Women Entrepreneurs in Conserving Land: An Analytical Study at the Sundarbans, Bangladesh

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Abstract

Women entrepreneurs as well organized and socially motivated group do contribute towards the protection of environmental resources. Land as important ingredients of natural environment provides not only livelihood but protects a greater mass during natural disaster. Cyclone Sidr and Ailla consecutively visited in 2007 and 2009 at the southern district Satkhira in Bangladesh. As a direct consequence of global climate change the incidents impelled ultra-poor people living in the costal belt to get lost their accommodation. Thereby in a post disaster context the agenda of environmental security through land conservation is one of the ways to protect the environment from being degraded. Women as agent of environmental development may contribute in this focused area. Accordingly this paper would like to spotlight different roles played by women entrepreneurs in land conservation with a view to ensuring environmental security in the disaster prone Gabura Union, Shamnagar, Satkhira.

Key words: Women Entrepreneurs; Environmental resources; Gabura union

1. FORWARDING THE RESEARCH WORK

1.1 Introduction

An expansive and wasteful consumerism contaminates the earth and degrades natural resources (Spring, U.O, 2000)¹. After the Ilia and Sidr, women of southern part of the country have become more laborious with a view to changing their socio-economic situation (Khan, M. & Islam, M, 2011)². It has given them to exercise their entrepreneurial role to change their livelihood. Nevertheless the dwelling space they use is in a susceptible position. The fertility of the land has been drastically trimmed down due to the salinity in the land. So they are directly dependent to the river Kholpatua and Sundarbon. The current scenario of village Shora crystal clearly demonstrates that men including entrepreneur women are using their living land and to lead their lives and they are aware to protect it for their forthcoming generation. It needs no telling that a renewable resource like land is vital ingredients of environmental security in the southern part of Bangladesh. So its women of entrepreneur class who are using the land and forest and they are the protector of these. So they know better how to preserve it. This research attempts to explore the link between entrepreneur women and renewable resource for the perspective of environmental security.

1.2 Background of the Work

The global community has understood that the consequences of climate change always go against human being. So they have experienced that the derogation of the ecological balance is suffocating the place where people of coastal belt live. The oxygen factory and renewable resources like land and forest is interlinked to human continuation. Its women entrepreneurs living in the southern coastal belt of Bangladesh are brawling to

¹ Úrsula Oswald Spring, President of IPRA, CRIM/UNAM, México, August, 2000.
² An Animator of Britee(NGO) working with Land and Water at Gabura union, Shamnagar.
1.3 Statement of the Problem
Preservation, maintenance and keeping balance of renewable resources land by the women entrepreneurs’ is under research (Islam, 2011). It needs no telling that renewable recourse land is an integral part of environmental security. All of we are aware of the fact that women are the best protector of the environment. Additionally women entrepreneurs can play a pivotal role in the cited sector of renewable energy. A great deal of scholarly research regarding this concern is not visible in Bangladesh. We have seen the ecological imbalance during the Ilha and Sidr situation in which women and children have become worst victim. Women of the researched land are dependent to their land and forest. But haphazardly they are annihilating these without being aware. As post a graduating student of Women and Gender studies, I firmly deem that it’s a new paragon of knowledge on the preservation, maintenance and balancing renewable resources by women entrepreneurs’ from which would emerge a new area of thought.

1.4 Relevance of the Study
The definition of sustainable development emerged from the Brundtland Report (1987) (generally known as Common Future) demonstrates that development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

The Brundtland Report was primarily concerned with securing a global equity, redistributing resources towards poorer nations whilst encouraging their economic growth. The report also suggested that equity, growth and environmental maintenance are simultaneously possible and that each country is capable of achieving its full economic potential whilst at the same time enhancing its resource base. The report also recognized that achieving this equity and sustainable growth would require technological and social change. The report highlighted three fundamental components to sustainable development: environmental protection, economic growth and social equity. The environment should be conserved and our resource base enhanced, by gradually changing the ways in which we develop and use technologies.

Agenda-21 originated from the Earth summit, Brazil 1992 highlighted that for the security biodiversity it is required to protect nonrenewable energy. Famous environmentalist Homer T. Dixon in his work titled Environment, Society and Violence (1998) proposed that like human being environment security is hampered owing to the derogation of renewable and nonrenewable resources. The North Atlantic Treaty Organization (NATO) and its Committee on Challenges of Modern Society (CCMS) organized a workshop on Environmental Security in an International Context: Environment and Development Policy Responses. The workshop recognized monitoring compliance as a crucial issue in environmental politics and stressed the need for capacity building as a major part of a strategy to combat environmental threats to security. At the Plenary Meeting of the NATO/CCMS in 1995 a pilot study on Environment and Security in an International Context was launched. On 15 March 1999 the final report was published, summarizing the relationship between environmental change and security at the regional, international and global levels. The Pilot Study was co-chaired by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety and the Department of Defense (DoD) of the United States of America. Cop-15 and Cankoon-2011 put emphasized that during any type of natural disaster and environmental hazard women became the worst victim. Fourth world conference held in Beijing 1995 states that women’s entrepreneurial role help manage the environment to be protected from being spoilt.

I would like to cite that environmental security in terms of preserving; maintaining and equilibriming renewable resources by women entrepreneurs’ can produce a new area of specialization.

1.5 Research Objective
1.5.1 Broader Objective
The core of this research is to find out the functional roles of women entrepreneurs in using, maintaining and preserving of land and forest.

1.5.2 Specific Objectives
- To comprehend the relationship between women entrepreneurs and land.
- To investigate women entrepreneur’s capacity in upholding land.
- To understand how do women use land.
- How do they preserve it for them and forthcoming generation?

1.5.3 Research Questions
The study would like to draw the center of attention to the questions as per described below:
- What types of relationship are going on between women entrepreneurs and land?
- How do women entrepreneurs use land?
- What are the procedures followed by women in balancing renewable resources for the forthcoming generation?

Based on the following questions a checklist was developed and the prepared instrument reviewed by the supervisor had been applied among the targeted population during the field work.
1.6 Review of the Literature

Annabel Rodda in her book *Women and the Environment* in 1993 focused on women and the environment and development. Here I attempt to review chapter three: the role of women, which is closely related with my thesis. In this chapter of this book, author discuss about women’s role as users, collector of food, fuel and fodder, as producers and managers of natural environment.

Renewable resources like forest, land etc. are now become nonrenewable resources because of deforestation and land degradation. For their everyday need (food, fuel, fodder etc.), women had a close relationship with environment, particularly in third world countries. As natural resources provide women their basic needs of survival, women also try to reserve them for future. Women collect fuel without any bad impact on environment, because they mostly collect dead wood. Women collect food from trees, at the same time they also nurture trees. So we see that, these women not only bear the brunt of environmental degradation, but also play a crucial part in environmental management (Rodda, 1993).

In reviewing the chapters on land and forests of the Earth and her environment by Arun Kumar Lahiry (2002) I would like to state that the present disarray of environment is centre concern of this book. Here author Arun Kumar Lahiry takes an attempt to discuss basic concepts of land, forests, coastal environment, population, consumption and poverty etc., and also focus how this resources now in a threat.

Land is the most valuable natural resource as fundamental to the life of mankind (lahiry, 2002). It has a long term sustainability of productivity. It is the primary basis of production of food, fodder, fiber, fertilizer, fuel and many other essential goods needed to meet human and animal needs. This valuable renewable resource became non-renewable state because of unplanned and unscientific exploitation. According to author, “the conservation of land is depending on the human awareness and their mode of controlling action.”

This chapter introduces basic concepts of gender and its link with environment. Here author explained that, women’s work often linked to the environment (through subsistence, agriculture, domestic chores and hires work such as sowing and weeding) and that much of this work is made harder through environmental degradation. For example as forests are decimated and sources of ground water are depleted, women have to make longer, more time-consuming journeys to collect water and fire wood. We see that, there are close relationship between women and environment and if there any disorder in environment, women will be the worst sufferers.

Here author also attempted to define gender, explained development of gender roles, and discussed society, gender and environment. Basically gender is a society’s interpretation of maleness and femaleness, which society will determine what should be male and female characteristics and roles. So we can change it. Because of gendered division work women tend to experience environmental problems differently from men. In a word this chapter introduces the way in which women are related with the environment.

The article *Women Entrepreneurs in Nepal: What Prevents Them from Leading the Sector?* by Brenda Bushell was brought under consideration to produce the following review:

In this paper, author mainly focused on the current situation of the faced by women entrepreneurs in Nepal, particularly in Kathmandu, the capital city, where increasing numbers of women entrepreneurs are promoting economic growth through their individual efforts.

To explain the condition of women entrepreneurs, author drew our attention to the overall development of Nepal. Human Development Report 2007 and Human Development Report 2008 highlighted the low level of development for the country. The Human Development Index (HDI) of 0.534 ranks Nepal 142nd out of 177 countries, while the Human Poverty Index (HPI) value of 38.1 ranks Nepal 84th among 108 developing countries, Nepal ranks 134 out of 156 countries in the Gender Development Index (GDI) and ranked 86 out of 93 countries in the Gender Empowerment Measure (GEM).

Despite of unfavorable socio-cultural condition, the number of Nepalese women entering into private enterprise is increasing. The government adopted the rhetoric of women’s participation, and introduced various gender-based initiatives, increased microfinance support systems, and created an opening for the introduction of gender policies and programs in many government bodies and NGOs. Equal access for both men and women to education and skill-training in business management etc. are included in the Tenth Five-Year Plan. Although the number of women entrepreneurs is increasing, still their contribution in national economy is not significant.

The authors of the paper selected 15 women aged 23 to 62 years from a cross-section of social classes and enterprises engaged in different crafts on the basis of random sampling. The interviews took place in and nearby Kathmandu in March 2008. The study is aimed at galvanizing interest and support for the development of a business-management model and networking system for women. Here author mentioned “access to finance and respect, access to formal education, access to networking and markets” as women’s motivations to become entrepreneurs. But Brenda Bushell showed that traditional outlook towards women especially in property ownership, financing even in education hampered profoundly to flourish their business. Even government’s various initiatives cannot ensure the equality of opportunity.

Author also discussed some points to promote the present women entrepreneurship such as encouraging the
dissemination of information, fostering entrepreneurship through early education, expanding skills training and management, developing entrepreneurial networking for women, providing greater visibility for women entrepreneurs etc.

Mohammad Samaun Safa in the article The Role of NGOs in Improving Social Forestry Practice: Do They Promote Livelihood, Sustainability and Optimal Land Use in Bangladesh? examines the management pattern of social forestry by NGOs in Bangladesh.

Managing forest is the responsibility of the Forest Department; but in Bangladesh, NGOs like BRAC, Proshika, Caritas and CARE-Bangladesh are playing a vital role in forest management by reducing poverty and enhancing rural livelihood. They also ensured community participation and protection of the forests, both planted and natural.

Women are also benefited, as NGOs creating scope for women to improve their standard of living, increasing female leadership in rural areas etc.. Author argued that the involvement of women in social forestry activities can help them generate some income through little extra effort and time.

**NGOs and Their Activities**

Here author explained the various activities of these NGOs, like Plantation activities on marginal lands, nursery activities for timber and fruit species, agro-forestry activities of the Rural Enterprise Project, support for establishment of homestead plantations, strip block plantation, homestead and roadside plantations, fallow land agro-forestry, homestead vegetable cultivation and village demonstration nursery, tree plantations in institutional premises etc.. First points of attention, the NGOs are very much successful to achieve improving livelihood. Their activities help human resource development, income and employment generation, improving the gender balance and settlement of destitute women, overall socio-economic development and social security. Second points of attention, a general achievement of NGOs social forestry activities in terms of sustainability is the increase in overall tree cover of the country, which slows down the soil degradation, for example in areas of salty forest. They follow sustainable land management techniques and forestry practices. They create own resources for all types of forest products, that ensure local demands. Nursery activities are also successful, both groups and individuals. Third points of attention, the activities of NGOs also help ensure optimal utilization of land. We know that, huge amount of urban and rural land belonging to the government and semi-government authorities is left unused or under-utilized; NGOs have brought that land under a co-management regime for maximum utilization. Author’s findings were that NGOs play a supplementary role to fill the gaps as facilitators and collaborate with government agencies to remove the constraints on utilizing public land. At last author discussed about the weakness of NGOs social forestry activities. NGOs have strong profit motive attitude, lack of coordination with government bodies, the rigidity of NGOs in the formation of groups for their social forestry activities constrains communication and reliability, accuse of being bureaucratic, lack of transparency etc..

Author thinks that in spite of these types of weakness, NGOs are playing a vital role promoting Livelihood, Sustainability and Optimal Land Use in Bangladesh. Especially women’s involvement in social forestry activities, bring a revolutionary change to their own life as well as social status. Government and NGOs should work together to bring a fruitful outcome of social forestry. Tim Doyle in her work Environmental Security in the Indian Ocean Region in 2004 has demonstrated that we have to think the “Environmental security” in a more inclusive way. In this article, “Environmental Security in the Indian Ocean Region”. Tim Doyle argued that “It is time to start thinking in terms of how we can achieve a just and sustainable environmental security”.

The Indian Ocean region was author’s centre of attention. The majority of people (one third of the globe’s population) fight for survival under conditions of chronic poverty, hostile national and transnational economies, and political systems often dominated by concerns of race and religion. We know that, Australia is situated on the other side of this ocean. People’ way of living is not same in those two areas. Environmental problem is not only the problems of IOR’s or Australia’s. But the concept of sustainability is perceived as a domestic concern by the Australian policy makers. Most of the time, they ignore to indentify the common regional agendas. As a results, there are rare links between Australia’s environmental policies with IOR partners. Ultimately these types of policies will not bring a sustainable environmental security in future.

Since the end of the Cold War interest in environmental security within the renewable and non renewable resources, has increased. After the victory of capitalism and the break-up of the communist-inspired USSR in the late 1980s, there re-emerged a global, almost post-modern, policy-shaping concept embracing a shared plurality of interests which crossed nation-state borders, commonly referred to as multilateralism. In the new millennium, US unilateralism was emerged and the idea of “Environmental security” was involved. After that, environmental security emerged in the Brundtland Report on sustainability in 1987, and increased at the first Earth Summit in Rio de Janeiro in 1992. At Earth Summit Plus Ten in Johannesburg 2002, the notion of environmental security is strongly addressed. We have to identify the impact of environmental disorder on societies, or it may provide the basis for increasing human conflicts. In this circumstance, the author try to explain this issue inclusively, one that secure individual access to a basic infrastructure for survival in a geopolitical region,
within nations-state boundaries, another that secure regional sustainable future.

Environmental problems of the Indian Ocean Region considered as an additional threat to the native people. They will be the worst sufferer of environmental problem. If we want to established “environmental change at the centre of cooperative models of global security”, we have to consider nature as our friend, which gives access to healthy environments, appropriate shelter, and a security to practice a diverse range of livelihoods etc. So it is important to identify the social and ecological problem in the context of those people. Without that we will suffer a long. As the author said, “They will lead to increases in human conflict and, ultimately, wide scale disease, poverty and death.” It is also necessary to take proper step and work jointly for establishing a sustainable environmental security.

Ugandan Women Entrepreneurs’ Attributes; A Comparison of Their Motivation to Women Entrepreneurs in Select Developing Economies by Fiona Mulira, Samuel Dawa, Rebecca Namatovu deals with the following argument: researchers try to focus on factors like age, level of education, geographical location, and house hold income and employment impact of female entrepreneurs in comparison among Uganda with other eleven developing countries. They showed that women with a low level of education are encouraged to engage in entrepreneurship and also women were driven to entrepreneurship because of independence and sense of achievement which entrepreneurship offers.

They showed various figures for comparison between Uganda and other developing nations. The highest levels of opportunities were found in Saudi Arabia and Uganda and the lowest were in Yemen. It also shows that 42% of the women in developing countries know someone who started a business in the past two years. Kingdom of Tonga had the highest number of such women followed by Uganda, Guatemala. Saudi Arabia had the least number of only 19.9%. Uganda women have the highest level of entrepreneurial activity and the Saudi Arabian women have the lowest level. Uganda women have the highest level (29.9%) of entrepreneurial activity and the Saudi Arabian women have the lowest level (0.7%). They also analyze the women entrepreneurs with respect to demographic factors like age, level of education, geographical location, and household income and employment impact of female entrepreneurs in comparison among Uganda with other eleven developing countries. They showed that women with a low level of education are encouraged to engage in entrepreneurship and also women were driven to entrepreneurship because of independence and sense of achievement which entrepreneurship offers.

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2.1 Women Entrepreneurs
Entrepreneurship may be regarded as what entrepreneurs do. In other words, entrepreneurship is the act of being an entrepreneur. It is a process of involving various actions to be undertaken to establish an enterprise. Entrepreneurship is the key to small business development. A country may have resources but the problem of development is to put these resources into the process of production. This can only be made possible through initiatives by some people or organization. Promoting economic activity among women, improving the status of women in the workforce, reducing women’s unemployment and poverty levels are ways to overcome gender inequality. One of the main avenues for tackling this issues and narrowing the gender gap is development of women’s entrepreneurs. The major reasons for motivating women to opt for entrepreneurs are to provide a source of income and a consequence improvement of individual welfare. However it is also a means of reorganization, self-assertion, self-fulfillment and personal growth. The results of the women are either self-employed or seeking employment. In this study, they also found that, women of the Kingdom of Tonga, West Bank and Gaza strip, Yemen and Saudi Arabia show similar entrepreneurial trends to those of Uganda.

For countries like Algeria, Guatemala and Jamaica the women attitudinal factors move in tandem with those of Ugandan women. As it is, Ugandan, Jamaican and Guatemalan women’s entrepreneurship points more to necessity than opportunity. This article showed that, with those hostile environments, women entrepreneurs have a positive impact in Uganda’s economy. So government and other aiding organizations need to give support to these women. Thomas F. Homer-Dixon in his book Environment, Security and Violence argues in 1999 that environmental scarcity contributes to violent conflict and this conflict tells upon negatively towards environmental resources. Its women entrepreneurs who can reduce the violence and protect the environment from being deterioration.

entrepreneurs’ survey and focus groups interviews showed that the major reasons for women deciding to start up an SME were a need for self-fulfilment, self-sufficiency and independence (42%) to give the opportunity to manage a profitable business (39%), and possibility to choose a working schedule (23%).

Women Entrepreneurs has been recognized in the business and management scientific community within the last decades. Important academic publications such as Frontiers of Entrepreneurship, Journal of Business Venturing and Entrepreneurship, and Theory & Practice have encouraged the creation of studies on women as business owners. Advances in this field of studies have been helped by the fact that world institutions such as the United Nations and the Organization for Economic Cooperation and Development have recognized the importance of producing reports and statistics separated by gender and have encouraged their member countries to carry out such studies.

A study carried out in the USA by Boden and Nucci states that women entrepreneurs have a lower educational background than their male counterparts, but it is worth mentioning that the samples considered in this study were from 1982 and 1987, which clearly implies a different scenario from that of today. Furthermore, Fischer et al., and Dolinsky et al. maintain that there are no relevant differences in the educational levels between men and women entrepreneurs. These studies were carried out in developed countries, Canada and the USA respectively, and the results cannot be generalized to fit other contexts, such as those of developing countries. As it was showed in the GEM study, women entrepreneurs that are the most likely to start a new business in high-income countries have some graduate experience while that in low-income countries the majority have not completed a secondary degree.

2.1.1 Features of Entrepreneurship

The main features of entrepreneurship are given below:

- **Economic Agent:** Entrepreneurship is mostly an economic function as it involves the formation and operation of an enterprise. It is basically concerned with the production and distribution of services.

- **Creativity:** Entrepreneurship is a resourceful response to changes in the environment. Therefore, an entrepreneur is a change agent.

- **Risk Bearing:** Risk is an inherent, intrinsic and inseparable element of entrepreneurship. An entrepreneur assumes the uncertainty of the future, as there is every possibility of loss in the pursuit of profit.

### Innovation:

Entrepreneurship is an innovative function as it involves doing things in new and better way.

#### 2.1.2 Micro Credit Program and Women Entrepreneurship

Over last two decades, micro credit became an important tool for alleviating poverty in Bangladesh. The overall success of micro credit program depends not only on immediate alleviation of poverty but also on long-term sustainability and long-term sustainability depends on accumulation assets. In Bangladesh, Grameen Bank first started micro credit program in 1976 as a pilot project. Now, more than 3000 non-government organizations (NGOs), national commercial banks and specialized financial institutions operate micro credit program in Bangladesh. It is proved as a strong mean to alleviate poverty through social and economic empowerment of the rural poor women. It is a group savings program, which helps the rural poor women to bring economic security in their lives.

### 2.2 Renewable Resources

Renewable resources are considered natural resources that replenish faster than humans consume them. Renewable resources are those that are replenished through biogeochemical and physical cycles. This means that almost every resource that humans use in the world is considered a renewable resource. It’s just that we have to come up with ways that allow those resources to replenish back into the earth naturally faster then we consume them. That is almost impossible with resources like coal, oil, and other resources that take hundreds if not thousands of years to replenish. Water is a good example of a renewable resource, for the fact that for whatever water we use it gets cycled back into nature through evaporation, rain, and many other ways. The only time it becomes nonrenewable is when it is taken from somewhere faster than nature can replace it, and something happens to either the source of the renewing, or the place the water was taken from and water is no longer there. Another type of energy that water helps produce is through dams and other aqueducts. These harness the power of the water passing through them and convert it to energy; as long as we don’t use up the water faster than it can be replaced that is another endless supply of energy.

Many things are becoming renewable resources that weren’t before; this is because people have become aware of the damaging effects of taking things from the earth faster than it can be replaced. A good example of this is

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trees, many things are used from trees, and before people were aware of the consequences they were being cut down and not replaced. But since then when a field is cleared there are saplings that are planted in the trees place.

Another part of the renewing process is recycling; since paper and other wood materials are being recycled it is driving down the need to cut trees down. This is helping the environment to replenish the trees that have been lost in the past. The problem with renewable resources was that they were expensive to make, which made the price for them to go up to levels that did not make it sensible for people to buy. But since the demand for these resources have risen it has made the price for renewable resources to drop. These prices will continue to drop as long as the demand gets higher. With the growing popularity of becoming green, renewable resources have became top priority for a lot of people. There are many different types of renewable resources. Like I said earlier water can be a great source of renewable resource, so can cardboard, wood, paper, some oils, farming bi-products, scrap metal is another renewable resource thanks to the support of recycling.\(^{10}\)

With the growing important of finding reliable renewable resources there have been great advancements in using bio materials, these materials can be used to power many different things that normally would take nonrenewable resources in the past. And with the development of better technologies these improvements will continue to get better. It takes everyone to make it work though, so if you don’t recycle please start. If you can walk somewhere instead of driving, it will help the environment and your health by walking. These are all small things that when done in great amounts will add many decades of resources that we can use in the future. Natural resources are undoubtedly the backbone of our civilization. In a broad sense, they refer to all the living and nonliving endowment of the earth, but traditional usage confines the term to.

### 2.3 Maintenance of Resources

The use of the natural resources can differ to the concept of sustainable management, as it can lead to the depletion or exhaustion of the resource and limit the opportunity for future generations to meet their needs. The aim in managing the non-renewable resources is to maximize the life of non-renewable resources by, romoting the use of sustainable practices and the use of renewable resources as substitutes.\(^{11}\)

#### Policies to Maintain Nonrenewable Resources

To provide for land-based and related activities while avoiding or mitigating any adverse effects on the life supporting characteristics of resources.

To manage the adverse effects of subdivision and land use activities in order to maintain and enhance the life supporting capacity of the soils and to avoid or mitigate soil degradation, erosion or contamination.

Where land is used for productive purposes, to manage that land and its soil resources in a way that avoids unreasonable limitations or restrictions on existing activities and maintains future options for uses for that land.

To integrate into the subdivision design and decision-making process considerations relating to the potential use, development and constraints of land.

To promote sustainable land management practices in the high country to ensure soil conservation, retention of indigenous vegetation and natural values.

### 2.4 Forest

Forest is a dense growth of trees, together with other plants, covering a large area of land. The science concerned with the study, preservation, and management of forests is forestry.\(^{12}\)

A forest is an ecosystem—a community of plants and animals interacting with one another and with the physical environment. The forests of the world are classified in three general types, or formations, which are primarily expressions of the climate in which the vegetation grows.\(^{13}\)

The tropical hardwood forests, including rain forests, occur throughout the lowland areas of the tropics—especially along the routes of rivers in Central and South America and in central and W Africa—and in the East Indies, the Malay Peninsula, and parts of India, Indochina, and Australia. They are characterized by an annual rainfall of 160-400 in (406-1,000 cm) annually, with an average temperature of at least 80°F (27°C), and support a great diversity of plant life. The foliage is a luxuriant and interlaced community from ground level to the tree canopies, and the trees support the omnipresent woody vines and air plants. Although some tropical forests are deciduous, most tropical trees are considered evergreen because their leaves are not shed simultaneously at a certain season; however, they are believed to drop and renew their leaves sporadically each year. Even though they cover only 7% of the earth’s landmass, about one half of the planet’s species live there. The temperate hardwood forests of North America, Europe, and Asia are marked by seasonal rainfall distribution. The trees, typically species of beech, maple, ash, oak, elm, and basswood, are deciduous but are often mixed with conifers, especially in areas of poorer soil. The temperate hardwood forests overlap the boreal, or northern, conifer forest belts, which encircle the earth in the subarctic and cool, temperate regions south of the treeless tundra. The vegetation is

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\(^{10}\) http://typesofrenewableresources.com/

\(^{11}\) http://www.hurunui.govt.nz/assets/Documents/District%20Plan/1-1-01%20Use%20of%20Non-Renewable%20Resources.pdf

\(^{12}\) http://pubpages.unh.edu/~aha24/A5forests.html

\(^{13}\) http://www.answers.com/topic/forest
typically fir and spruce in northern regions and at higher altitudes, and pine, larch, and hemlock in southern regions and at lower altitudes. In transitional areas, especially where there is a pronounced season without rain, scrub forests are frequently found in which the trees are more widely spaced and grasses intervene. No tropical rain forests exist in New Zealand, Tasmania, Chile, and the Pacific coast of North America. In the United States east of the prairies are the northern forest belt, in which sugar maple, beech, and birch mix with the conifers; the hardwood forest belt, a typical temperate forest; and the warmer southern forest belt, encompassing many stands of smaller pines and cypress thickets. In the chiefly coniferous Rocky Mt. forest belt, the Ponderosa pine is most common. The Pacific forest belt has the heaviest stands of trees in America and probably in the world. The characteristic redwood and giant sequoia mingle with Douglas fir and other species.\textsuperscript{14}

**Sundarbans World’s Biggest Mangrove Forest**

Sundarbans is located about 320 km. south-west of Dhaka and spread over an area of about 60000 sq, km of deltaic swamps along the coastal belt of Khulna, the Sundarbans is the world’s biggest mangrove forest - the home of the Royal Bengal tiger. These dense mangrove forests are criss-crossed by a network of rivers and creeks. UNESCO has declared the Sundarbans a world heritage site that it offers splendid opportunities for tourism.\textsuperscript{15}

![Figure 3: Sundarbans -- World’s Biggest Mangrove Forest](image)

2.5 Land

Land is the solid ground or surface of the earth. In economics land is the resource that encompasses the natural resources used in production. In classical economics it is the three factors of production are land, labour, and capital. Land was considered to be the “original and inexhaustible gift of nature”. In modern economics, it is broadly defined to include all that nature provides, including minerals, forest products, and water and land resources. While many of these are renewable resources, no one considers them “inexhaustible”. Like land, its definition has been broadened over time to include payment to any productive resource with a relatively fixed supply.\textsuperscript{16}

2.6 Balancing Land and Forest

There is a worldwide balancing percentage of land and forest. The amount is 26%. This is a balancing amount of land and forest. This rate balances the eco system and non renewable resources. But many of the country land can’t balance the percentage. In India this percentage is 17%. But this is not same in all the part of the country. In Madhya Pradesh there is a high quantity of forest. The average land area of forest land in US is 190 million acres (297,000 mi²/769 000 km²) which consist of 155 national forests.\textsuperscript{17}

This percentage in Bangladesh is 16%. This can’t be enough for the total land. The southern part of the country has much forest land which is known by Sundarbans. And this is the world’s biggest mangrove forest.

2.7 Environmental Security

The relation between the environment and the security of humans and nature has been the object of much research and the subject of many publications in recent decades, but it is only recently becoming an important focus of international environmental policy. To the extent humankind neglects to maintain the globe’s life-supporting eco-systems generating water, food, medicine, and clean air, current and future generations will be confronted with increasingly severe instances of environmentally induced

\textsuperscript{14}http://www.answers.com/topic/forest

\textsuperscript{15}http://bangladesh-i.com/details/40/shundarban-world%27s-biggest-mangrove-forest

\textsuperscript{16}http://www.businessdictionary.com/definition/land.html

\textsuperscript{17}http://wiki.answers.com/Q/How_are_forests_useful_to_us
changes. Such events will test our traditional concepts, boundaries, and understandings of national security and alliance politics and, if taken for granted, may lead to conflict, including violent conflict, from the global to the regional, national, local or human level. Environmental security, broadly defined, affects humankind and its institutions and organization anywhere and at any time. Climate change became a focus when it was first integrated in the National Environmental Management Action Plan (NEMAP), which was prepared in 1995 in order to initiate the process of addressing climate change issues as long-term environmental concerns for Bangladesh. Bangladesh signed onto the United Nations Framework Convention on Climate Change (UNFCCC) on 9 June 1992, ratified it on 15 April 1994 and ratified the Kyoto Protocol on 22 October 2001. The country is a non-Annex I Party to the Protocol, which means that it is not bound by specific targets for greenhouse gas emissions. The Department of Environment within the Ministry of Environment and Forestry is the focal point for the UNFCCC and coordinates climate-related activities in the country. 

Now a Climate Change Cell (CCC) has been established to address several issues, including adaptation. Several institutions are involved in technical analyses of climate change including the Bangladesh Meteorological Department, the Flood Forecasting and Warning Center, the International Centre for Diarrheal Disease Research Bangladesh, the International Training Network Centre (dealing with water management issues), climate and Environment Geographical Information Services and the Bangladesh Centre of Advanced Studies.

Bangladesh was one of the first countries to finalize a National Adaptation Program of Action (NAPA) in accordance with the UNFCCC. The NAPA was completed in 2005 and is the first official initiative for mainstreaming adaptation into national policies to cope with climate change and vulnerability. The NAPA suggests a number of adaptation strategies, such as the provision of potable water to coastal communities, including climate change issues in education, and mainstreaming climate change across sectors and into the planning of infrastructure.

Bangladesh has already included most elements of mainstreaming climate change adaptation into its recent 2005 Poverty Reduction Strategy Paper but as yet, there has been little progress in implementing the stated goals and targets of the NAPA.

After findings the gap of the literature I have reached the decision that there is lack of incorporating women entrepreneurs in the issue of environmental protection. Linking environmental resources through women entrepreneurs is an attempt to reflect the environmental security and sustainability is the core approach of this micro research project.

3. THEORETICAL FRAMEWORK

THEORY ON ENTREPRENEURSHIP

3.1 Psychological/Personal Theory

The major assumption of psychological or personal theory lies in the difference of individuals with respect to their psychological traits like implicit attitude, personality, foresight, achievement-motivation orientation, ability to face opposition. These psychological characteristics pave the way for the creation of successful entrepreneur & entrepreneurship. The following theories constitute the domain of psychological theory:

- Achievement Motivation Theory
- Risk Taking Theory
- Internal External Locus of Control
- Autonomy or Independence Motivation Theory
- Creativity or Innovation Theory

3.2 Achievement Motivation Theory

The first & foremost leading psychological theory on entrepreneurship to be mentioned is David McCleland’s theory on need for achievement. McClelland purports need-achieve in a society works as intervening variable between entrepreneurship and economic growth by following measures:

People replete with high achievement orientation & devoid of the influence of monetary or external incentives are more likely to be entrepreneurs who can take personal responsibility & moderate risk as well as seek feedback & sacrifice small interests in lieu of large ones.

3.3 Risk Taking Theory

The theme of theory of risk taking developed by Richard Cantillon & John Stuart Mill and modified by Alfred Marshall maintains postulates that individuals with a mentality to take moderate risk or calculated risk are highly responsible & high responsibility propels them to chalk out & carry out initiatives & these initiatives results in entrepreneur.

3.4 Internal-External Locus of Control

Internal-External Locus of Control theory of J.D Rotter advocates that entrepreneurship is controlled by internal & external locus i.e. self-confidence & extreme belief on one’s ability & power as internal locus & factors beyond one’s volitional control such as society’s values, beliefs, traditions as external locus regulate one’s entrepreneurial efficacy.

3.5 Autonomy or Independent Motivation Theory

Autonomy or Independence Motivation theory, a successful diffusion of the internal-external Locus of control theory specifically emphasizes on the internal locus like people’s independent thinking capacity, self-

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confidence & self-controlling ability which motivate
them to undertake entrepreneurial activities by avoiding
social imposition.

3.6 Creativity/Innovation Theory
The creativity or innovation theory is based on the
argument that creative individuals are highly potential to
become entrepreneurs as they can apply their constructive
thoughts & ideas to the innovative enterprises either by
producing something new that was not in existence before
or presenting something old in a new or modified format
or version which will be useful not for the individual but
for the whole.

Therefore the Psychological or personality Theory
treats an entrepreneur as particular personality type replete
with the qualities of risk taking, leadership, motivation,
ability to resolve crises, creativity, ambition, degree of
freedom & so forth.

3.7 Sociological and Anthropological Theories
The sociology with its focus on society as a whole
& the anthropology with its focus on culture as a part have together developed a number of theories on entrepreneurship elucidating the impact of socio-cultural factors on the development of entrepreneur & entrepreneurship through the interrelationship between society & culture which cannot be thought of separately.

Traditional value as a socio-cultural contributor like “Women’s confinement to the cocoon” hinders their development to become women entrepreneurs whereas modern values like the realization of the need for women empowerment have led them to come out of the historical cocoon to become entrepreneurs. Thus Society’s values, religious beliefs, customs, taboos as cultural factors influence the attitude & behavior of individuals in a society to be entrepreneurs. Sociological & anthropological theories discussed below are:

- Marginal & Tension Theory
- Social Cohesion Theory

3.8 Marginal & Tension Theory
Marginal & tension theory of Robert Park introduced in 1928 emphasizes on the tension of the marginal man who engage himself in business to survive in the midst of two antagonistic societies (agricultural vs industrial society) or cultures (occidental vs. oriental culture) apart from his own culture. As per Marxist perspectives on the distribution of surplus population in capitalist society the stagnant people are marginal people who have been alienated from the agricultural sector & at the same time been excluded from industrial sector. These marginal people are more likely to establish themselves as new entrepreneur.

3.9 Social Cohesion Theory
Theory of social cohesion of Froyed argues that social cohesion promotes entrepreneurship in the society. Persons of a particular culture especially while living in an outside culture are willing to undertake business initiatives and want people of their native culture as their business partners in an alien society.

Environmental Resources Theory
The environmental resources theories & models regarding
the maintenance, generation, implication & conservation
of renewable & nonrenewable resources hereby discussed
are as follows:

- New growth theory
- Hotelling Model
- Renewable and Nonrenewable Resource Theory
- Applied to Coastal Agriculture, Forest, Wetland, and Fishery Linkages
- Climate Change, Common-Pool Resource Theory
- Conservation of energy.

3.10 New Growth Theory
The new growth theory of Paul Romer (1986, 1987,
1990) and Robert Lucas (1988) supports sustained
positive growth driven by positive mechanism which
regards the essential non-renewable resources as growth
essential when they becomes essential input to the growth
 generating sector termed as the growth engine.

3.11 Hotelling Model
The hotelling model how finite reserves for the evolution
of prices & consumption under an optimal plan focusing
on the role of the competitive markets to achieve planner’s
solution.

3.12 Climate Change, Common-Pool Resource Theory
The theory of CPR management has been used to
understand the factors that are associated with both the
robustness and the fragility of governing arrangements
for a range of natural resources such as water, fisheries,
and forests (e.g., Agrawal 2002; Ostrom 1990; Ostrom,
Gardner, and Walker 1994; Schlager 2004). CPRT, which
is developed within a broader research framework on
institutional analysis (Ostrom 2005), points to critical
institutional features that can help explain how interstate
river compacts might perform in the face of climate
change and what institutional changes might improve
interstate water management.

3.13 Conservation of Energy
Energy conservation is enough cost effective. There is
scope in every sector of the economy to improve efficient
of energy use. The government of India has offered a
variety of Fiscal concessions to encourage energy saving
measures by Industries and IDBI provide soft loans for
such measures. Energy conservation will receive greater
attention by industrial managers. There is plenty of
room for energy conservation in other sector too. Most
of the renewable technologies are suited for small-scale,
decentralized energy generation. There is no agency in
the Government of India charged with responsibility for orchestrating energy policy & monitoring implementation. A separate department of energy as a part of the cabinet secretariat may be an appropriate mechanism. In the nutshell, we need greater awareness of the gravity of the emerging energy scenario & to search the mean of energy conservation.

3.14 Compilation of Theories
All those theories deal with knowledge on women entrepreneurs and environmental resources. This current study tries to link theoretical paradigms versus the studied arena. It is really very difficult to match the sample population and the theory. The mechanism of all those theories shows a direction to protect environment from being endangered. However environmental security as a new discourse connects environmental resources specially land and forest to protect the environment. Here the women of entrepreneurs class can help manage to sustain a ecological balance.

4. METHODOLOGICAL CONSTRUCTION OF THE RESEARCH
“A methodology is a theory and analysis of how research does or should proceed: it includes accounts of how the general structure of theory finds its application in particular scientific discipline.” 19(Harding. Sandra, Feminism and Methodology, p.204)

A methodology refers to the choices we make about the cases of study methods of data gathering, from of data analysis etc. while it directs how a researcher will go about studying any phenomenon, in this chapter, detailed design of study including sample size, study population, data collection and data analysis etc., will be explained to gain an insight about the whole procedure of this research work.

4.1 Study Population
This research has incorporated ten women entrepreneurs as the sample of the study. The sample represents the rationality of preferring them under this study. The selected ten women were chosen through base line survey living in Shora. With a view to getting more knowledge on the area of study I have taken informal discussion with the local people.

4.1.1 Geographical Description of the Studied Territory
Village Shora under Gabura Union of Shamnagor Upazilla of Satkhira was brought under this research project. Upozilla Shamnogar is 65 km far away from the district town. Gabura union is surrounded by the river Kholpatua. The river is close to the Bay-of-Bengal. “Shora” where the study has been conducted is a little village under Gabura Union. Statistics found from the Union Parisad in 2011 narrates that the entire population of the village is seven thousand in which three thousand and eight hundred people are women. The total family in the village is 1233 in number. It belongs to five mosques, a registered primary school. The village does not have any high school and colleges. So the rate of education is in a vulnerable position. So the women’s education is below profile. With the functional role of Broti and Uttoron 3 both men and women are getting primary education to enlighten them.

4.1.2 Rationality of Choosing This Area
The preferred village is the worst victim area during Ila and Sidr. The productivity of the land has been drastically reduced and no crops are being produced. So the land needs to be nurtured. Hence women have become directly dependent on Sudarbon and the river Kholpatui. For the survival of the community their living land has turned as the most valuable asset to them. Sundarbans and land are interlinked for their livelihood. With a view to addressing the environmental security and renewable resources by entrepreneur women this area are the best feet for the conduction of the research.

4.2 Techniques of Primary Data Collection

Figure1
Shamnagar Upazilla and Gabura Union

19 Harding. Sandra, Feminism and Methodology, p.204
Following methods were pertained in covering the expected information from the field:

- Observation
- Key Informant Interview (KII)
- Focused Group Discussion (FGD) Informal Discussion
- Case study.

a) Questionnaire Section or Interview: Questionnaire method in social research in which information is obtained with the help of a questionnaire, which is prepared exclusively for the purpose.

According to Bogardus, “A questionnaire is list of questions sent to a number of persons for them to answer. It secures standardized results that can be tabulated and treated statistically.”

b) Observation: During conducting the study I was in the field for more than fifteen days. I had to move here and there with the local community. With the assistance of Mr. Mosharf Hossion the local manager of Broti I have visited the village and did home to home visit. It has given me a comprehensive knowledge about the studied area.

c) Case study: Case study is the proper evidence of understanding the life style of the targeted community. Two case studies have been collected during field work with the help of the local people.

Focused Group Discussion: A focused group discussion was arranged among 12 members during the field work to collect the view of the local entrepreneur women.

4.3 Data Analysis Methods
The questionnaires were analyzed by means of descriptive statistics such as means, standard deviations, frequencies, percentages, and tabulations. The items of the questionnaires corresponding to the respective specific objective were put together and the frequencies of the questionnaire response options selected were tabulated.

4.4 Pre-testing and Finalization of Questions
Pre-testing and finalization of questionnaire adhered to the following procedure: I designed the draft questionnaire and also completed pre-testing. Based on pre-test findings I checked the translation, consistency and integrity of the questionnaire. I finalized the questionnaire and showed it to my supervisor for final approval. After approved of the Bangali questionnaire I then printed the Bangali questionnaire and translated it later in to English. After the choice of research topic I am discuss about my research methodology with my supervisor. She suggest me interview, case study, observation or focal group dictation (FDGs) methods. But I am select three types of methods for data collection in my research. Those are interview, case study, observation.

4.5 Ethical Considerations
Social researchers must consider the right of the respondents involved in any study (Baker, 1999). Thus in order to carry out a research project, the researchers must consider the ethical aspects of their studies. In this study ethical standards had been maintained in every stage of this research project.

a) Introduction and Explanation of the Survey’s Purpose: It was mandatory that all the investigators introduced themselves and explained the purpose of the study before collecting any information from the respondents. Respondents than had to indicate that their participation was voluntary.

b) Confidentiality: The respondents were informed clearly that the information they provided during the interview would be kept strictly confidential. Only the interviewer and the and the researcher would have access to questionnaires. The questionnaires would be destroyed upon completion of the data analysis and cross-tabulation. The name and address of the respondents were pseudo.

c) Privacy: Furthermore, privacy during the interview process was safeguarded. The interview was held under conditions wherein the respondents felt most comfortable in responding openly. Also there real identity was not linked to the study at ant point of time or stage of study. It was at the respondents’ discretion to participate in the interview. The study registered oral and written consent from all interviewees.

d) Researcher-respondents Relationship: Researcher’s responsibility to ensure that the research will not entail any procedures that can case harm to respondents. The types of harm that can be experienced by respondents may be physical, mental or legal. I am tried to avoid this types of harm for the respondents. With my respondent in the data collection period I have maintain a friendly relation.

e) Problem: For the data collection I don’t face serious kinds of problem. Sometimes the respondents don’t give the proper evidence those are need for my research, they are feeling upset. But it was easy for me, when I explain my research purpose; it is an academic task for me. Then they are helping me.
ecologically flexible means. Some of these women who have already experienced widowhood and who have been living in this area since their birth consider the forests as a shower of blessings from the God. Moreover after the devastating aila and sidr it has become a challenge for them to retrieve and restore their socio-economic conditions through the preservation and utilization of the forest and forest resources.

The local people more likely to have the flora in their surroundings which mainly meets their daily necessities up and help maintain necessary livelihoods than to have cash crops. Specifically the women entrepreneurs are more aware of the non-woody perennials like palm-tree, date tree, coconut tree, guava tree, mandar tree, ayurvedic tree, golpata than the woody ones like teak tree, sundari tree, garjan tree, segun tree for maintaining their life and livelihood.

The forest covered zones provide them natural means of sustainable livelihood like collecting honey and fruits, cutting wood, catching fishes, making boats & fishing nets, marketing them, collecting golpata etc. and natural supplies of foods, fuels, furniture, fences, house building materials etc. They earn their bread from the forest in the simplest way with seasonal fluctuations in their earnings without knowing the actual market prices of their valuable forest resources. This conventional society is also very much aware about the ayurvedic versatilities of the perennials around them.

Huge deforestation in this ecological zone is needed to be understood in terms of political ecology’s originality and ambition which seeks to explain an explicitly theoretical approach to the ecological crises capable of addressing diverse circumstances like river erosion, soil erosion, and natural disasters like Aila or Sidr.

As per their comments they really feel safe under the shade of green tree and can breathe fresh air. But life under the blessings of this sound environment is being constantly threatened due to random forest degradation by the local people, dishonest forest officials and even the law enforcing authority and so forth. Meanwhile they have experienced their vulnerability to ecological adversities like rise in the temperature, aggression of floods & cyclones, salinity intrusion, devastation of forests by disasters, deprivation from greenery surroundings than ever than before etc.

Though they are very much indifferent to their luxuries of life, they are aware enough about the prosperous future of their forthcoming generation which will be ensured from the preservation of the natural forest & forest resources surrounding them. They think that their offsprings will impart better education, receive daily necessaries, maintain better livelihood, get at least to some extent their parents’ savings and enjoy a greenery environment.

The recommendations of the local people to preserve the Sundarbans and to sustain their ecological means of life and livelihood understood from the research are as follows:
- To construct dam and embankments and roads,
- To impede the intrusion of salt water
- To prevent people from cutting down trees randomly
- To fill up the low lying land
- To prevent the destruction of faunas
- To plant more plants and trees etc.

Different NGOs like Broti, Sushilon, Leaders render their services to preserve the Sundarbans forest and help distressed women to maintain livelihood with the traditional ecological zone.

Case Study 1
Halima Khatun aged 40 years has been living in the village of Sora in Sundarbans for 30 years with 2/3 bighas of land where she has planted 24 palm-trees and has been maintaining an ecologically constructive livelihood. Her husband makes boats and nets with indigenous materials and catches fishes from the nearby canal and earns money by selling them in the market. All of their means of livelihood are giving them an assurance of the more or less better future of her four offspring’s. But Halima Khatun has also made an earnest request to build dams and embankments and preserve Sundarbans in order to protect their life and livelihood from natural disasters as she has meanwhile experienced the adversities on the land of her palm-tree caused by the salinity intrusion and violent wind force with water at the time of the disastrous aila.

The people of the Sundarbans ecological zone like those of the Sora village of Shamnagar are actually the evident of a powerful Darwinian framework for thinking about not only historical change but also pattern of resource use and human adaptation in an adverse environmental conditions under the introspection of ‘Survival for the fittest’. As far we know women are the most benefitted by the forest, they are the worst sufferers of forest degradation and environmental hazards, they are the fittest to survive. They are also the best protectors of the forest and forest resources at least most eligible to give possible solutions and recommendations for the necessary preservation of the forest covered ecological zone for which our research message deals with the information and case studies of the women and women entrepreneurs of the Sundarbans mangrove forest.

Case Study 2
Sarbanu Parvin of 30 years with 3 children has told about her life tragedy after the death of her husband. She has been living in the Sundarbans since her birth with her parents. Her father was a fishermen and being incapable of maintaining the family with 7 members got her daughter marry off at the age of 13 with a wood-cutter. But when her husband died of her challenging life began with her children at the age of 20. She began to plant vegetables and goava trees at her household areas and to sell them in the local markets. She was also benefitted by the social
welfare activities under the program of forest preservation of the NGO ‘Broti’. Now 2 of her children are reading in a nearby school and she sees the ray of hope of her children’s brighter future with the Sundarbans ecology.

6. Recommendations and Concluding Remarks

There is low profile of functional policy related to land, forest and environment in the context of Bangladesh. The irrespective ministry has so called policy which did not address the issue of women entrepreneurs. Considering the perspective of pre disaster and post disaster situation we have seen the deterioration of the environment. Now time has come to strengthen the environmental security. To secure the environment we have to utilize the environmental resources. Land and forest are the best fit resources to do so. Women entrepreneurs are the best chosen part of the disaster prone arena as we do regard women as the best protector of the environment.

The government has failed to reach among the women entrepreneurs and there is no sound program. Chosen few NGOs are governing project dealing the environmental security by incorporating women entrepreneurs. A great deal of foreign fund is essential for the protection of our environment.

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