, river as a source of protein for their family. Women of this areas also relatively participates in preparing fishing nets. And in this way women approaches towards a sustainable livelihood.

5.3. Women and Home Garden

Home garden means an area around the home where vegetables, seasonal fruits, plants, spices, herbs, shrubs are grown throughout the year, usually to meet the family requirements. Home gardens have usefully been defined as “a small scale supplementary food production system by and for household members that mimics the natural multilayered eco-system”. (Hoogerbrugge and Fresco 1993). Home gardening is one of the most ancient food production practices and is commonly practiced throughout the world. It is a well known practice in rural Bangladesh as it has a significant role in sustainable livelihoods, especially in rural areas. Home garden are also a natural asset and a very significant source of high specific biodiversity. Traditional home gardening by rural women in Bangladesh are believed to provide a number of benefits to their families, ranging from improving nutrition, on the one hand and providing a source of additional household income, on the other and thus contributing in the maintenance of a sustainable ecosystem by the women. In Bangladesh women are generally the nutrition gatekeepers, the principal decision makers in procuring and preparing food for their children and families. Rural women’s involvement in home gardening also provides opportunity for them to supplement the family income. It is observed that in the survey area the women of several villages used to sell the home gardening products in the local market. It is also revealed that in those areas most of the home gardens are situated in door yard garden and back yard garden. Like agricultural involvement in home gardening many different activities like land preparation, material procurement, sowing, fertilizing, weeding, thinning, irrigation, harvesting, seed processing are also required, most of which are done by women in Bangladesh. The survey shows that in most of the villages in Anwara women’s are used to plant different kinds of fruit trees like guava, mango, banana, papaya, coconut trees, neem trees which are the very common product of home garden in rural Bangladesh. Another common sector of production through home garden by women is green vegetable, amongst which pepper, coriander, various green leafs, mint, pumpkin, beans are very popular. Needless to say these are

the prime source of food and nutrition for them and their families. It also offers a practical response to the massive degradation and depletion of forest resources, the rural energy crisis, optimum utilization of scarce land and above all environmental improvement. It is remarkable here to state that almost all Hindu women of the survey area plant *Tulsi* tree in their door yard garden as it is very sacred thing for them for worship purpose and this plant also has a very high medicinal value. So it is proved that home gardening is an everyday task along with their household activities and with doing these women in rural Bangladesh make them responsible for providing nourishing diet for their families, providing a healthy source of oxygen and for preserving agro biodiversity. It is remarkable to state here that home gardens are increasingly recognized as *in situ* conservation of agro biodiversity.

5.4. Women in Animal Husbandry and Livestock

In animal husbandry and livestock production and management, rural women in Bangladesh play significant role. Animal husbandry and livestock are important components of traditional farming system in Bangladesh. Cow, cattle, goats are commonly reared animals and birds like chicken, duck, pigeon also. It is found in the survey that the women in research area play multiple roles in the management of animal husbandry and raising livestock. It is observed that most of the women are solely responsible in the above task. Their activities in the above sphere vary widely ranging from care of animals, grazing, fodder collection, cleaning sheds, collecting milk, etc. It is observed that in this area indoor jobs like feeding, milking, cleaning are done by 90% of the women. Some sampling shows that a lot of women are engaged in doing this job for the dairy firm which they run commercially. It is also realized that women perform the critical job of taking care of animals during pregnancy, the new born calf's. They even know what type of medicine should be provided and how. Most interesting thing is that women are well aware of each animal's behavior and production characteristics. They know the feeding behavior of each animal and prepare feed mixtures accordingly. For example during food preparation they know to mix water with ration, beneficial grasses, weeds, fodder trees and in this way rural women make them responsible for feed preparation of animals whether they are for domestic use or for dairy. Rural women also play predominant role in preparing cooking fuels by mixing dung with twigs and crop residues. Cow dung can be used also as a strong fertilizer which makes the soil of the agricultural land fertile for cultivation and obviously it is a natural fertilizer which can replace the use of chemical. In the most of the villages it is observed women also actively participate in marketing related activities such as selling of milk, eggs of chicken and duck, purchase and disposal of animals. Despite their considerable involvement and contribution their control over livestock and its product is not satisfactory. It is also found in the survey that membership of most of the dairy firm are assumed by men.

VI. CONTRIBUTION OF WOMEN IN ENVIRONMENT CONSERVATION AND SOME RECOMMENDATIONS

The study reveals that a woman besides her identification as a homemaker how can she make herself a significant contributor side by side in agricultural sector and related activities like home gardening, fishing, keeping and managing livestock and animal husbandry. Though women's such contribution is related to the empowerment but such predominant role has still not accord due recognition. Real benefits from her involvement in this regard are not objectively assessed yet. It must be remembered, to accelerate the growth of any nation creating opportunities for socio-economic development of women is also equally important. The present study addressed some constraints to women's integration into environmental initiatives to a larger extent and on its basis some recommendations are made-

1. It is found in the whole survey that majority of women in the survey area are illiterate though some of them have primary level education at least nevertheless they have become environmental educator. Due to illiteracy they face significant obstacles in access to land, labor, credit, other income opportunities. Ownership and tenure rights to land, trees, and other natural resources are seldom kept by women which severely limits their ability to control the benefits produced through their own labor. They also have limited access to information. Effective planning in maintaining a sustainable eco system requires input from those who use and depend largely on natural resources and these are often women. So it is obvious to enhance women's literacy rate and education level ratio in rural Bangladesh.
2. The study revealed that majority women, due to lack of access to property get funding for agricultural activities, home gardening activities either from their husbands or son. Some of them get funding from outside source like NGO, Bank as repayable loan with interest. As they usually financed by other it is obvious that they will rarely take part in decision making despite their significant labor. This mind set should be changed. It should be understood by the male members of the family that as women have deep relationship with all the components of a good eco-system they should be recognized as the best manager of a balanced eco-system.

3. To enhance the knowledge of village women for their promotion in this regard specific training programs, skill development programs should be arranged in local level and national level. Various educational programs relating to environment protection should be broadcast through group meeting, radio, television and government and non government organizations can come forward to do this.
2. The study has portrayed that the role of women in the use, management and conservation of environment can be an entry point to build an economically viable and ecologically sustainable environment system in the rural Bangladesh. It should be understood by women themselves. They should be organized in major groups, trained, educated. Once a woman gets inspired she will be able to motivate another woman and disseminate their knowledge further. They can come forward to motivate one another to develop the hobby of home gardening. For this first of all they themselves have to fill the advantage, that plants add beauty to the houses, provide good source of diet, keep the environment clean and healthy and further can be a source of income.
3. Their role in environment conservation should require remarkable appreciation. Institutional education including technological education where the rural women are still lagging behind should be given to them.
4. As women are the significant contributor in environment conservation in rural areas they should be given the status of main worker. For instance Thailand had made changes in legal term from housewife to women farmer to allow her access to agricultural credit. (Butt, et al,2010).
5. Clear governmental policies, national guidelines, strategies and plans for the involvement of rural women in environment conservation should be formulated and implemented. This includes the promotion of women's literacy training, nutrition and health, and supporting women's participation in key decision making positions, particularly as they pertain to access to resources. (Akter et al,2010) The indigenous knowledge of women in this area should be incorporated in sustainable development. Rural women's successful role and innovative efforts in this regard must be exposed in national and international level through seminar, conference.

VII. CONCLUSION

Rural women in Bangladesh possesses indigenous knowledge of traditional medicine like *ayurvedha*, *unani* etc. They depend on homemade medicines, using various plants, roots of trees, branches. The robust role of women in conservation of environment make them the worst victims of environmental change and environmental degradation. The studies by World Health Organization have discovered that women who are exposed to pesticide face a higher risk of abortion. Rural women in Bangladesh have to pay more in every year for environmental damage due to natural disaster like cyclone, draught, flood, river bank erosion which causes unbearable social crisis and sufferings for women. The physical burden of coping falls heavily on women. (Jahan,2008) They have to survive by adopting strategies to cope up with all odds of nature and the society (Ahmed,1995) This is the reason that many leading environmental movement in this world like 'Chipko Movement', 'Green Belt Movement' are initiated by women. Certainly a strong desire, courage, determination, affection, dedication and devotion towards protection of environment make them to move for environment protection. Village eco system in Bangladesh and the pivotal role of rural women in keeping it, merits special consideration in sustainable development and conservation policy. Sustainable development will be an elusive goal unless women's contribution to the management, protection, and conservation of environment is duly recognized and promoted. Environment education should include the whole spectrum of women-nature relationships.

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