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Sustainable Development: A Case Study of Four Villages in Bangladesh

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Abstract: *Environment pollution is a serious problem in Bangladesh. Due to lack of sustainability in the process of economic development the country has under-gone rapid change in negative direction. The massive use of chemical fertilizers and pesticides, unplanned construction of roads, building, embankments and cutting of plants have generated many indiscriminate problems like water pollution, air pollution, sound pollution, environment pollution, deforestation, desertification, shortage of earth water, arsenic, salinity, climate change, river-erosion, loss of biodiversity, ecological imbalance, etc. The study has made an enquire into social cost and benefit of the present development process in four rural villages of Bangladesh. The findings satisfied the statement that gains of the society is less than the losses. Benefits achieved were short-run and cost incurred were long-run. So the recommendation is that Bangladesh has to ensure sustainable development without any failure from now and on. Because we have already lost many of our valuable natural resources like freshwater fishes, fruits, birds, plants, rivers, pools, canals, etc. due to unsustainable development Education has a key role in understanding environment, and also in popularizing and implementing sustainable development.*

Introduction

In the globalised world danger seems to be increasing instead of becoming less. The national and social environment at the family, community, national, regional and global levels are gradually eroding over period of time. In this situation every country whether deveiopeu or developing is trying to attain sustainable

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development lacking of sustainability is a great problem for the world today. Consequently environment pollution has become great thread.

Bangladesh is very seriously facing the problems like loss soil fertility, deforestation, pollution etc. due to lack of sustainable development. The per capita income along with agricultural productivity has increased. Eventhough there is a common saying among the people that the amenity specially the natural one has reduced to a greater extent.

This belief is due to many factors responsible for unsustainable development process. The whole country has been very seriously affected by environment pollution. The existing poor are the worst than they were before and many new families are continuously joining in the poverty due to river erosion.

Inner peace

Total Peace

Social Peace Peace with nature

1.1 Statement of Problem

Development is an on-going process in the world. Every country is on incessant process of development. Every economic unit as an entity of the national economy is on so. The rural economy has totally changed due to rapid modernization. The traditional cultivation with plough and yoke has been replaced by tractors. Dependence on rain-fall for seeding and plantation has been substituted by irrigation. The transport system of cart, palanquin, cavalcade, boat, etc has been replaced by mechanised vehicles. These changes have made life artificial and commercial. The society has become machine and chemical oriented. As a result sources of natural supply of amenities have reduced. Many fruits, fishes, birds, plants etc. have been reduced.

The proposed study area also has under gone a rapid changes in versatile aspects. From natural villages they have become mechanised ones. The economy, society, culture and -religion have gone under radical changes. The changes have brought many modern components and lost a lot of natural inputs. Due to lack of environment friendly process of development many natural inputs of life have been abolished. From the belief of net losses of the community there arises the question of sustainable development. The write-up will make an enquire into the matter and try to assess the real position of the society.

1.2 Rationale of the study

Sustainable development has become the most important needs of the time with the rise of the massive pollution of the environment. The existence of lives on the world has been threatened by environment pollution. Many animals, birds and plants have been ruined due to environment pollution. Climate is changing rapidly unfavorably.

Mismanagement of natural resources and lack of proper environment understanding are two of the most critical issues making the development process extremely challenging in Bangladesh and resulting in unsustainable growth rather than sustainable development. Consequently, problems like disafforestation, pollution, desertification, deriverization, shortage of surface water, arsenic, salinity, climate change, river erosion, land degradation, shortage of drinking water, loss of biodiversity, ecological imbalance etc. have accumulated. The poor are disfavourable and disproportionately affected by environmental degradation and lack of access to environment and natural resources. For instance in the past many social assets (khas forest, play grounds, canals, rivers, marsh, flood, swamp land, public lake) were free to access for the poor. Now-a-days these have been abolished. Drinking water was very much available in the past but at present it has become scarce and dearer. Thus amenities of social lives have increased at the cost of loss of many natural assets. From this profit- loss statement the question about net position of the society arises. The general belief is that the society is in net loss. Remembering this some cultural activists sing a song "Abar Firiya Dao Aranno" (give back forest life again).

The study is proposed to find a answer of the question by studying four villages in rural Bangladesh. It will make an in-depth insight into in the matter. It also examines how far education on and for sustainable development will help in solving the problem. This study asks where problems and opportunities are likely to arise, why the problems arise and how they can be solved at different levels. A news item published in the Prothom Alo April 28, 2009 stated that temperature in Dhaka was the highest within 22 years on Monday 27, 2009. It was 39.6 degree Celsius. The rain in this year (2009) was 62% less than the normal rate. A drought is going on. This report shows significance of this study.

1.3 Objectives

Mismanagement of natural resources, lack of proper environment understanding and massive use of chemical inputs are three of the most critical issues making the

development process extremely challenging in Bangladesh. How much this issues eroded the total environment of the study areas had been assessed. The study made an enquire into four selected villages on what happened due to application of modern techniques and inputs of production and what changes it brought out in social lives. What is the condition of sustainability in process?

It will make a comparison of socio-economic gains with losses. What has happened to community life by the application of modern development process. It will try to find out the way of environment friendly process of development. Also how education will remove mismanagement of natural resources and lacking of proper environment understanding.

2.0 Review of Literature

Jaijaidin, 30 April & 6 June and Somokal, 5 June 2007, stated that already 40 lac people of Bangladesh became a environmental refugee due to river erosion. The environmental scientists warns that it will be exceed 2 crore in future. In between 2030 sea might expanded 120 kilometer inside of Bangladesh, it means Cox's Bazzar sea beach might be lost. ESCAP reports that Bangladesh uses about 1800 tons insecticides per year for agriculture practice and sea water is being polluted.

The Daily Samokal 14 October, 2006 stated that more than 5000 villagers and labours have been affected in poisoned gases.

The daily Ittefaq, Mondy, 27 April, 2009 stated that within 14 years the highest temperature recorded in 2009. On Saturday, 25 April 2009 the highest temperature was 42.2 degree Celsius as recorded in Jessore and that was 38.7 degree Celsius in capital city of Dhaka. The same issue of news paper stated that the production of mango in Rajshahi region is adversely affected by long drought. The same news paper dated, Monday, April 13, 2009 stated that due to pollution and occupation the river Buriganga is about to dead. Its water has become unusable and even untouchable for massive pollution and stinkness.

The Daily Ittefaq, April 9, 2009 published that air pollution in six big cities namely Khulna, Rajshahi, Barishal, Sylhet and Dhaka has become so serious.

The daily Star, Sunday, April 12, 2009 stated, "Trees present us flowers, the most beautiful thing on earth. "They keep the atmosphere cool and bring down rain. Yet some people are so ungrateful that they recklessly cut down trees to draw quick profit. The little forest in Chittagong, Khulna, Dinajpur and Tangail areas are shrinking day by day.

The Environment and Sustainable Development Cluster is dedicated to playing a catalytic role to facilitate mainstreaming sustainable development in Bangladesh by integrating pro-poor environment in policies and development planning. The programmatic interventions of the Cluster fall into four nrnprnmme areas- CD Natural Resnnrrp Management and Biodiversity Conservation, (2) Sustainable Land and Water Management, (3) Improved and Cleaner Urban Environment Management and (4) Sustainable Development and Environmental Governance.

An article on the Interrelationship between poverty, Environment and Sustainable Development in Bangladesh : An Overview" jointly written by Mahbuba Nasreen, Khondokar Mokaddem and Debasish Kumar Kundu stated that "Bangladesh, like many other developing countries is advocating a high increase of GDP, but the number of landless people is increasing unfit for higher rate of GDP. According to GoB 57 percent of rural people are landless and live below poverty line". They put a table showing landless people of Bangladesh.

Table : The rate of landless people in Bangladesh

Year	Landless people
1947	14.30%
1970	19.80
1975	32.00
1984	46.00
2001	68.8

Source : Islam, 2005

The daily star, Tuesday April 28, 2009 under a news captioned "Wasa Water Poses danger" mentioned that "It fails to treat polluted river water, over 10,000 ended up in diarrhoea hospital. Gypsies top on the Turag near Tongi use this dark, pollutoed and smelly water daily which eventually spread various diseases among them. Wasa used to treat the water of the Buriganga and Shitalakshya rivers and supply the treated water to the city dwellers. Now the water of these two rivers have become so polluted that even after applying additional chemicals WASA cannot treat the water perfectly. The same news paper Monday, April 27, 2009 published a news report with picture of murky waters of the Buriganga. Whole sale dumping of industrial waste, sewage and garbage left the river, touched the lifeline of the capital, in this sorry state." The same daily on Sunday April 26, 2009 published headline news, "pollution gets to ground water; study finds Hazaribagh water most contaminated! The reporter Pinaki Roy stated. "River pollution around the capital has reached such a level that the groundwater system where the aquifers are recharged from the riverbeds is being contaminated, a recent study shows.

In the Six months idiom Venires to Aping, vniuaiiy nu water usual unify Stinky mucky liquid flows in the gradually narrowing rivers — the Furigana, Shitalakshya, Turing and Bale —as no governments could stop discharge of liquid waste into them.

A recent study jointly done by the World Bank and the Institute of Water Modelling (IWM) says: "The groundwater system is being contaminated in areas where aquifers are recharged from the riverbeds. The pollution is creeping towards the central part of the city with time."

The daily Prothom Alo on Monday April 24,2009 printed a news that Railway and Waterway should be used to prevent environment pollution. The report mentioned that with in one and half decades the green house gas had increased by 24% in the air.

The daily New Age on Saturday April 25, 2009 stated a news captioned, "Green activists rally against dust pollution". The report stated, "Dust pollution was posing thread to human health. Dust was an inevitable result of the increasing spate of construction of roads, building, other structures and digging the road, lanes and by-lanes by utility services."

The daily Ittefaq on Sunday, April 19, 2009 published a report on, "Sound pollution hindered mental development of babies. Dr. Manas conducted a research on 312 inhabitants of Dhaka. Among them he found only 72 with normal hearing capability, 33 have serious injuries in their hearing. Among them mostly driver, traffic police , hawker, road side shopkeepers and students are badly affected.

Year	Temperature (Dhaka city)
1987	39.5 o_c
1988	39.0 °c
1992	39.2 °c
1995	39.0 °c
2009	39.6 °c

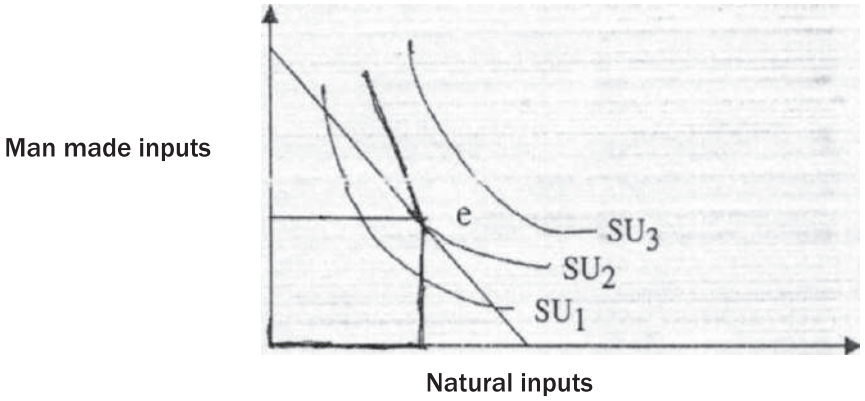
The daily Prothom Alo April 28, 2009 stated that the country is facing drought. The highest temperature was 42.8 °c at Jessore. In Dhaka it was 39.6°c on April 27, 2009 which is highest within 22 years.

The above reviewed literatures shows the serious picture of environment pollution of Bangladesh. The whole country is on thread. Sustainable development is the most necessity of the time.

3.0 Methodology

The study was made in four villages which constitute a ward of a Union Parishad. The four villages were a unique integrated economic unit as well as social unit. The study was based on primary as well as secondary data. The data were available in secondary sources like population census, voter lists etc. The data, which were not available were collected through a questionnaire. The interviewees include all sections of people (old people, teachers, farmers, business class, social leaders, members, service holders, women, day-labourers, poor-rich). The information were collected through a questionnaire from 200 interviewees taking proportionately from each village.

For comparison two periods have been selected like pre-mechanised period and post mechanised period. The pre-mechanised period was up to 1965 when very little development took place and cultivation was fully nature - oriented. Farmers used to utilise only cow-dung as fertilizers and rain as source of water. The post mechanised period was from 1966 to onwards. In this period mechnised cultivation and massive use of fertilizers and pesticides had been started.



The study uses a development function : D=f (ni, Mmi),

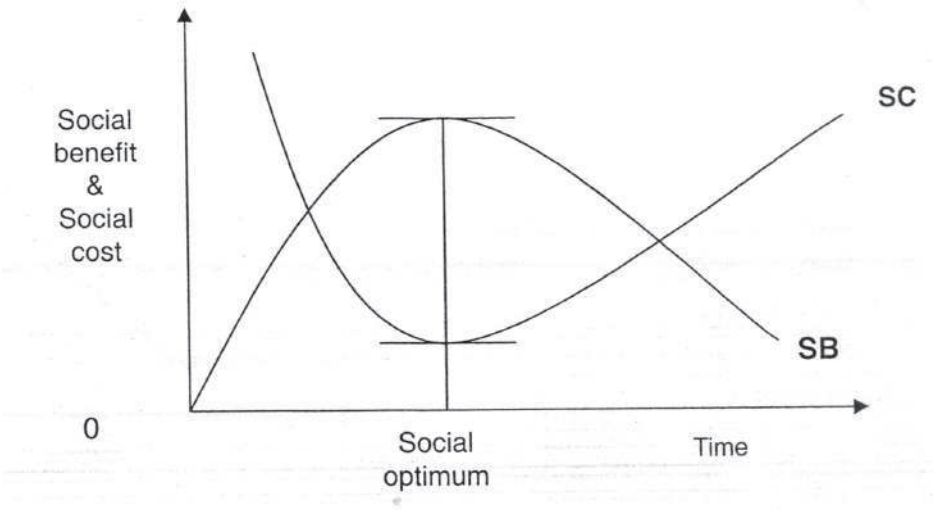
D - development, Ni = natural inputs, Mmi = Man made inputs, f = functional relation. Here D is dependable, Ni and Mmi are independable variables. Ni =natural inputs (water, soil, sun, moon, rainfall, seeds, climate, labour, other natural inputs).Mmi =man made inputs (capital, entrepreneur ship, machine, planning, social organisation, other man-made resources).

Every development efforts needs both natural and man-made inputs. When both the inputs are mixed together and under go a process it produces output which we

call development. The quality of development will rely upon the quality of inputs and also on efficiency of the process. For development equation D = a Ni + bMmi where a and b are parameters which will influence the value of D. For the optimum value of D, a and b will have a optimum value. This optimum value of a and b will indicate the best use of inputs. The sustainable development technique will be the most competent for the society if we can find out the best combination of the inputs will maximise social benefit without imposing any heavy cost on the society.

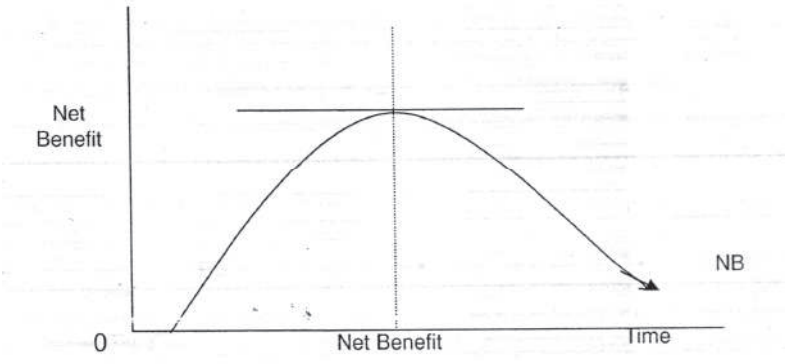
It uses cardinal and ordinal measurement. When quantitives way <s not possible the ordinal qualification is used in the form of indifference mapping. The diagram - 01 shows how a good combination of man made inputs and natural inputs will optimize social utility

Here social utility curve indicates higher utility from below to above (sui> su2). Net benefit of the society = social benefit - social cost. The optimum situation will be there where the positive distance between them will be maximum.



Social Time optimum

Instead of using primary and secondary data the study relies on personal observation, sight visits, sharing views with villagers specially old men and women who permanently **live** in the villages and have observed both the periods very sharply.



Description of the villages: The study is conducted in four villages namely Kha Khanda Nazirpur (Mirdha Kanda), Pukhuria, Brahmankanda and Nazirpur which together constitutes ward no-1 of Manikdah Union Parishad of Bhanga Upazila in the district of Faridpur in Bangladesh.

The total population of the villages are given in table :1

Table 1:

Name of village	Total population		Nos of voters 2009
	1965	2009	2009
Kha Khanda	634	1782	867
Pukhuria	790	2035	1342
Brahman Kanda	540	1455	983
Nazipur	545	1473	792
Total	2509	6745	3984

Source : Local Union Parishad.

The villages under study are about 33 kilometers from the district headquarter of Faridpur and about 8 kilometers from Bhanga Upazila centre. There are Gagotia river in west-north side, Fukurhati river in the south and high way bus stand in the west named Pukhuria. The Khulna - Jessor - Faridpur - Barisal high way passes beside the area. From this road the Pukhuria-Bishwa Jakir Monjil - Sadarpur Upazila road passes through this area. In this area there are a twice-weekly market named Pukhuria hat and a daily bazar named bus stand bazaar. There are unmetalled (Kancha) roads among the areas.

The literacy rate is 40% in the area which is below the national rate. There are three govt, primary schools, one high school and one college in this area. There

are four Ebtedayee Madrashas in the area. The number of higher educated people in the area is very few. There are some workers abroad who send remittance to their family. The main profession of people is cultivation, there are few fishermen in this area. Muslim are majority and Hindus are minority. There are some business men and officials in the area. There are very few small enterprises like rice/wheat miles. Among agricultural commodities rice, wheat and jute are main crops. From economic point of view people living in poverty are 70%. People living in absolute poverty will be 40%. Of the rest 24% will be in lower income group, 5% in middle income and 1% in upper middle income group. The upper middle income group lives in urban area. Occasionally these people come in the village

4.0 Analysis of Data

Changes in two periods: The study will try to find changes in different aspects between two periods 1947 to 1965 and 1966 - 2009. However it will show data at the two points of time 1965 and 2009. Agricultural change : In agricultural sector the changes found has been shown in the table : 2

Table 2: Changes in agriculture

Items	1965	2009
Crops	Jute, rice, spring harvests, vegetables	rice wheat, jute
Jute	Major	non-major
Rice	Second in position	First in position
Wheat	No wheat cultivation	Third in position
Spring harvest	About 15 types of spring harvest	Almost absent in spring harvest
Vegetables	Lot of vegetables cultivation	Negligible vegetables cultivation
Lost of items	No item lost	Many items lost

From the table 2 we can see that there is a great change between two periods. At present crops diversity has reduced. Cultivation of spring harvests is almost abolished. Cultivation of vegetables also reduces to greater extend.

Changing Method of Cultivation: Plough yoke and bulls were the means of cultivation in period from 1947 to 1965. In present days tractors have replaced that system. At present the cultivation system have been mechanised.

In the past year (1947-65) there was no use of insecticides and chemical fertilizers. Only cow-dung and hyacinth were used at a very low rate for fertility. Lands were naturally fertile. Flood water works as means reviver of fertility.

Change in Plantation and forest: The area underwent a great change in plantation and forest land. Every house in the area had lot of fruit trees in the past.

Table 3: Change in fruit production

Item	1965	2009
Mango	1000 times	One time
Date tree	Lot of Date trees and their juice	Almost abolished
Palm tree	Lot of	Very few
Boroi	Lot of	Very few
Black Berry	Lot of	Very few
Gab	Lot of	Almost nil
Belati Gab	Lot of	Almost nil
Amloki	Available	Nil
Litchi	Lot of	Almost nil
Horretoki	Available	Nil
Jack fruit	Lot of	Very few
Dunkur	Lot of	Nil
Amjum	Lot of	Nil
Water chestnut	Lot of	Nil
Khude Jam	Lot of	Nil
Kaw	Lot of	Nil

Table 3: (continued)

English name	Local name	Scientific name	1965	2009
Banana	Kala	Musa sapientum	Lot	Very few
Jackfruit	Kathal	Artocarpus heterophyllus	Lot	few
Hog Plum	Amra	Spondias dulcis	Lot	few
Papaya	Papaya	Carica papaya	Lot	very few
Coconut	Narikel	Cocos nucifera	Lot	few
Guava	Payara jamrul	Psidium guajava Syzygium samarengense	Lot-Lot	few Nil
Oiui Apple				
Grape Fruit	Jambura	Citrus grandis	Lot	Nil
Indian Apple	Bel	Aegle marmelos	Lot	few
Wood Apple	Kathbel	Feronia limonia	Lot	few
Custard Apple	Ata	Anona squamosa	Lot	few
Sapodilla	Sofeda	Manilkara achras	Lot	few
Indian Goose Berry	Amloki	Phylianthus embelica	Lot	very few
Pomegranate	Dalim	Puncia granatum	Lot	very few
Elephant Apple	Chalta	Dillenia indica	Lot	very few
Carambola	Kamranga	Averrhoa carambola	Lot	few-
Watermelon	Tarmuj	Cucumis melo	Lot	Nil
Lemon	Lebu	Citrus Iimon	Lot	few

Among these : mango, jack fruit, black burry, Kul, boroi, gab, water berry, black berry, dunkur, benana, coconut, date, palm, water fruit, litchi, hog-plum, amjum, cane fruit, murmurhi, royel, etc. were prominent. The production of fruits has drastically reduced at present. The old people give a idea of reduction of fruits production which is shown in table : 3

Table 3: Change in fruit production

Item	1965	2009
Mango	1000 times	One time
Date tree	Lot of Date trees and their juice	Almost abolished
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Amloki	Available	Nil
Litchi	Lot of	Almost nil
Horretoki	Available	Nil
Jack fruit	Lot of	Very few
Dunkur	Lot of	Nil
Amjum	Lot of	Nil
Water chestnut	Lot of	Nil
Khude Jam	Lot of	Nil
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orapc n UIL	Jambura Bel	Citrus grandis Aegle marmelos	Lot	IN 11
Indian Apple			Lot	few
Wood Apple	Kathbel	Feronia limonia	Lot	few
Custard Apple	Ata	Anona squamosa Manilkara	Lot Lot Lot	few few
Sapodilla	Sofeda	achras Phylianthus embelica		very lew
Indian Goose Berry	Amloki			
Pomegranate Elephant	Dalim Chalta	Puncia granatum Dillenia	Lot Lot Lot	very few
Apple Carambola	Kamranga	indica Averrhoa carambola		very few
				few
Watermelon	Tarmuj	Cucumis melo	Lot	Nil
Lemon	Lebu	Citrus limon	Lot few	

The table 3 shows that the production of fruits in the area has reduced very drastically. A good number of fruits were plenty in area in the past time but many of them have been lost.

Some old peoples of this area stated that there were very, very big trees of fruits. The fruits of this big trees were quasi public goods. Anybody could eat this fruits. They mentioned an example that there were some very big mango trees in each village. At present all mango trees together of a village will not be equal to one big tree of that village of past. In case of production the same is true. They mentioned that there is a Amjum tree in Mollah Kanda in the village of the Khan Kanda Nazirpur that was not seen anywhere. Usually this tree gets a height of 4 feet at beast. A man can collect fruits from this tree from ground. But the mentioned tree was 15 feet high and very thick. Three men at a time could climb the tree to collect fruits.

In the past almost every tree including the fruit trees were very big. At present the trees (including fruit trees) are very small. The number of fruit trees also reduced at present. The number of unwanted wild plants has increased than fruit trees.

In the past time every big house has a forest land attached to it. Except these there were some common forests in each village. These forests consist of both fruit and non-fruit plants, bamboo, cane, and other varieties of trees.

Versatile of wild animals and birds lived in the forests. These birds were used to yodeling at night. These forest were full of bees, hornets, and medicinal plants. Many people lived on these. All these forests were destroyed. With the destruction of these forests many trees, birds, and animals disappeared from earth. The old peoples informed that there were many varieties of the same fruits. They mentioned that there were about 100 varieties of mango in this area. At present there are only 20 varieties in the area. Many varieties have lost. There were many fruits which have no English name, like chalita Amjum HnnWur Ashtail, Khude jam, loha jam, cane fruit (betul) etc. The gab fruits have about 20 verities in this area. This fruit is almost vanished.

Domestic animals

Domestic animals have drastically reduced in the area. The table 4 shows the situation of domestic animals and milk production in the area.

Table 4 shows that production of domestic animals which have reduced very drastically. In the past no baby drank powered milk. Usually they drank breast milk and milk of cows and she-goats. Reduction in posture lands and change of

crops pattern are responsible for reduction of domestic animals. In the past days there were about 100 pieces of posture lands of different sizes. Excepting this, Khas lands (govt, land), halot (passage for common use), river's banks, canals' bank were used for posture. In these area there were two big fields for cow-race and horse-race. In the spring the whole green fields were used for posture.

The table 5 shows the position of posturing facilities and play grounds:

Table 4: The change in production of domestic animals

1965		2009
Cattle (without milk cow)	5,000 numbers	500 numbers
Milk cow	1000 numbers	50 numbers
Milk production of cow	1000 kgs	150 kgs
Castrated goats	2000 numbers	100 numbers
She-goats	1000 numbers	25 numbers
He-goats	5 numbers	Nil

Table 5: The posluring facilities

Item	1965 (nos.)	2009 (nos.)
Posture lands	100	Nil
Khas lands	50	Nil
Halat	50	**Nil**
Play grounds	20	02
River and canal banks	10	Nil
Field for cow race	01	Nil
Field for horse race	01	Nil

Table 6: This table shows the sources of water

Item	1965 (nos.)	2009 (nos.)
Rivers	02	01
Canals	07	03
Tanks	400	100
Long pools	6	Nil
dikes	200	50
Shallow Tube well	200	300
Deep Tube well	Nil	16
Flood water	The whole area	No area
L,aKe	03	Nil

The table 5 shows that pasture land has reduced drastically. In the past time upbringing of domestics animals was almost free of cost due to presence of free grazing land. At present there is no free food facility for domestic animals. So the cost of rearing is very high. The play grounds and halats have reduced seriously. The playing facilities of boys and girls have disappeared.

Change in supply of Water

In the past every year the area had flood and sufficient rain falls. Now a days there is no flood at all. Many water resources like fishes, other aquatic animals, water-lily lotus, conch-shell, bivalve, acquatic plant and fruits have been vanished. In the past the extent of flood was at the tolerate level. So its benefit was much. It was a blessing for the earth. The flood water including the rainfall was the adequate source of water. The rivers, canals, tanks, ponds, long pools, sinks, caves and lake became over inundated by water. In the winter, spring and summer seasons they remained almost fulfilled. Lot of freshwater fishes lived in there. A good number of shallow tubes was sunk in the area. There was no arsenic problem. In the present time there is no flood. In the rainy season required water for human use and necessary for cultivation are not found. Table : 06 shows the change in water supply in two periods.

Table 7: Fresh water fish production

Item	1965	2009
Variety fishes	100	20
Fish production	1000 level	1 level

Many ponds, tanks, canals, long pools, dikes and rivers have been mud flats.

The table shows that the sources of water have reduced to greater extent. The number of shallow tube wells has increased. But all these tube wells are arsenic attacked. The only sources of drinking water are deep tube well at present. Most of the villagers have to collect drinking water from the deep tubes of rich men.

Reduction in freshwater fish

The rapid change in supply of fresh water fishes was remarkable in the area. Fresh water fishes were abundant in the area in the past. The rivers, tanks, long pools, canals, dikes, lakes etc were remained fulfilled through out the whole year by fishes.

There were about 100 variety of fishes in the past and at present there are at least 20 varieties. The production of fish was one thousand times more than that in the present. The poor people used to catch fishes from the public tanks, pools, rivers, canals. They needed not to purchase fish at all. Even the fishes of ponds and tanks of rich people of the villages were free to catch for them.

The economic condition of the poor: The economic condition of the poor of these villages was better in the past than that in the present. Their real income, dwelling condition, food etc were better than those at present. They had enough facilities to catch fresh - water fishes from public and private owned pounds, tanks, rivers, canals, long pools and to collect honey, fruits, and vegetables from forests. They could bring cattle, goats, hens and cocks without having cost involvement in the past. At present these facilities are completely absent. In the present they could collect date and palm juice, cow milk and palm, banana, green and ripped coconut from the houses of the rich at free of cost. In the said long period about 100 poor families have sold completely and partially their house-lands. So poverty has been acute in present time than that in past. Many middle income families have sold land properties and living house and have joined to the poor.

Play grounds and other game facilities

The play grounds and other game facilities have been reduced to greater extent: The table : 08 shows the position of play grounds and other game facilities:

From the table 8 we can see that the number of play grounds reduced from 20 to 2 only. A good number games have been lost in the flow of time.

Table 8: Play grounds and games

Item	1965 (nos.)	2009 (nos.)
Play grounds	20 numbers	02 numbers
Hadudu	lot	None
Daribandha	lot	None
Bouchhi	lot	None
Kulubari	lot	None
Budhi Montor	lot	None
Foot ball	lot	Less
Holdub	Lot in rainy season	None
Gechho Mechho	lot	None

Ecological imbalance

In the past many big and old trees were available everywhere in the four villages. At present they are completely non-existent. In the past there was ecological balance in the nature.

Many forest areas have been converted into cultivable and house hold lands. As a result forest resources have been vanished. At present the government has been encouraging plantation. Due to this encouragement many wood trees have been planted. As a result the rapid increase of numbers of wood trees have created imbalance in the nature. Number of fruit trees was prominent in the past but at present they have lost their importance. In the past fruits met the need of food to a large extent. But fruits have become almost non-visible at present in the area.

Uusage of chemical leruhzers and **ptauciucb**

The social cost of modern development process have become far more than social benefit because of many reasons. Among them the massive usage of pesticides and chemical fertilizers are dominant at present. The use of dung and water-hyacinth was only means of soil fertility in the past. No pesticide was used in the past. There was no use chemical fertilizer. At present the uses of chemical fertilizers and pesticides are very massive. Agricultural production cannot be think of without chemical fertilizers and pesticides. The result of these massive use is very serious. The production of fishes has reduced from 1000 times in past to one time at present. A good number of fish varieties have been vanished. Besides the taste of all agricultural food items, fishes including fruits have changed. The fishes of fresh water those grow up naturally in the past have become rare and dear. Many birds have become non-existent. Massive health hazards with breaking out of many new fatal diseases have become great problem of the society.

The other valuable missing in village life

Social bondage have been loosened in the present than that was in past. Many Hindus have left the country. Relative connectivity in past was better than that in present. There were many festival like mango-milk festival in Baishakh, Fazli mango-jack fruit festival in Jeishtha - Ashar, “Nairo-festival” in Ashin. These were very famous in the area. Excepting these there were many religious festivals for every religion. Fateha Awasdahan, Fateha Dowasdahan, Eid-ul-Fatre, Eid-ul-Ahzah, Eid-e-Malidun Nabi were main religious festivals for the Muslim. Durga Puja, Kali Puja, and Laxmi Puja were the main festivals for the Hindus. These are

no more in practice in present time. There were communial friendly relationship in the area in past. During the time independence of 1971 and separation of Pakistan and India in 1947 the minorities in these areas were living very peacefully. But due to bad demonstration effects of other areas almost all Hindus left these areas and went to India.

In the past four rich family had Kachari Ghar (Court house) in their houses. In these houses all social arbitrations were met. The arbitrations judgement was based on perfect fairness. These court houses are no more available in area at present. The rich people's houses possessed Musaphir Khana (Sarai) where strangers had the facility to stay with food. These are no more available in the area at present.

There were about 150 weaver families in the area who produced lungi, sharhee and gamchha. At present there is no single weaver family. Festivals like Mejbani (hospitality), Jiyafat (feast), Fayta, Mowlud etc. are not existent at present. The cultural events like Jari(folksong), Sari, Sama Prashadi, Glorification, Kabi, Jatra, Bichar etc. are also on the eve of departure. Joint family system was a valuable assest of the society. At present it is not available in the area. The potters, smiths, goldsmiths and thatchers were doing their jobs nicely in the past. At present they are disappeared. The number of fishermen has reduced drastically. The rich people were bountiful in the past but not in the present. Enamel and plastic made crockery have substituted the massive use of mud utensils in the past. Boat race, cow-race, arong (village fair) and horse race were popular festivals in the area. They are now totally absent.

Findings

- The study area under went drastic changes due to development process. The changes have taken place in respect socio-eco-cultural-political and natural aspects.
- Almost all these changes have very adversely affect the nature, animals, aquatic creatures, plants and environment.
- Human life have become mechanised and commercialised. Material peace of life has increased to some extent by the rise of production of rice and wheat at the cost of reduction of production of spring harvests and diversity of crops.
- The ecological imbalances have been acute. New imbalance among plants have been generated due to rise of non-fruits plants and decline of fruit trees.

- The production of fruits and varieties of soame fruits have declined very drastically.
- Many fruits have made non-existent.
- A good number of plants, birds, domestic animals and fruits have vanished.
- Production of fresh water fishes have reduced very drastically.
- The variety of fresh water-fish declined from 100 to 20 numbers.
- Massive uses of chemical fertilizers and pesticides have been the main responsible factors for environment pollution and reduction of fish variety and production.
- Production of domestic animals hen, cock, honey, forest fruits (Amjum, gab, cane-fruit, dunkur, murhmurhi) have reduced to about zero.
- Poverty has increased. Their access facilities to public resources have been stopped. Their hardship of life has risen.
- The sports and game facilities have declined and many games have been disappeared
- Air pollution, water pollution and environment pollution have become very acute.
- The pattern of consumption of life have changed from natural food to chemical food.
- Life have become victim to many new fatal diseases.
- The weaver families were existent in the past but at present they are non-existent
- Many Hindu families had left the area and went to India for demonstration effects of other areas of the country.
- The social cost of development process due to their unsustainable nature is very high than social benefit. As a result the society is in net loss.
- Disafforestation, natural imbalance, adverse distribution of fruit trees and wild plants, air pollution, water pollution and environment pollution have generated health hazards and many fatal diseases.
- The massive uses of chemical fertilizers and pesticides have adversely affected the society. In addition to that unplanned embankment, roads and high ways, massive cutting of trees, destruction of forest and pasture lands have very negatively affected all living creatures. As a result the consumption of natural amenities of human being have reduced to greater extent. The community went down to lower social utility level as shown in the diagram 9.

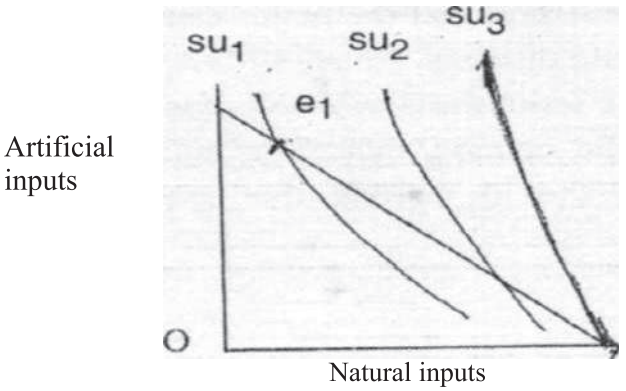

Diagram 9: The level of utility of the community reduced.

The diagram shows that the community is in equilibrium at point ei by using more artificial inputs. If it can reduce artificial inputs to point eo the utility of the community will rise by shifting from SUj to SU3 and so on.

How education can solve the problem

Education is the pivot to human resource development. Education is a life long process for human development. It can be divided into formal, non-formal, natural segmentations, ihe formal education is related with institutions. Non-formal education is related to parents, family, friends, society and nation. Natural education comes from nature and creators. The first one ends up after completion of schooling. But the next two goes throughout the whole life. Formal education consists of two techniques : one is simple learning which necessary condition for human resource development. The other is training which is considered as sufficient condition for human resource development.

Through learning and training the pattern of thinking, behavior and doing of human being can be changed. By virtue of nature human being are individualistic, commercial and consumptionist. For this reason human prefers present than future. Present consumption is always better to him than future consumption. This same behavior makes a man to believe in short-run production function. Short run production function always gives output in a very short period of time without considering the future. It eats up every plants without keeping any seed for future plantation. It utilizes all the fertility of soil in one season without keeping any thing for future use. It pushes growth at the apex without stability. Thus short-run production is very unsustainable.

Understanding of environment and ecological balance and their necessity for survival of human being can prevent environment pollution. Education and only education can make this understanding. In September 2000 UN in its general assembly adopted Millennium Declaration to reduce naives or hard core poverty and hunger to ensure sustainable environment. On June 14, 2007, WHO report says that the major causes of 24% diseases is environment pollution and it is 33% for child diseases. About 40 lacs life could be saved by ensuring environment keep and clean. This seriousness of environment pollution should be brought in the notice of the public. Public opinion should be built through educational campaign. All educational curriculums should include the necessity of sustainable development.

Recommendations

The paper have lot of limitations. Though the study area includes only four of 68 thousand villages of Bangladesh it may assume that more or less the same picture is visible throughout the whole country. From the analysis it is very clear that Bangladesh at present has been facing severe challenge of environment pollution. This is the creation of unsustainable development process of the nation. Our people, animal and biodiversity are at thread. We have to give top priority to this issue.

The nation is at net loss due to past development programs. There created a gap between social benefit and social cost. This blank must be filled up by schemes of sustainable activities. Subsequently the present development process should be made free from unsustainable comnonents including environment nollution. At present all develonment process should be environment friendly and nature oriented.

The fresh water fish resource was precious diamond mine of Bangladesh. It is on the eve of departure. We must have to save them by preventing water pollution and by creation at least one save lake in every village of the country. Fish fries must be produced at a large scale at the govt, initiative and be freed in fresh water of all rivers. In green programs fruit plantation should be given top priority. Medicinal plants will second priority in campaign.

Immediately action should be taken to remove all pollution from the waters of all rivers including Buriganga, Shitalakshya, Turag and Balu in one year.

All mud flat rivers, canals, lakes, pools etc. should be redigged immediately. Use of natural fertilizers and pesticides should be encouraged.

Education curriculum and training programs should have sufficient contains on sustainable development including adverse effect of massive use of pesticides and chemical fertilizers. Their natural substitute should be evolved. Necessity for ecological balance, plantation of fruit trees should publicized at government and NGOs level.

Conclusion

The water of all rivers around Dhaka and almost of all rivers, lake and ponds of the country has become polluted. Ten years back this water was transparent and drinkable. This small instance is enough to imagine that all creatures living in Bangladesh are on great thread due to massive environment pollution. The unsustainable development measures have already destroyed many of our potential resources. From now and on we have to very seriously give attention to the issue of sustainable development.

References

Amin. R. and Pierre. M. St. (2002). Giving Voice to The Poor: Poverty Alleviation in West Bengal and Bangladesh, Dhaka: The University Press Limited, 2002.

Asthana, V. (1992). The Politics of Environment, Ashish Publishing House, New Delhi: India.

Dasgupta, P. (1996). Environmental and Resource Economics in the World of the Poor, Resources for the Future, Washington DC.

De Janvry, A and R,Garcia, (1998), Rural Poverty and Environmental degradation in Latin America, Effects and Alternatives Solutions, s88/l/1.3/Rev.2,IFAD,Rome.

Hamilton, K. (2000). Sustaining Economic Welfare: estimating changes in per capita wealth,

Policy Research Working Paper, 2498, Washington D.C, The World Bank.

Isiam, N. Nurul Huda, Francis B. Narayan, Pradumna B Rana (eds).(1997). Addressing the Urban Poverty Agenda in Bangladesh: Critical Issues and the 1955 Survey Findings. Dhaka: University Press Limited (for the Asian Development Bank).

Khan A.R., and M. Hossain. (1989). The Strategy of Development in Bangladesh London: The Macmillan press Ltd.

Rahmain M A (1998) Modern Development Economics (in bengali), Bangla Academy, Dhaka, 1998.

Rahman, M. A. (2008). Education in Peace Building, NAEM Newsletter, Vol-5, Issue-29, April-June. 2008.