INDUSTRIALIZATION WATER POLLUTION AND SOCIAL CHANGE: A CASE OF BASIN BASED VILLAGE IN BANGLADESH

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Abstract

Bangladesh is predominantly an agriculture based and host of a large and densely populated country in the world (average population is 965 in per sq.km) The absorption and employment of these huge population always been a big challenge to the country. Industrialization is an option other than agriculture. However, the disposal of untreated industrial waste into the open water body and rivers is a threat to traditional livelihoods and occupational groups and has long-term effect on local natural resources. The unsuitability of huge surface water pushes to pull more underground water and thus implicated in environmental and ecological imbalance in respected area and as whole. Peoples of Ghughudia and adjacent village around river Bangshi were exclusively dependent on Bangshi river water for their agriculture, domestic use and to take bath themselves and their cows and other pets too. Bangshi had also been fishing source for all and livelihood means for Raj Bongshi (traditional occupational fishing groups). The whole scenario has changed since from 1990s when a large export processing zone (EPZ) and so other local industry build-up at Banghsi river blank another area. Fishing in the river and work in a paddy filed irrigated with Banghsi river water causes irritation and skin disease. Bad smell from the river, pushes schools and houses near river to keep close their doors and windows. General and individual family income increases and new social structure developed but traditional culture and occupations are lost, social and physical environment and ecology of the area are degraded. This paper is based on work of Bangshi river conservation and continued research in the area. The findings and observation present in this paper are obtained through, methodology and research tools applied are focus group discussions (FGD), individual interviews, observations, in-depth interview and descriptive survey.

Introduction:

Development is a process and changes are results or outcomes, vise-versa change is inevitable and every society is changing either it is developed or developing (Taylor 2002). Economy and culture of Bangladesh is agrarian in nature, except some exceptional boomed in some sector i.e. Women's employment in garments manufacturing. Agriculture's contribution in GDP is highest 22% and absorbing largest 48.1% employments of the country. Contrary, manufacturing and industrial contribution in GDP is 17% and not data available of absorbent of labor force (BBS/Pk 2009, 2008). However, the agriculture sector is being neglected by policy and programs in the country. As the second key sector is rivers life—they are the lifeline of Bangladesh and there are hundreds of rivers that intersect the heart of Bangladesh.

The geographical positioning of the country placed it in a basin based nature. Thus culture and livelihoods of the country evolve in line with the natural environment and livelihood opportunities. Rivers are traditionally been important to culture, livelihoods, transportation, irrigation and drinking water source for this deltaic lands people. It was the main communication means in and outside the country until 1970s and total waterways was 24000km, which shrink in to 3800 km now (the Daily Star, May 16, 2010). The reasons for the shrinking of waterways said to be linked with local, national and regional policy and perceptions to rivers and its importance. Some aspects are mentioned here are, Indian river- linking project, regional policy related to water and environment. In a country, the government's policy to quicken communication, economic enhancement, administration and related issues, and sequential undermining of river based livelihoods dependency in the country. Approximately 5% of the total people i.e. Fishing, bede/nomadic snake charmers, the boatman is exclusively dependent on rivers and other open water bodies (Mallick filed survey 2011). The rivers

are still treated as the lifeline of this flood plain peoples, even though many of the rivers are now seasonal and some are biologically dead.

The trends of social and environmental degradation at village Ghugudia and other surrounding village around river Bangshi started during 1990s. Since from the introduction industrialization i.e. Setup of the special industrial zone (EPZ) other local industries and discharged of their industrial waste into the river and other open water body, undermining the health, environment and livelihoods of the people. Such as DEPZ built on a 355.83 acres of land and there are 300 industries are there but it's seriously affecting more than 1000 acres of highly productive paddy field at Dholai Beel (The Daily Star, May 7, 2009).

According to a country's economic enhancement policy of the country, the first EPZ was set up at the port city Chittagong in 1983 followed by second EPZ at Savar in Dhaka near river Bangshi in 1993 (Banglapedia 2006). As a result a vast area of prime agricultural land converted to non farm usage including build up areas for both housing and uncontrolled development of industrial establishment. As of today there are 224 industries along with two major export processing zone (EPZ), exclusively meant for export oriented industrial product (Upzila statistics, Savar, 2012). According to the same source, among those there is a chemical, ceramics, medicines and drugs, dying, leather, garments and other heavy and light industries. Moreover, there are 195 brick fields are at there. The location of many of these industries is either on river/other open water-bed and either way drainage it with rivers. Most tend to release hazardous wastes like acids, organic chemicals and solvent of organic wastes, without treatments thereby causing serious impact on human life and livelihoods (Hafiz 2010)

In addition to the above, the Dhaka river boundaries made with, the Bruiganga, Shaitalakhya, Trug and Balu take 1.5 million cubic metric tons of wastewater every day from 7000 industrial units and another 0.5 million cubic meters from other sources (Islam 2010). The pollution of rivers has significant impact on livelihoods and culture of the inhabitants in general. However, the locales are the primary affected of the cause, vise -versa, as its happen in any other case, such as people of Ghughudia and other villages around river Bangshi.

Different groups, class and caste of people live in the village Ghughudia on Southeast side of river Bangshi. Ethnically all are Bangali but there some difference in religious cultural practice that is Muslim and Hindu. According to the village survey, as on everyday basis there are around 5000 people living in this village among them 3800 are Muslim and 1200 Hindus (Mallick 2012). However according to statistical survey of Bangladesh (BBS 2001, 2008) it was 1863 and a male female ratio is 100/96, household size is 4. (four). There are 2 (two) temples, 3 (three) mosques for worship and prayer for Hindus and Muslims. There is only one school, up to 10 class education, it is a co-education school, no restrictions in education about caste religions or minority perspective. There is a graveyard for Muslim, one cyclone shelter, union health and family planning center and one small Bazar (market) in the village, however, no designated place to cremate Hindus).

The major occupational groups in the Bangshi basin area are the potters, Raj Bangshi (fisher folks), Guala (milkmen) Nomo Sudro (Farmer), Bede (nomadic snake charmers), goldsmith and boatman. In terms of population size, Hindus are the minority in the village. The numbers of Hindu households in this village are 250, while average household size is 4-6 members. Even though potters and Bede/nomadic snake charmers are not exactly live in geographical boundary of Ghughudia village but the importance of the river Bangshi to these special occupational groups are high. Such as Bede/nomadic snake charmers use to live on a boat and roam in the river course for their livelihoods and stationed seasonally focus on livelihood means. The potters use clay from the rivers and use boats to sell pottery in another village and markets.

Ghughudia exemplify nationwide water security, river pollution and livelihoods dependency at local level. Water and river polluted by various point and nonpoint sources (industrial waste, household garbage, biological) it's also has other impacts that's leads to traditional occupational lose. As the quality of water in the river and other local resources has been deteriorating, and demand for domestic water uses are increasing. Such as during 1980s there were 2-3 tube wells in the village and people usually use river water for their everyday purpose and all other domestic use and tube wells

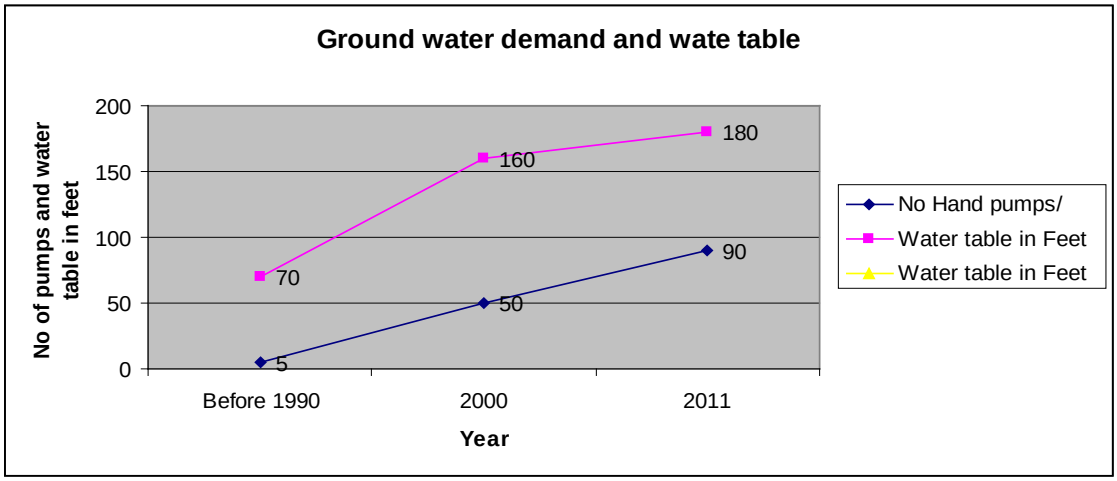
water use for drinking purpose only, whereas at present 90% household at Ghughudia have their own tube wells and rest 10% share tube well with others, ground water levels are trends to drop at Ghugudia and other village in every year (Mallick, Village survey 2011). Therefore human induced social change is inevitable and evidentiary. Even though the main problems of the country are considered to be Population and Unemployment, the "death" of rivers is one of the most serious, if not the most serious problem.

1. Change and degradation of natural resources

1.1. Abundant water resources trance in to scarcity:

Bangladesh being a deltaic land and cross intersection of hundreds of rivers all over the country is an indication of abundance of this precious natural resources (surface water). The un-usability of these huge surface water (table 1 cause of water pollution) pushes ground water extraction and complex the situation, having enough surface water (Bangshi river) nearby the village, 90% of Ghughudia people use ground water for their everyday purpose, further its incurs the additional cost for water use and expanded women's working hour as collecting water is vested upon women in a traditional family. Water from Bangshi river is unsafe for use any purpose except in the full monsoon. The demand for ground water also is understandable from the trends of tube well installed in the village over time. According to village information there were only 4-5 tube well/ hand pumps in the village before 1990s, the numbers gradually increase after 1990s in the year 2000 sixty percent household has their own hand pump and its rise at 90% in the year 2011.

Figure 1: Groundwater extraction and water table



Mallick: village survey 2011

Most of the hand pumps are now out-of-order and replace with mechanize and added more pipes, such as in early 1990s availability ground water was 60-70 feet, in the year 2000 it was 150-160 feet and now a year 2012 its increases up to 170-180 feet deep to get water. Table bellow represents the nature and cause of water pollution along with a representation of the respondent responses in Ghugudia village.

Table 1: Causes, water polluted/Bangshi river (N=30)

	Farmers	Fishing community	Service	Small business	Guala/ milkmen	Others/ Students	No of response
Number of informants	10	6	5	4	3	2	
EPZ/Industry	9	5	5	4	3	2	28
Lack of awareness	4	2	2	3	1		12
Plastic/toxic chemical and oil from the ship and mechanize boat	1	1	2	1	3	1	9
Corruption	2	3				2	7
India/withdrawal of water from upstream	2		2	2			6
Sewerage and human waste	2		1		2		5
Politics	1	3					4
Solid waste	3						3
Riverbed up		1		1			2
Low enforcement of law	1					1	2
Much profit		1					1
Grabbing and encroachment	1						1
No of response	26	16	12	11	9	6	77

Mallick, descriptive survey 2011

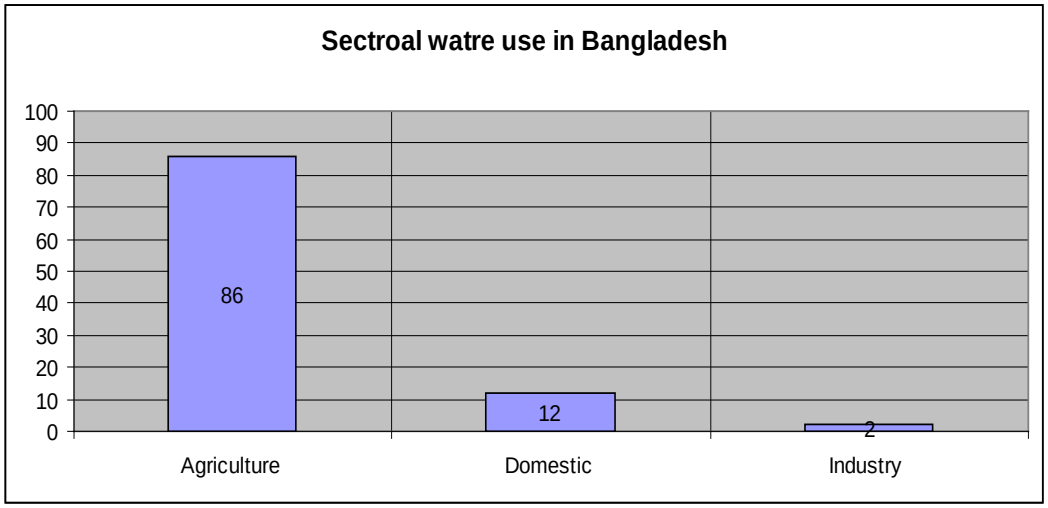
As many as 93% people of Ghughudia believed that EPZ polluted the river Banghsi. The lack of awareness and dumping of plastic/toxic chemical and oil from ship in to the water mentioned by 40 and 30% responded. The upstream water withdrawal, India/ withdrawal water and corruptions cause to degradation of water and local resources pointed by 23 and 20% of all respondent groups. sewerage system/human waste and local/national or international politics mentioned by as many as 17 and 13% respondent. Riverbed up, low enforcement of law respondent by 10 and 7%, profits much, grabbing and encroachment that is illegal occupancy of common property is 3% among the all respondent groups.

By de-facto agriculture consume 70% of the total water on the earth (FAO), which is much higher than of domestic need. However, water use in agriculture in Bangladesh is much higher compare to world trend and it is 86% (Figure:1). Figure 2: Water use in Bangladesh (Source, FAO, Encyclopedia of earth 2011)

More urbanizations and sophistications of lives means more water for domestic and individual use, such as Dhaka the capital of Bangladesh needs 2.2 billion liters of water every day and city water authority able to produce 1.9 million to 2 billion litters of water per day in average, city faces severe water crisis during March-May every year ground water level said to be depleting by 3 feet each year (United press international 2012). The reason of water scarcity and more dependency on ground water is because of some major river i.e. Buriganag, Shytalakhya, Truag and Balu river water around Dhaka become untreatable because of unregulated dumping of waste from industry and municipality. According to current estimation more than 2 million people affected by water shortage in over forty countries and 2.4 people million have no provision for sanitation (saving water p 6). The outcome means more disease, poorer food security, conflicts between different users and limitation on many livelihoods and productive activities.

Being a riverine country, Bangladesh should have its water policy based on surface water use and it is completely absent. To avoid water related conflicts mostly at urban sector and possible shortage of food production in future. A pragmatic water use policy and strong regulation in water use and clear demarcation in agriculture, domestic and industrial use of water use.

Figure 2: Water use in Bangladesh



(Source, FAO, Encyclopedia of earth 2011)

1.2. Industrial pollution and degradation of local natural resources:

The water pollution or degradation of water quality is not only concern for water itself, but it is also clear to be transmit toxic subsistence in to other eco system that some agriculture lands become toxic due to use of water from Bangshi river. Community, response to the question 'how pollution affect individual and community', along with other water reduces water access, affected health and livelihoods, hampered agriculture production and less or no fish mentioned by the majority of respondent. (table 2 described how pollution affect individual and groups).

Table 2: Pollution affect individual and community N= 30

	Farmers	Fishing	Service	Small business	Guala/ Milkmen	Others/ students	**No of response**
Number of informants	10	6	5	4	3	2	
Reduce water access	8		4	3	3	1	19
Affect on health	5	6	2	1	1	1	16
Livelihoods loss	3	5	2	1	2	2	15
Agriculture	6	6				2	14
Few or no fish in the river	5	5					10
Fish not eatable	1		4	3	2		10
Bad smell	2		1	2	2	1	8
Land pollution and productivity reduce	2	1	1	1			5
Job loss	1		1			2	4
Disease	1					1	2
No of response	34	23	15	11	10	10	103

Mallick, descriptive survey 2011

Significant sixty-three percent of all respondent groups mentioned that their access to water/river reduced, vise-versa health affect of polluted water mentioned by 53% of all groups. Livelihoods lose and reduces agriculture production were responded by 50 and 47% people of all groups respectively.

Pollution of water and land impacted total yield production and change in agriculture pattern i.e. hybrid grass and guava cultivation at river side plots in Ghughudia, such as the chain affect of natural resource degradation is, if land and water degraded production decreased, livelihoods affected the local economy for long (McDilda, 2012). Variation of surface water quality is noticed due to seasonal

variation of river flow. General, inland surface water quality in the monsoon season is within tolerable limit with respect to the standard set by the Department of Environment (DoE). However, water quality degrades most in the dry season when upstream water flow decrease mainly control by India, degraded water quality further.

Other than anthropogenic factors in a natural process surface/river water can be polluted, the issue of 'climate change' is both natural and human induced, adverse climatic events and climatic variation, could be a most destructive in regards to water issue world-wide(Goulder & Raymond 2008). Due to climate change and it's already established in global community that Bangladesh will be one of the most affected country in the world, rise in sea level will increase slain intuition and decreased sweet water base. Therefore Bangladesh need to be more careful in regards to water use and its management accepting the future climate shocks.

The current urbanization and industrialization in Bangladesh are mostly unregulated and unplanned, the source of pollution from nonpoint and point are also scattered. Thus it is the case of Bangshsi river, i.e. pollution from industrial and household waste and from agrochemicals runs and point concentrated pollution from EPZ and other local industries drainage their waste in to the river Banghsi. Business, industry and house owners should be involved, fragmentation, incoherent in policy and governance should be eliminated (Citizen League 2009).

1.2.1 Change in agriculture and land use:

Agriculture claimed to be origin or roots to civilization. However, farming and farmers are now treated as D class work and D class citizens. Vise-versa the corporate farming/agribusiness getting more attention at home and abroad i.e. PRAN, Square who are producing almost all food items for business and gain more money. However, in a traditional farming, farmers work as his livelihoods activities and surplus sold for exchange of goods and services with other. Because of the continuing deprivation and work undermining of another, either its developed or developing country, farmer themselves start thinking their work as low graded and themselves as low-class citizens.
Polluted water used in the paddy field contaminated land reduces production. Labor cost goes higher and work time reduces as farmers and labor cannot work long in the paddy field.

Figure 3: Picture (left) sticky water pumping for Bangshi, (right) farmer preparing his paddy field with polluted water

General watering for agriculture is now problem, as water at different point in Bangshi and Karno para canal area is highly polluted and beyond useable (Hifiz et al 2008). Keeping the fact, if farmers

planted seedling in their filed initially its grown well and look very healthy but end with no yielding or its look like somebody have just burned the whole field. Following citation is exactly from a farmer *(my 297 decimals of fertile agriculture lands near Biswas groups (a large industry) went out of cultivation and the last few years, I got very low or no crops from this land and plan to sell those lands) (farmer adjacent to Ghugudia village).* Farming at Ghughudia also has new dimension such as other than the introduction of poultry, diary and fish farm cultivation at Ghughudia replace with some new types of crops that is commercial grass and guava cultivation.

1.2.2. Commercial grass cultivation:

The agriculture plots which use to produce vegetables and other winter crops in Ghughudia is now converted into a grass field. The reason behind this is to farmers alternative farming approach as compared to regular crops i.e. Paddy, vegetables and other need systematic nurturing, use of fertilizers, having every thing in place there is uncertainty of production of good yields and use of polluted water increase chances of likeliness or the possibility of bad harvest. Compare with regular crop cultivation of grass is more profiteering and risk free. The estimated cost of growing grass in a 1 decimal of land is about 200-300 take that, is 4-5 US dollars and sold at around 14 US dollars, whereas to cultivate vegetables or other crops in a same amount of land its need almost 21 Us dollar and there were risks of natural calamities. But in the case of grass cultivation there is very little risk and no problem with polluted water too.

1.2.3. Guava as cash crops:

Guava usually water tolerant and can survive in seasonal flooding when in rainy season, monsoon floods, flooded the riverbank area. Thus the shift framing and the crop pattern at Ghughudia and many other villages around river Bangashi, when traditional and usual agriculture is being hampered due to many external factors that is industrial pollution and natural calamities.

1.3. Change of income and employment:

Before 1990s 80 percent people in Ghughudia village were absorbed by agriculture now comes in to 20 percent and perception of agriculture as the largest employer also change as 50 percent people still think agriculture is the biggest employers in the village which is closes as country's overall employment in agriculture sectors as it is 48.1% of total employment in the country (BBS 2008). Peoples' responses to question, the biggest employer in the village present bellow in a tabular form.

Table 3: Employer in village N=30

Respondent group	Agriculture	EPZ
Farmer	6	4
Fisherman	6	2
Business	2	0
Service	0	5
Milkman	1	2
Student	0	0
Total	15	13

Mallick, descriptive survey 2011

Among the all respondent groups 50% response as agriculture and 43% response EPZ as biggest employers in the village. Interestingly 100% respondent of service group, pointed EPZ is the biggest employers is to some extend indication of professional biasness, while 40 and 33 % among the farmers and fishing group mention EPZ as biggest employers shows importance EPZ as employers.

2. Culture occupations and social change:

Culture and social change seem to relate to environmental and ecological changes of the area. Degradation of water at Banghsi river displaced the occupation and livelihoods of fishing communities in the village, because of pollution from the industry fish disappearance from the river (figure 4.4.). Not such that the industry does not beneficial to others but their irresponsible activities are harmful to others (McDilda 2012)

2.1. Impact on traditional occupational culture:

The importance of the EPZ and industrial development were well documented and highlighted in many occasions at local and international level i.e. Employment, country's economic growth. But nevertheless general or specific economic loss out of industrialization and lose of traditional livelihoods and culture and comparative economic and other lose was never focused. Chemical and other waste from EPZ and other industries severely polluted the water of the river Bangshi and also has effect on specific livelihood groups and health effects in general (Ahamed 2009, Alam 2008). Pollutions seem to also have relation to migration (Chopra & Gulat et al, 2001)

In and around river Bangshi, there were 60.000 fishermen lives and in Ghughudia 170 fishing families who completely lost their occupational livelihoods and only (5-10) family in Ghughudia village is remaining with their traditional livelihoods *(Roy Mohan, leader Fishing community Ghughudia village)*. While huge employment created by EPZ and other industries in the area, very insignificant 20-25 girls from Hindu/minority family are working at EPZ and other industries

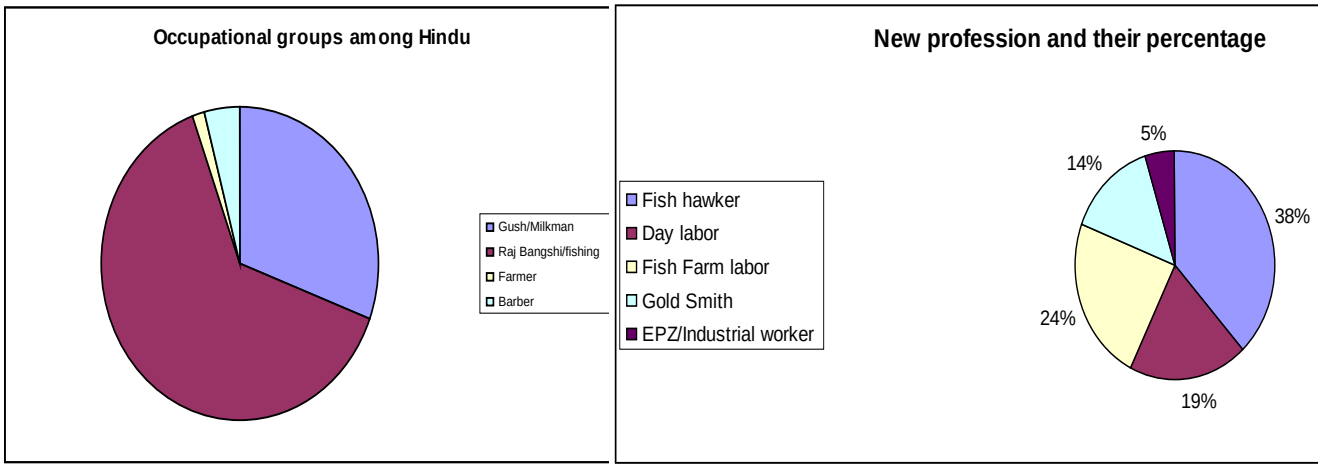
Displacement or lose of livelihoods by other development activities is a violation of individual and group rights. Fishing is not only a job in the fishing community rather it's a culture which the practice from generations to generation and the whole family involve in the fishing process such as adult men capture fish, women and children repair nets, sorts fish and process to sell in the markets. They also linked between open water body i.e. River, lake, sea and other open water source and land and adapted to the ecological niche. Though generation to generation with the interaction with open water body and nature, fisher folks have acquired skill and protecting, preserving and using the ecosystems sustainable along with secure livelihoods. Dislocating or displacing leads to perennial conflicts as destroying their livelihoods, social structure and economic welfare (Shanthi & Gajendran 2009)

2.2. Occupations and livelihoods change:

General income and economy at the village were increased over the period, as many formal, backward and forward linked enterprise were developed and so many new job opportunities were created. However, this improved state of economic opportunity has never been reconciled with the environmental and social impact. The industrialization and its pollution on river Bangshi have serious impact on the lives and livelihoods of specific livelihoods groups i.e. Fishing community in Ghughudia village.

Fishing, nevertheless simply a jobs to the traditional fishing community rather a culture, they practiced from time immemorial. These cultural and practices said to be disturbed sine industrial introduction in the area (Mallick, FGD & descriptive survey 2011). Its also force occupational displacement of fishing people at Ghughudia. New professions they absorbed are fish hawker, day labor, goldsmith, fish farm labor and garments/industry workers. A thematic diagram of occupational displacement is shown bellow

Figure 4: Left occupational groups, right change occupations at Ghughudia



Mallick: 2011

Above changed and new occupations show that very insignificant 5% are joining as an EPZ/industrial or garment workers, 19% are day labor (what ever work available for them) and 14% are goldsmith which is also a traditional occupation. However, large 62% are still remain with fish related activities either as a fish hawker or fish farm labor clearly signify the occupational business even in culture of distortion.

Further, the expanded opportunity i.e. Income/employment reduces gross or types of education level in the community. For example overall and higher education rate among girls off at Ghughudia is significantly declined over time, because of

High cost of education

Social insecurity and

Unwillingness or girls easy access to job

'Social insecurity' is a obstacle for girl education mentioned by minority Hindu community in the village. The average cost of education is also unbearable for many middle and low income family as 400 taka (5-6 USD) per month have to pay as tuition except other educational support cost. Therefore the inability of parents and opportunity to involve with a job at EPZ forces to the unwillingness of girl to withdraw from school. However, research in other country (Seri Lanka) shows that, this half or not educated girl and work in EPZ some time become a liability for the family when they give up work or plan to marry (Daskon & Tony 2010)

3. Extended women's works

Countless of work from sun rise to sun set have to perform by a rural women in Bangladesh. Further, irrespective of age groups some specific works like collection of water for a family is traditionally being the responsibility of women members. Women are the primary caretakers of the of children and elderly person in the family and also responsible for taking care of anyone in the family who is sick.

Carrying surface (river) water is much more essayer than to pulling and carrying water from pumps (citation of women of Ghughudia). Earlier, before or during 1990s women use to take a bath in the river along with their children and other elderly person they are responsible to and it does reduce their manual labor and time. On average, women work twice (housework, cleaning, cooking, washing, etc.) Compare with a man's work of a family. Since most of the women works are not direct income earning and usually went countless, collecting water from a distance not only time consuming also physical stress for women.

The poor are more vulnerable to water either it is Asia, Africa or in South America, women are affected first, such as in northeast Brazil, (World Bank 2012), during times of drought, most men migrate for wage employment and women become the heads of the household and called as widows of the drought. In Ghughudia poor women have to collect water from pump of neighbors, sometimes it away from quarter km, they also have to stop for a while and wait until finish of other works specially the owners first. The degraded surface water, leads to water insecurity and compromises women other economic activities at family and formal sector.

3.1. Opportunity or looming women empowerment?:

In one or two decades back women in rural Bangladesh or in traditional village culture, women suppose to walk beside the road and make road free for men (Mr. Samad, senior citizen and ex word commissioner of the village) "it is EPZ what bring out our women from the house" back in 1980s and before no women can come out without a burkha (scarp/parda). It is not the question of Muslim or Hindu it is culture that women should use parda/scarp when come out from home and which is still maintained by traditional Muslim and Hindu family other than religious practice of the Muslim community. However, community and family leverage over time, women got employed and work outside of the house. Except some specific such as Ghughudia village, average education rate and girls education rate increased over time.

There are 350-400 women from the village work in the formal sector mostly in industry/garments and of them 20-25 are from Hindu/fishing family clearly represent disproportionate representation of majority and minority women in the village, even though women of minority family affected most by the industrialization in the area.

Involvement of women in formal sectors and direct income generation activities increases women's mobility and acceptability in the family and community, further its create a platform for women to argue with their guardians and husbands at the family level in regards to importance decision making, either personal or family level. On the other hand displacement of 170 fishing families from their traditional occupations means at least 170 women member of the fishing family lost their direct livelihoods activities. In addition inability of parents to bear education cost and the opportunity to involve with a job at EPZ trapped unwillingness of girls in continuing education or go for higher education rather to withdraw from school. The global economic recessions, local political instability, mismanagement, the lower wage system along with disorganized and unregulated industrial development in the country is always rises questions of job security. The redundant workers from garments/EPZs, emerges as a long term liability for family and society as well, in particular when this half or not educated girl and work in EPZ, give up work or plan to marry (Daskon & Tony 2010).

4. Conclusion:

The unplanned and unregulated growth and expansions of industrial and urban development rather create obstacles for right tracking of development and expected social change in the society. Further absence of governance and culture of impunity encourages corruptions at public and private sectors and individual level as well.

The EPZ and other industries at Savar, undoubtedly create mass employment such as according to BEPZA current employment in DEPZ is 2595 and 64% of them are women (BEPZA 2008), however, no data available on employment at other local industries at Savar. The socio-cultural and environmental damage done by these industries were countless such as there were 60000 fisherman were survived based on fishing at river Bangshi become unemployed due to non availability of fish (Roy Mohan) claimed to pollution by industries. The environment friendly industrialization i.e. Raise of awareness and accountability and responsibility of all mostly among industrialist, law enforcing and implementing agencies will help to reduce pollution of rivers and stop the degradation of other local natural resources and restore the distorted culture and livelihoods and development will be sustained. Again the whole issue can be summed up by following words by a local activist 'Industry take up our water, agriculture, fish and traditional occupation too, now we have no peace and harmony but have plenty of foreign style dress.'

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