Working Together for Responsible & Eco-friendly Shrimp Farming In Bangladesh

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Exploring Corporate Environmental Responsibility (CER) & Corporate Social Responsibility (CSR) in the context of Commercial Shrimp Sector in Bangladesh

S. Jahangir Hasan Masum

Coastal Development Partnership (CDP)
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Executive Summary

Although Bangladesh is a small stakeholder in the global shrimp market, the shrimp sector is a key stakeholder in Bangladesh economy in terms of employment, income generation and earning of foreign currency for the country. Commercial Shrimp farming in Bangladesh was started in the Satkhira district of the SW coastal region Bangladesh in 1960s. The shrimp farming encompasses around 1 per cent of total land area of Bangladesh (approximately 141000 hectares). In Bangladesh, roughly one million people are involved with the shrimp sector. Non-resident shrimp entrepreneurs control the shrimp culture in Bangladesh. The non-resident entrepreneurs of export-oriented shrimp culture used to produce shrimp in leased-in lands and have no motivation to practice sustainable shrimp farming as well as have no social obligations to the area. According to the draft 'National Shrimp Policy 2008', the government is going to expedite shrimp farming through developed technology sustainable in the local socioeconomic, cultural and environmental conditions.

Although shrimp certification has already been recognized as a tool for global market access issue, the current shrimp certification systems are non-participatory and do not incorporates the social problems linked with the shrimp industry. Consequently, most of shrimp farms are not following the Global Aquaculture Certification Council and EurepGAP standards on Mangrove Conservation and Biodiversity Protection. The global trend of shrimp business envisages that without informing consumers about sustainable farming practices, it will be gradually difficult to sell the shrimp products. Considering the social, environmental and local issues integrated commercial shrimp farming, the present study would like to rename CSR as CLOSER (Corporate Local, Social & Environmental Responsibility) for protecting ecosystem & community at local production level as well as to promote Environment-Friendly Export-Oriented Shrimp Cultivation. Shrimp farm associations with support from government and NGOs can provide technical assistance, training and extension services to producers to promote responsible shrimp farming. NGOs can offer training on CLOSER to the shrimp farmers and all categories of shrimp workers because hiring of consultants for training is difficult for small farms. However, International Shrimp Buyers and Retailers must take responsibility to recognize local knowledge base to ensure ecosystem friendly responsible shrimp farming and any shrimp certification must account for social and environmental externalities in production.

Chapter One

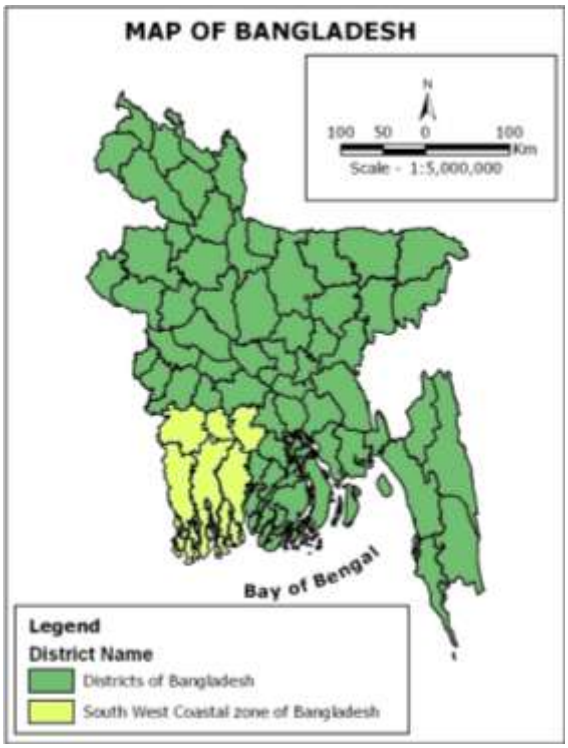
An Overview of the Shrimp Farming in Bangladesh

1.1 Introduction

Shrimp farming has already been identified as one of the fastest growing and also one of the most controversial aquaculture sectors concerning environmental and social impacts in many parts of the world[1]. Although Bangladesh is a small stakeholder in the global shrimp market, the shrimp sector is a key stakeholder in Bangladesh economy in terms of employment, income generation and earning of foreign currency for the country.

1.2 An overview of Bangladesh

Bangladesh is an agro-economy based developing country in South Asia. Bangladesh is bordered by India to the west, north and east, shares a border with Myanmar to the southeast. Bay of Bengal lies to the south, and to the north is the Himalayan mountain range. The country is located between 23º34´and 26º38´north latitude and 88º01´and 92º41´east longitude (Rashid, 1991). The population of the country is approximately 130 million, which represents a population density of 839 persons / km2 (BBS 2003). This high population density creates a high demand on natural resources.



The total Geographical area of Bangladesh is about 56,000 square miles. (143,998 square kilometer) Out of which about 9 million hectares are cultivable land. Between thirty to seventy per cent of the country is normally flooded each year. The elevations in most of the country do not exceed 10m. The country has a humid tropical climate. Average rainfalls in drier and wetter regions are 1500mm and 5000mm per year respectively. In winter, the average minimum and maximum daily temperatures are about 9.7 and 26.6°C respectively. In the summer, the average maximum temperature is about 32.2°C.

[1] FAO/NACA/UNEP/WB/WWF. 2006. International Principles for Responsible Shrimp Farming. Network of Aquaculture Centres in Asia-Pacifi c (NACA). Bangkok, Thailand. 20 pp.

BANGLADESH: COUNTRY PROFILE	
Official Name	The People's Republic of Bangladesh
Capital City	Dhaka
Geographical Location	In South Asia between 20°.34¢ and 26°.38¢latitude and between 88°.01¢& 92°.41¢east longitude.
Area	1,47,570 Sq.Km
Population	130.03 Million (Population Census 2001) (Adjusted)
Density	881 Per Square Km. (Census-2001)
Population by Area	Rural-76.57% Urban-23.43%
Language	National Language : Bengali-98% English is also widely spoken and understood.
Religion based Population	Muslim (89.7%), Hindu (9.2%), Buddhist (0.7%), Christian (0.3%), Animist and tribal faiths (0.1%)
Administrative Units (BBS-2001)	Division -6, District-64, Upazila/Thana-520 Municipal Corporation: 4 Municipalities- 223,Union Parishad-4533, Village-87928
Time	GMT +6.00 Hours
Main Seasons	Winter (November-February) Summer (March-June) Monsoon (July-October)
Principal Rivers	Padma, Meghna, Jamuna, Brahmaputra, Tista and Karnophuli,
	Source: http://www.banbeis.gov.bd/bd_pro.htm

Agriculture is the single most and the largest sector of Bangladesh's economy which accounts for about 35% of the GDP and about 70% of the labor force. Despite technological advances such as improved crop varieties and irrigation system, weather and climate are still key factors in agricultural productivity. Although the poverty rate in Bangladesh has gone down by 10% since 1990, nearly half of the population still lives below the poverty line with food security being of vital importance to the poor. Landlessness combined with lack of employment opportunities restricts access to adequate nutrition, leading to poor health status and reduced ability to work, with women headed households being especially vulnerable.

Demographic status of Bangladesh			2006	2007
Total population (Thousands)			139215	141822
Population (Thousands)	Under 18		58970	59402
	Under 5		17284	17399
Population annual growth rate (%)			2.1	2.1
Crude death rate (per 1,000 population)			8	8
Crude birth rate (per 1,000 population)			27	26
Life expectancy at birth (years,)			63	64
Total fertility rate			3.2	3.2
% of population urbanized			25	25
Average annual growth rate of urban population (%)			3.6	3.6
Estimated number of people living with HIV/AIDS (in 000)	Low estimate		2.5	6.4
	High estimate		15	18
Adult literacy rate		Male	50	x
		Female	31	x
	Total adult literacy rate		41	X
Number of phones per 100 population			2	3
Source: UNICEF REPORT: THE STATE OF THE WORLD'S CHILDREN 2006 & 2007				

According to the *Direct Calorie Intake (DCI)* method, head-count poverty declined from 46.2 percent in 1999 to 40.9 percent in 2004. The corresponding estimates under the *Food Energy Intake (FEI)* method have been 44.7 and 42.1 percent for 1999 and 2004 respectively. According to both these measurements, *the rate of poverty reduction has been found to be higher for urban areas compared to rural areas.*[2] Bangladesh, rich in biodiversity, have a

[2] GOB, 2005: Bangladesh, Unlocking the potential, National Strategy for Accelerated Poverty Reduction, General Economics Division, Planning Commission, Government of People's Republic of Bangladesh (GOB).

variety of 266 inland and 442 marine fishes, 22 amphibians, 109 inland and 17 marine reptiles, 388 resident and 240 migratory birds, 110 inland and 3 marine mammals. Unfortunately more than a dozen vertebrate fauna have been lost during the last century and 54 inland fishes, 8 amphibians, 58 inland reptiles, 41 resident birds and 40 inland mammals have come under different categories of threat (IUCN 2000).

Indicator	Unit	Coastal Zone of Bangladesh	Bangladesh	Reference year (source)
Sex ratio	Males/100 females	105	107	2001 (BBS)
Agriculture daily wage rate	Taka	49	46	1997/98 (PDO-ICZMP)
Literacy rate (7+)	%	51	45	2001 (BBS)
Primary school density	No./10,000 persons	6.9	6.3	2001(PDO-ICZMP)
Households with durable wall	%	47	42	1991 (BBS)
Households with sanitary latrine	%	45.60	36.87	2001 (BBS)
Density of road	Km/km2	0.71	0.67	1996 (PDO-ICZMP)
Average size of household	Number	5.1	4.9	2001 (BBS)
Demographic dependency ratio	Pop (0-9+>59)/10-59	0.90	0.83	2001 (BBS)
Small farm households	% owning 0.05-2.49 acre	57.7	52.9	1996 (BBS)
Per capita GDP	Taka	18,198	18,269	1999/2000 (BBS)
Absolute poor households in terms of calorie intake	%	52	49	1998 (BBS)
Extreme poor households in terms of calorie intake	%	24	23	1998 (BBS)
Primary school enrolment rate	% of children 6-10 years	95	97	2001 (PDO-ICZMP)
Severe child malnutrition	%	6	5	2000 (BBS & UNICEF)
Population per hospital bed	Number	3,782	2,981	1996 (BBS)
Union Parishad density	Average area (km2)/UP	35	32	1991 (BBS)
Per capita gross cropped area	Ha	0.093	0.109	1996 (BBS)
Functionally landless households	% owning <0.50 acre	53.5	52.6	1996 (BBS)
Households with durable roof	%	50	54	1991 (BBS)
Households with electricity connection	%	30.8	30.9	2001 (BBS)
Households with access to tap and tube well	%	72.5	85.7	2001 (BBS)
Household coverage by major micro-credit NGOs	%	19	21	2001 (PDO-ICZM)
Share of industrial sector in GDP	%	22	25	1999/2000 (BBS)
Density of growth centers	Average area (km^2)/growth center	80	70	1996 (World Bank)
Land erosion	Ha/yr	3,199		1973-2000 (MES)
Susceptibility to severe cyclone and storm surge	No. of occurrence	51		1948-98 (PDO-ICZMP)
Land accretion	Ha/yr	5,080		1973-2000 (MES)

The number of functionally landless households is relatively higher in coastal areas in comparision with national level situation. The Per capita gross cropped area in the coastal zones is lesser than national average. Children's enrollement in school is relatively lower in coastal areas than national average. The households with access to tap and tube well are strikingly lower in coastal zones. Only 19% households are covered by major micro-credit NGOs whereas in national context such coverage is 21%. The land erosipn rate in the coastal zone is y 3199 hectares per year and land accretion rate is 5,080 hectares per year. On average the coastal zone of Bangladesh face 51 occurances of severe cyclone and storm surge. The environmental characteristics of the country are immensely controlled by the river

system. Bangladesh has many rivers, canals, haors, baors, beels, and ponds, which are resources for culturing fish.

1.3 Shrimp farming in the coastal zone of Bangladesh

The term "coastal zone" refers to the transition area of land and sea. According to Bangladesh's Integrated Coastal Zone Management Plan (ICZMP), three main criteria are used to mark out coastal zones: tidal fluctuations, salinity, and cyclone & storm surge risk. According to the Integrated Coastal Zone Management Plan (ICZMP) of Bangladesh, 19 districts or 147 upazilas are defined as coastal districts, out of which 48 upazilas are exposed to the coast and 99 upazilas lie in the interior coast. The coastal zone comprises 32% of the land area of Bangladesh (47,201 km2) and a population of 35.1 million people.

Commercial Shrimp farming in Bangladesh was started in the Satkhira district of the SW coastal region Bangladesh in 1960s. The shrimp farming encompasses around 1 per cent of total land area of Bangladesh (approximately 141000 hectares). The average size of shrimp farms in Bangladesh is three hectares. Commercial shrimp farms in Bangladesh are concentrated mainly on the vast areas of low-lying tidal land (approx. 2.5 million hectares) in the two coastal regions; the districts of Khulna, Satkhira, Jessore and Bagerhat in the Khulna Division of SW Bangladesh and the districts Cox's Bazar, Chittagong and Noakhali in the Chittagong Division of the SE Bangladesh.

There are about 25 species of freshwater shrimp and 36 species of marine shrimp, Macro-brachium rosenbergii locally known as Galda is the most important amonf the freshwater species and is cultivated commercially in Bangladesh. Other commercially important freshwater shrimp are M. malcolmsonii, M. villosim.on.us, M. lamarrei etc. The moost important marine/salt water shrimp is the Peneous monodon locally called Bagda, the giant black tiger, which is the target species for brackishwater farming in Bangladesh. Other commercially important marine shrimp are Penaeus mdicas, P. ntonoceros, P. semssulcatiis and P. mcrguicnsis.*Penaeus monodon* and *Machrobrachium rosenbergii* are the two major species cultured in Bangladesh. According to the 2004 survey[3], there are 868 hatcheries (120 GO & 756 private). In 2004-05, total fish production was 22.16 lack metric tons of which 8.82 metric tons were shrimp.

[3] Bangladesh Economic survey, 2006

Chapter Two

Multiple faces of the Commercial Shrimp Farming in Bangladesh

2.1 Introduction

The geographic setting has played a role for the development of commercial shrimp farming in Bangladesh. About 75% of the land occupied by the shrimp farms is located in the tidal flats of the Khulna, Bagerhat and Satkhira districts. Commercial shrimp farms are also spreading in the districts of Barisal, Patuakhali, Barguna and Bhola in the Barisal Division of SW Bangladesh.

The Shrimp Industry at a Glance (2005-06)	
Total shrimp farming area	218,000 ha
Marine shrimp	170,000 ha
Freshwater shrimp	48,000 ha
Districts involved	20
Upazila (sub-district) involved	52

The present practice of shrimp farming has been introduced without the least consideration for environment, land rights and human rights, resulting in conflicts and violence in many areas, and given rise to mass movements. These conflicts and movements have been reported from time to time in the local, regional and national media, and these issues are becoming matters of international concern.

2.2 Human face of the Commercial shrimp farming

The human face of commercial shrimp farming portrays the sector as the most unequal distribution of benefits among the stakeholders. In Bangladesh, roughly one million people are involved with the shrimp sector, the second largest export industry. About 90% of total employment in the shrimp sector is confined to fry collectors and shrimp farmers who belong to the poorer sections of the coastal communities in Bangladesh. The fry collectors cover 50 % of the total sector-employment in commercial shrimp sector but receive only 6 % of the profits made by the sector. More or less half of the household income of the coastal poor comes from the shrimp related activities. The shrimp farmers of Bangladesh largely became dependent on the supply of natural fries due to limited nurseries in country and thousands of poor children were engaged in shrimp fry collection by push net and bag nets (USAID, Bangladesh 2005[4], Delap and Lugg 2000[5], Ali, 2002[6]). In Bangladesh, among the all fry catchers**,** 40 percent are men, 30 percent women, and another 30 percent girls and boys[7]. It is important to note that CDP-DANIDA action research documented child labour in Shrimp

[4] USAID, Bangladesh 2005: Shrimp Industry Study: Problems, Prospects and Intervention Agenda, ATDP *(Agro-based Industries and Technology Development Project)* Research Team

[5] Delap E. and Lugg R., 2000. Not Small Fry : Children's Work in Bangladesh's Shrimp Industry. Save the Children, UK and Uttaran, Bangladesh

[6] Ali Md. Liaquat., 2002. Policy Framework for Fisheries Sector Development in Bangladesh, BCAS, (unpublished monograph), Dhaka

[7] Development & Training Services, Inc. (dTS), 2006: A Pro-Poor Analysis of the Shrimp Sector in Bangladesh, Greater Access to Trade Expansion (GATE) Project, United States Agency for International Development (USAID), Bangladesh.

Sector (CLSF) as the worst form of child labour (CDP, 2006[8]). For almost two decades fry collection has become the chief source of livelihood for women and children in many coastal areas. The exact number of workers in the Bangladesh shrimp industry is difficult to estimate. With a high percentage of undocumented workers, as well as unregistered farms and processing plants, many work beyond the reach of official statistics. According to one U.S. Government source, at least 142,000 families, or more than 600,000 people, depend directly on just the shrimp farming portion of the industry for their livelihood[9]. The industry-associated nonprofit Bangladesh Shrimp and Fish Foundation estimated the number at 600,000 direct workers, who support some 3.5 million dependents.

The employers in the shrimp sector like other informal sectors do not maintain the labour standard set by the ILO. During shrimp fry collection from the river, especially young girls and women are harassed either physically or verbally. Majority of the Fry collectors take loans in advance from the local small scale buyers of fries in the lean season and commit to selling the fry to that lender at a price determined by the lender. The women and children who are involved in fry collection and Gher (the pond for shrimp aquaculture) related activities very often suffer from different kinds of fever, itching, sore of throat, cough, muscular spasm, dysentery, diarrhea, stomach problem, gastric, headache, back pain and skin diseases. This is due to long hours of work in the saline water.

In the Southwest Coastal Region of Bangladesh, the number of commercial shrimp farms and disputes relating to Commercial shrimp farming, both are growing. Using political influence to grab shrimp farms, robbing shrimps from the farms of comparatively weaker farmers, sexual assault and harassment of women, breach of lease agreements, non-payment of lease money, non-payment of wages on time, long hours of work are all causes for dispute, which when unresolved for a long time, turn into violent conflicts.

One study has shown that the relationship between export oriented shrimp cultivation and human rights is highly negative.[10] CDP regularly collects news clippings from 15 local and national daily newspapers in respect of human rights and labor rights abuses in shrimp farms, compiles the news reports on a weekly basis and sends the most important news items as News flash. Based on the 1946 newspaper reports from CDP's archive, CDP has identified various shrimp related conflicts which in order of frequency are armed assault, theft, terrorism, land grabbing, murder/ unnatural death, poisoning shrimp, land ownership, fraud and trade disputes, extortion, trespass, embankment breach/ saline intrusion, other crimes, kidnapping, rape, criminal damage, possession of illegal arms, drainage disputes, non payment of lease, and fry smuggling. Overall, the most commonly reported conflicts are terrorism, theft, armed assault, land grabbing, murder and unnatural deaths and poisoning of shrimp farms.

[8] CDP, 2006: Situation Analysis on Child Rights Violation in Shrimp Sector in the Southwest Coastal Region of Bangladesh study funded by DANIDA (Human Rights and Good Governance-Program Support Unit).
[9] Khan, "Bangladesh Shrimp Exports Poised to Soar with U.S. Assistance." 60 U.S. Agency for International Development (USAID), Office of Women in Development, Greater Access to Trade Expansion (GATE) Project, "A Pro-Poor Analysis of the Shrimp Sector in Bangladesh," Development & Training Services (DTS), (Washington DC: USAID, February 2006), p. 17, http://www.usaid.gov/our_work/crosscutting_programs/wid/pubs/Bangladesh_Shrimp_Value_Chain_Feb_2006.pdf.
[10] Ahmad N., July 1996. Commercial shrimp culture in Khulna, Bangladesh: Its negative impact on women, their families, and the environment. Report-in-brief. International Centre for Research on Women. Washington .

2.3 Economic face of the Commercial shrimp farming

According to the Millennium Ecosystem Assessment, in the last 5 years global shrimp production has grown at a rate of 10–20 percent per annum[11].

	Total net present economic value per Ha (in US$)	Total net present value per Ha (in US$) including social accounting
	value	**Social value**
Shrimp farm	8340	-5,443
Intact mangrove	823	35,696

In economic perspective, converting mangroves to shrimp aquaculture apparently seems lucrative. One study[12] found that shrimp aquacultures had a net present economic value per hectare could be 10 times higher than the economic value for an intact mangrove. The study has reveled that the social and natural services of the intact mangroves like nursery habitat for marine life, storm protection for coastal communities are not counted in the marketplace. Besides, various environmental and societal costs of shrimp aquaculture like mangrove destruction, water pollution and land degradation are absent in cost accounting of production. On the otherhand, shrimp aquaculture enjoys finacial incentives from the government in the form of subsidies, nominal lease fees and tax deduction. Moreover, after the productive life the site of the commercial shrimp farm is unfit for further productive use. Taking these additional factors into account, that study reveals the net present per hectare value of intact mangroves is US$35,696 whereas the value of per hectare for shrimp aquaculture is minus US$5,443.

Shrimp Cultivation System	**Expenditure (Per Hectors)**	**Expenditure (Per Acre)**	**Profit (Per Hectors)**	**Profit (Per Acre)**
Traditional Cultivation	63485	25702	123408	49963
Mixed Alternative Traditional Cultivation	73720	29846	190677	77197
Alternative Traditional Cultivation	77337	31311	202290	81899
Confined Cultivation	391034	158313	661795	267933
Source: World Fish Center; SQSP-2				
Shrimp production trend in Bangladesh		2004-2005	2002-2003	1996-1997
Commercial shrimp production (in metric tons)		**121000**	**100000**	**79000**
Source: Bangladesh Economic survey, 2006				

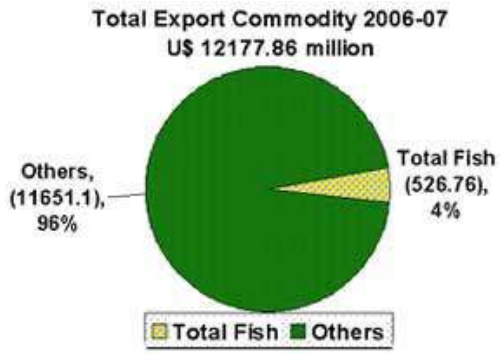
Except large farmers, the small farmers and wage labourers does not benefit from shrimp cultivation, because of their uncertain incomes due to unstable international shrimp market. The study findings strogly correlates with the Bangladesh scenario. In Bangladesh the profiteers of the commercial shrimp farms are mainly people from outside the community who could afford the high initial investment needed. But after the productive life, the local community bears the economic loss for not having the scope to utilize the site. The lose of mangrove severly hampers the livelihood and wellbeing of the coastal poor who who depend on mangrove services.

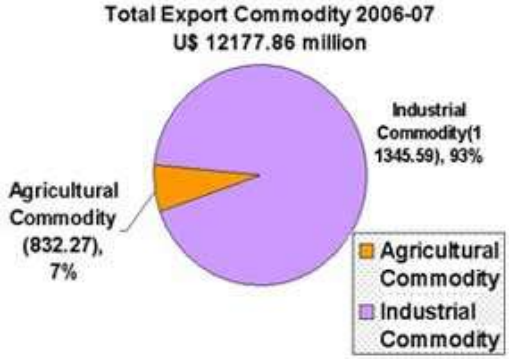
[11] Millennium Ecosystem Assessment 2005: Ecosystems and Human Well-Being Synthesis. Washington, DC: Island Press. Online at: http://www.maweb.org/proxy/Document.356.aspx

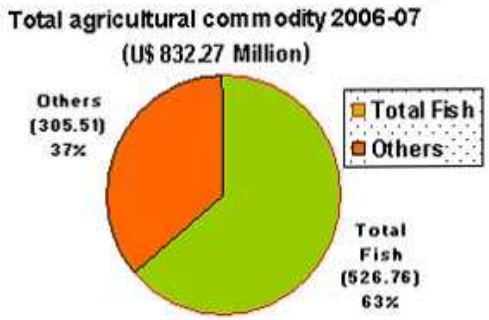
[12] Sathirathai, S. and E.B. Barbier. 2001: Valuing Mangrove Conservation in Southern Thailand. Contemporary Economic Policy 19(2):109–22.

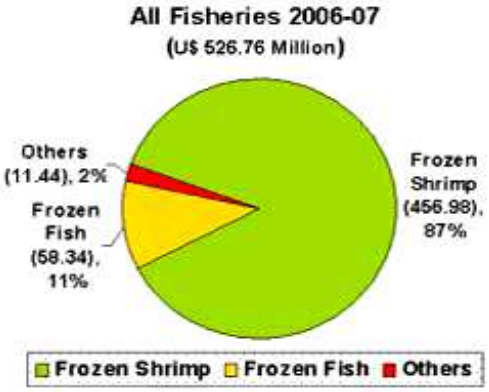
Fish exports worldwide amounts to 30-40% of the total production around the world, including 30 species of shrimp[13]. In 1996-2003, the production growth was around 9% but after then the shrimp production increased at the rate of 21%.

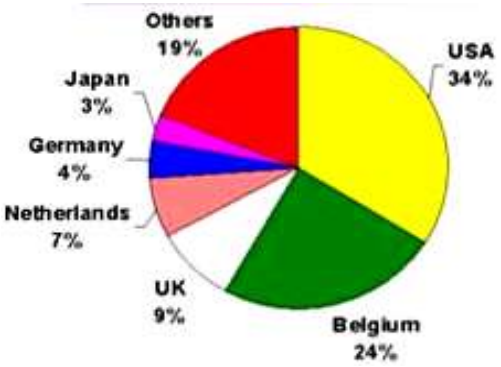
Shrimp and Fish Export statistics on Graph based on EPB data 2006-2007











In national economic context, Shrimp covers more than 70% of the total export earning from all the agro-based products, including tea, raw jute, vegetables, fruit, etc. This sector also supports large varieties of local level cottage industries (made out of the home) such as bamboo baskets, mats, traps, nets, rickshaw vans, tempos (tri-wheelers), boats, etc. Bangladesh is one among the world's top ten shrimp producers and had share of about 3 percent of world sales in 2006. In 2005, Bangladesh sales were limited to the United States (40 percent), the European Union (40 percent), and Japan (20 percent)[14].

[13] Anderson, James L. (2004), The International Seafood Trade, University of Rhode Island, Kingston.

[14] Afzal Khan, "Bangladesh Shrimp Exports Poised to Soar with U.S. Assistance," U.S. Department of State, International Information Programs, Washington File, August 10, 2005.

In 2006-2007, slighlty over one-third of the Bangladesh fish export were limited to the United States (34 percent) and more than one-fifth were limited to the Belgium (24 percent). In 2006-2007, 7% of the Bangladesh fish were exported to The Netherlands.

FROZEN SHRIMP EXPORT 2004-2007

Month	Volume (mill. lb)			Price (mill. US$)		
	2006-2007	2005-2006	2004-2005	2006-2007	2005-2006	2004-2005
July	10.77	10.46	8.40	48.28	46.09	37.82
August	8.20	7.38	1.48	40.39	32.77	13.53
September	9.71	6.27	1.52	50.29	31.81	14.68
October	6.24	7.15	2.59	38.61	35.64	14.86
November	9.37	4.96	1.07	53.08	27.91	11.46
December	6.70	5.77	1.11	38.12	33.78	11.30
January	5.07	6.56	0.95	27.58	34.26	8.58
February	2.65	3.51	0.73	15.81	18.60	6.80
March	5.53	6.02	0.87	24.86	23.50	6.24
April	7.24	5.24	34.92	32.41	26.38	164.41
May	8.43	16.03	12.82	41.49	75.48	42.62
June	8.21	9.69	7.74	46.06	43.74	33.52
Total (July-June)	**88.12**	**83.80**	**74.20**	**456.98**	**403.58**	**365.82**

According to the Bangladesh Frozen Foods Exporters Association (BFFEA), frozen shrimp exports fell 2.53 percent to $445.41 million in fiscal 2007/08 due to a decline in demand and global economic recession. However, exports of frozen seafood other than shrimp rose nearly 52 percent and the total export earnings of seafood rose 3.69 percent to a record $534 million in fiscal 2007/08. The demand and the price for shrimp in the United States and European countries who are the main consumer of Bangladesh shrimp have experienced 30 percent (9000 tonnes) reduction. However, fish exports have increased to 19,270 tonnes, from 10,810 tonnes.

Bangladesh in the global and European market

Bangladesh ranks third among the world's largest inland fish producing countries after China and India. Shrimp production is the second largest export sector of Bangladesh after ready made garments. The EU, the USA and Japan are the major importers of shrimp from Bangladesh. Bangladesh with a GDP of € 49 billion (in 2005) represents 0.2% of the global GDP. Trade contributes almost one-fourth (23.8%) of the GDP. According to 2005 data, Bangladesh represents 0.16% of the global imports and 0.12% of the global exports. The European Union (EU) is the main trade partner of Bangladesh with a surplus trade balance of over €3 billion. Every year Bangladesh exports 54% of its goods of €4,1billion and import good of €1 billion. Bangladesh represents one-fifth (20%) of the total exports from all LDCs to the European market. Since 2004, EU imports from Bangladesh have been growing at an average rate 8.0% per year[15]. Bangladesh represents 0.35% of total EU imports. The EU accounts for about 52 percent of the total market which implies that any disruption in EU market is bound to have severe implications for this export-oriented shrimp sector of the Bangladesh.

Recently, the international market shrimp demand from the region has reduced due to inability to produce standard shrimp. Consequently, the Farm owners are not always able to give standard wage to laborers. The capacity building efforts for improving the shrimp standard might play a role for ensuring standard wage for the poor laborer and thus alleviating poverty.

[15] http://ec.europa.eu/external_relations/bangladesh/intro/index.htm

2.4 Political face of the Commercial shrimp farming

In a crude sense, the Shrimp culture in Bangladesh could be seen as a classic example about how national policy approach could be enticed by lucrative export markets and how government can damage critical ecosystem in order to make quick economic prospect. Tempted by lucrative western export markets and the prospects of making quick profits, the government through the World Bank and the IMF guided policy initiatives and incentives (Box-1) have promoted shrimp on a large scale. Bangladesh Government is promoting semi-intensive shrimp farming and made provision of 15% cash incentive for shrimp export.

Box 1: Role of the IFIs in the commercial shrimp farming in Bangladesh

The commercial shrimp farming in Bangladesh has evolved during the mid and late 1980's through the World Bank and the IMF guided policy initiatives and incentives under the Structural Adjustment Programme (SAP). SAP stimulated private investments have increased shrimp export 11 times (US$ 90.8 million in 1986 to US$ 1000 million in 2000) within 14 years (1986-2000). The implementation of the World Bank/UNDP investment programme of US$ 30 million in late 1980s and early 1990s paved the way of commercial shrimp farming in Bangladesh with infrastructure, technology and foreign instruction.

In 1985 the World Bank provided credit to Bangladesh for "Shrimp Culture Project" which paved the way of commercial shrimp culture in Bangladesh. In the project document, it was mentioned that *"the project could not have any detrimental effect on the environment. Intensification of shrimp culture would take place only in areas where it already exists. Neither the existing land-use pattern nor the present ecological balance would be changed. Positive effects would be achieved through the elimination of salt water seepage into adjacent agricultural land, by the construction of appropriate boundary embankments, and by efficient and timely water exchange to block out salt from soils for paddy cultivation. The further spread of extensive shrimp-farming operations into agricultural and forest lands would be counteracted by the revision of Government policies on salt-water intake, the leasing of public lands and by demonstrating the financial rewards of intensified shrimp culture. The project would not cause harm to other riparian States nor would it be harmed by the use of water by other riparian States"*

Source: World Bank. 1985. "Report and Recommendation of the President of the International Development Association to the Executive Directors on a proposed Credit in an Amount of SDR 20.6 Million to the People's Republic of Bangladesh for a Shrimp Culture Project", Dhaka.

The shrimp issue is an important part of the agenda of all the political parties. However, except the leftist parties, rest of the constitutional political parties usually play similar role concerning the shrimp sector. Ironically, when the major political parties are in the opposition, they become vocal against the human rights violations in the shrimp sector, but once in power, they do not take appropriate measures to reform the shrimp sector. Besides, there are different viewpoints among the left political factions. Some are totally against shrimp farming, some want to introduce community shrimp farms.

According to the draft 'National Shrimp Policy 2008', the government is going to brand shrimp 'a cent percent' foreign exchange earning good, besides encouraging public initiatives and private investment in shrimp cultivation, processing and export. The proposed national policy is to 'expedite shrimp farming through developed technology sustainable in the local socioeconomic, cultural and environmental conditions. The draft shrimp policy has also

proposed introducing practical education on shrimp farming in science textbooks at primary and secondary schools while steps are to be taken to create opportunities of higher education on the subject at local and international levels.

The Fisheries and Livestock Ministry has recently completed evaluation of the shrimp industry in order to make it viable as an export sector. All shrimp consignments are tested in three laboratories in Chittagong, Khulna and Dhaka for maintaining world class standard before sending those abroad. The Government of Bangladesh is planning to introduce a law "Hatchery Ordinance 2008" to bring discipline and accountability to the shrimp hatchery industry. The forthcoming law, "Hatchery Ordinance 2008", is expected to require the registration and licensing of hatcheries and set standards for equipment and management practices.

Overview of shrimp related policies & laws	
The National Fish Policy 1998	Details of government policies on relevant shrimp culture and livelihood issues
Private Fisheries Protection Act, 1899	Protection of private fisheries and the rights of landowners who don't like to lend their land for shrimp farming.
The Government Fisheries Protection Ordinance, 1959	Protection of government khas water bodies against unauthorized fishing.
The Protection and Conservation of Fish Act, 1950	Protection and conservation of fish and fisheries
The Fish and Fish Products (Inspection and Quality Control) Ordinance, 1983	Empowerment of government for inspection and quality control of the Fish and Fish Products
The Fish and Fish Products (Inspection and Quality Control) Rules, 1997.	Empowers officers and sets licensing systems for processing and export. Provide detailed procedures for inspection and quality control of fish and fish products during transportation, processing and export
Marine Fisheries Ordinance, 1983 (MFO)	Regulation of licensing, gears and areas of fishing. Jurisdiction is limited from the 18.29m depth line to the limit of territorial waters.
The Protection and Conservation of Fish Rules, 1985 & Amended rule 8(1A), 2000	Ban on catching fry or post larvae of fish shrimp and prawns. The amendment 8(1A) conflicts with National Fish Policy, 1998 & the Embankment and Drainage Act, 1952.
National Environment Policy, 1995	Protection of the environment & ecosystem
The Environment Conservation Act, 1995 & Environment Protection Rules, 1995	Provision for environmental clearance.
Forest Act, 1927	Allocation of fish management responsibilities in mangrove areas to the Forest Department.
National Water Policy, 1998	Details of multisectoral water users needs against an unisectoral approach
Shrimp Mohal Management Policy, 1992	Identification and declaration of shrimp areas
Registration of shrimp gher/ farm, 1998	Keeping records of shrimp farms.
National Land Use Policy, 2001	Allocation of land for shrimp culture and land zoning
Industrial Policy, 1999	Declaring frozen food industry a "trust sector"
Export Policy, 1997-2002	Promotion of export and consequent promotion of shrimp culture
The Shrimp Cultivation Tax Act, 1992	Establishes rules for tax on land used for shrimp cultivation with Water Development Board in an appraising role for fixing tax rates.

Human rights violation issues of this 2nd largest export earning sector are not addressed in the national policy frameworks and in local level very few organizations seems to be interested to address rights issues. Besides, lack of clearly defined policy guidelines, provides scope to the outsiders to get permission from the local government for shrimp cultivation in wetlands. Although the collection of wild post-larvae has been banned for the last four years, the practice continues on a smaller scale.

Pokrant and Bhuiyan (2001) shows that the main institutions and organizations that influence shrimp sector are: government organizations, NGOs, donor agencies, cooperatives of shrimp farming groups, and local union Parishad (council)[16]. In addition, there are informal associations of landless, farmers and others, which lack the institutional capacity to mobilize their supporters on a continuous basis. Major stakeholders of the National Shrimp Policy such as Government of Bangladesh, Bangladesh Frozen Food Export Association (BFFEA), Journalists, Development Activists, Government Officers, shrimp laborer, shrimp farm owners, civil society members, Ministry of Fisheries, Ministry of Agriculture, Bangladesh Water Development Board (BWDB).

2.5 Technical face of the commercial shrimp farming

The technical face of the shrimp includes the establishment of shrimp farm, shrimp processing according to the national rules & regulations, international standards, buyer specifications and the regulatory requirements of the importing country for global markets. Bangladesh Standards and Testing Institutes (BSTI) issued quality control licenses are required to export shrimp. The Bangladesh Environment Act 1992 and Bangladesh Environmental Regulation 1997 are the legal instruments for monitoring environmental impacts of shrimp production & shrimp farms. The government is bound to ensure sustainable use of resources under the Environment Policy 1992. The shrimp processing farms are required to complete Initial Environmental Examination (IEE) before the establishment of farm. In addition, the shrimp farms are also required to obtain the Environmental Clearance Certification (ECC) from the Department of Environment (DOE). Shrimp farms have to submit an effluent treatment plan and an environment management plan to the DOE for obtaining ECC.

Commercial shrimp farming in Bangladesh has developed without any sensitivity to local knowledge, practices, preferences and resource use. The shrimp sector in Bangladesh has yet been facing difficulty in maintaining hygiene perspective during the handling of raw shrimp as well as follows modern sanitary practices, safety standards and quality requirements due to absence of high quality water and ice, irregular electricity supply, poor infrastructure, transportation facility, lack of resource for environment friendly equipments and trained staff etc.

Most of shrimp farms are not following the Global Aquaculture Certification Council and EurepGAP standards on Mangrove Conservation and Biodiversity Protection (for example, Shrimp farms shall not be located in mangrove areas or coastal wetlands and must not damage wetlands or reduce the biodiversity of coastal ecosystems). Since shrimp cultivation occurs in a closed or semi-closed system, there is potential for waterlogging and increased salinity levels to alter drainage patterns and the quality of the soil. To make the situation more degrading, the shrimp producers keep on adding extra salt into the water during heavy monsoon rainfall to ensure better growth of shrimp which increases the level of soil salinity. This malpractice have already causes about to extinct of many fresh water fish species.

[16] Pokrant R.J. and Bhuiyan S., 2001. The Coastal Shrimp Sector in Bangladesh : Review of the Literature with Annotated Bibliography. Bangladesh Centre for Advanced Studies, Dhaka, Bangladesh

Shrimp farms are vulnerable to natural disasters, price fluctuations in the global market, and market demand. Although the frozen foods export is the second largest export sector of the country, continued product quality is still a major challenge in the shrimp sector. Viral outbreaks in the shrimp farms often hamper the production target. Moreover, natural hazards each year many shrimp enclosures are wiped out. Viral contamination in shrimp farms has also brought about tremendous losses not only to the shrimp, but also to the biodiversity in areas under cultivation by semi-intensive methods.

Shrimp processing in Bangladesh is largely concentrated in two general areas: the cities of Chittagong and Cox's Bazar, and the districts of Khulna, Satkhira, and Bagerhat. Fish processing plants are running at an average of 15-20 % of their total production capacity. Out of 128, 80 sea food processing plants only 57 are approved by EU. This export-oriented shrimp industry includes many sub-sectors like hatcheries, sustainable aqua-culture technology, Feed meals plants and processing unit for value-added products. To attain international standard quality production, the shrimp industry needs proper attention of all the subsectors.

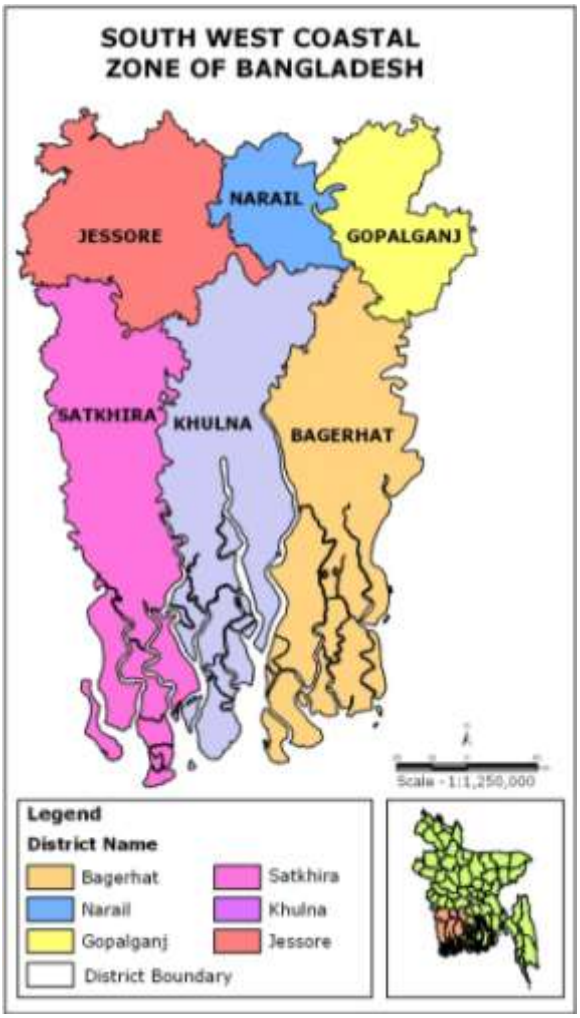
Due to the pressure from international shrimp buyers, the government of Bangladesh made it mandatory for shrimp processing farms to follow the guidelines contained in Hazard Analysis Critical Control Points" (HACCP). The main concept of HACCP system is to follow or maintain quality and safety programs set under HACCP system at every step of marketing starting from production place to the last point. However, the HACCP related information is not readily available. The number of the rejected consignments of shrimp from the EU due to detection of the harmful antibiotic 'Nitro Furan' in prawn bodies has led to the annoyance of the EU buyers (Khan, 2006). According to the EU directives, the exporters are required to send their shrimps to Singapore. Bangladesh government has made testing of the prawn bodies mandatory before their shipment to the European Union (EU) countries. The Fisheries Department has not yet operated the newly developed polymerase chain reaction (PCR) lab for detecting the presence of the virus. The government has yet to determine the fees that farmers will be charged for the testing process.

Chapter Three

Commercial shrimp farming impact on the SW Coast of Bangladesh

3.1 Overview of the South-West Coastal region of Bangladesh

The Southwest Coastal Region of Bangladesh is unique in its environmental nature and is one of the most fertile regions in the world. It is also very rich in natural resources. The zone (shown in map) includes 6 districts (Khulna, Satkhira, Bagerhat, Gopalganj, Narail, and Jessore) out of the 19 coastal districts as well as the 6017 square km Bangladesh portion of Sundarban mangrove forest, which has a total area of about 10,000 square km. The rest of the Sundarban lies in West Bengal, one of the State of India. The southern part of the region has a brackish water regime, while the northern portion has fresh water.



The region lies between $21^0$30' and $23^0$15' North longitudes and 89000' and 90000 East latitudes covering an area of 14000 km^2 and is 300 km away from the capital city Dhaka. The area. The landscape is level to gently undulating flood plain dissected by a network of river systems. The region is made up of the old Ganges river channels which supports the Sundarbans, the largest continuous mangrove forest in the world.

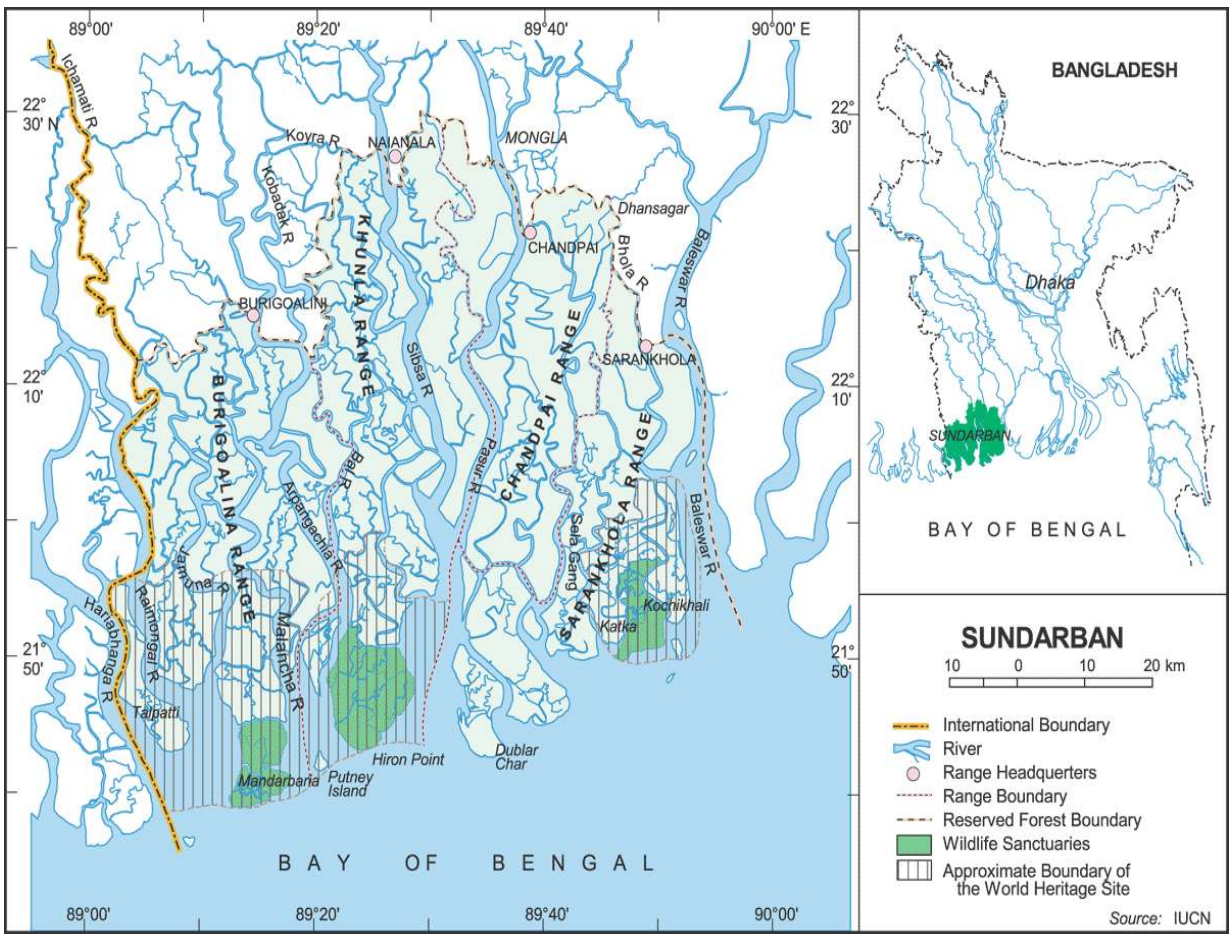
The region's climate is salt-laden air throughout the year, especially when winds blow from the sea, humidity and saltiness increases to the south. The maximum and minimum temperatures usually range from 29°C to 4°C and 5°C to 15°C. Average annual rainfall during the period 1965 to 1990 was about 1750mm. The relative humidity ranges from 64-75% in the dry season and 75-87% in the wet season. Most of the areas are between one to three meters above mean sea level and have a southward regional slope.

People in the southwest region are highly dependent on the natural resource base in sustaining their livelihoods. Agriculture and fisheries are important economic sectors, employing the major population, and aquaculture is increasingly being pursued as an alternative livelihood option for rural households.

Situation in Southwest Coastal Region of Bangladesh

The water situation in the Southwest Coastal Region of Bangladesh is, to say the least, extremely serious. Briefly stated, the Key challenges are :

- Nearly 2 million hectares of land affected by dry season salinity;
- Population is increasing @ 1.8% p/a, and poverty and widespread food insecurity are rampant;
- Healthcare facilities are very insufficient, and the main water-related problems are Arsenic and Salinity intrusion
- Deteriorating wetland ecosystem and continued deforestation;
- Deteriorating soil quality;
- Most of the rivers in the region are silted up and incapable of carrying large quantities of water during floods;
- Riverbank erosion; increasing water pollution (shrimp, agro-chemicals, lax sanitation etc.)
- Ignorance about and lack of appreciation for appropriate indigenous knowledge and technology;
- Lack of effective participation of women in decision making;
- Lack of effective community participation in decision making;
- Insufficient dry season flow to provide ecological security, navigation and fisheries;
- Gap in National policies to identify and solve the problems of this region; and
- Weak Regional Cooperation.



3.2 Impact of Shrimp farming in the SW coastal region of Bangladesh

The unplanned and externally controlled mode of shrimp farming could be branded as the key root cause of current environmental degradation and livelihood insecurity in the southwest coastal region of Bangladesh. The introduction of commercial shrimp farming has created a major shift in the socio-economic structure of the Southwest Coastal Region of Bangladesh. The principal economic activity in the region at present is shrimp aqua-culture. The agricultural lands of the region have now been transformed into shrimp ponds known locally as "gher". Experts have recommended[17] that shrimp cultivation should be limited to the high salinity zones and part of medium salinity zones, where shrimp cultivation is economically more profitable. However, existing shrimp culture yet fail to address its negative impacts on ecosystem functions.

Destruction of the Sundarban mangroves and loss of biodiversity: Sundarban is globally important as a Ramsar site in the "List of International Important Wetlands" and "World Heritage Site". The area under shrimp culture tripled in 10 years, from the mid-1980s to the mid-1990s, covering 130,000 hectares by 1999. In the process, mangroves have been removed and replaced by coastal shrimp ponds. Indiscriminate conversion of the mangrove forests into shrimp farms has resulted in the destruction of marine breeding grounds and the erosion of shorelines.

	WILD LIFE SANCTUARIES	Location	Area (ha.)	Established
1	Sundarban (East) Wildlife Sanctuary	Bagerhat	31226.94	1960/1996
2	Sundarban (West) Wildlife Sanctuary	Satkhira	71502.10	1996
3	Sundarban (South) Wildlife Sanctuary	Khulna	36970.45	1996

Source: Bangladesh Forest Department Website, 2007

Example of Mangrove Forest (Chakoria, Chittagong) loss by shrimp farming in Bangladesh

Issue of Chakoria Mangrove Forest (Chittagong) degradation	Severity of loss	Estimated loss of mangrove area *(%)*	Monetary loss *(Tk. In million)*	Economic loss *(%the total GDP in 1994)*
Loss of Mangrove Forest	Totally lost	1.5 % of the total mangrove area in Bangladesh 0.46 % of the total forest area		
annual income loss from mangrove			196.1 million/year	0.02% of GDP
Loss of benefit from the medicinal plants of mangrove forest			5.3 million	

Source: United Nations Environment Programme (UNEP), 1999: Environmental Impacts of Trade Liberalization and Policies for the Sustainable Management of Natural Resources, A Case Study on Bangladesh's Shrimp Farming Industry

The destruction of the mangroves has far-reaching ecological implications for the whole of the region. A large number of local varieties of fish have disappeared and nutrient content of the soil has diminished, resulting in drastic reductions of land productivity. Viral contamination in shrimp farms has also brought about tremendous losses not only to the shrimp, but also to the biodiversity in areas under cultivation by semi-intensive methods. Many shrimp farmers very often kill mammals and reptiles considering them harmful for the shrimp

[17] Ghafur A, Kamal, M. Dhaly MR, Khatun S., 1999. Socio-Economic and Environmental Impact of Shrimp Culture in South-western Bangladesh: An Integrated Approach, Nijera Kori and IDPAA at Proshika, Dhaka, Bangladesh

i.e., the animals could eat shrimp and share the foods of shrimp. Many of those animals have been almost abolished from shrimp producing localities (Manju, 2000[18]).

Changes in Agricultural pattern: Shrimp farming has adversely affected the potential crop-mix, cropping intensity, crop calendar and the overall cropping pattern in the areas. Shrimp farming has increased the salinity of soil, canals and the ponds within the polders and higher salinity levels have reduced the land area available for grazing and, consequently, the scarcity of fodder has led to a reduction of livestock.

Changes in hydrological characteristics: The shrimp pond construction eradicates natural mangrove vegetation; the construction of canals and dikes alters irreversibly the hydrological characteristics of the coastal areas.

Violation of human rights: The shrimp farming has been promoting a continuous process of violating human rights. The shrimp farmers employed musclemen to protect their farms and these musclemen killed people who raised voice against shrimp farming, raped young women and exploited labors paying low wages.

Wetland degradation and livelihood insecurity: The wetland communities of the Sundarban Impact Zone (SIZ) have been living in harmony with wetlands for nearly 500 years. The livelihood survival of the wetland community is linked with the forest resources of the Sundarbans, aquatic resources of the saline and fresh water wetlands. The negative impact of shrimp farming on the land is manifested through salinisation and water logging. The net effect of salinity in water and water logging is land degradation through a loss of soil fertility, which leads to reduction in production, irreversible damage to traditional economic activities and at the end makes livelihood endangered. Wetlands are turning into water logged areas due to unplanned shrimp firming. Water logging promoted Shrimp farming and now shrimp firms promoting water logging. Social forestry is no longer possible in many areas which have been under shrimp cultivation for relatively long periods of time.

Measurement of decreased wetland because of commercial shrimp farms

Name of the Districts	*Name of the Upazilla*	*Decreased wetlands in hector*
Khulna	Batiaghata	18
	Dumuria	2,238
	Rupsha	400
	Koyra	217
	Paikgasa	4,440
Bagerhat	Mongla	20
	Morelgonj	590
	Rampal	16,750
Satkhira	Debhata	110
	Shyamnagor	90

Sources: Research program of CDP in 2003

Water-logging has created an avenue for the outsider rich people for monoculture of shrimp depriving the community access to wetlands. Even to keep the wetland community away from the wetlands, some of the corrupted government officials re-classified the wetlands to water-

[18] Monju TH., 2000. Commercial Shrimp Culture: Environment, Gender and Socio-economic Changes, OXFAM (GB), Bangladesh

body[19] and leased those out to outsider riches for shrimp farming which is unethical and illegal. It has to be noted that as a party to the Ramsar Convention, the Government of Bangladesh cannot lease out the wetland for monoculture to destroy the biodiversity.

Degradation of water resources through salinity encroachment: The expansion of salinity through shrimp cultivation has been endangering the livelihood of the SW coastal region. The shrimp farms are spreading the saline water in the rivers distributaries, wetlands and pond. The salinity of the cultivated land has increased around 21% within the last three decades in the southwest coastal area (SRDI-2002). In 1973, only 14% of saline land was in the highly saline category, whereas in 2000, it reached 443.9%. Consequently, salinity encroachment has been hampering the crop production and reducing food security. The salinity of the land as well as the areal encroachment of salinity both are expanding simultaneously and quite rapidly. At present, at least 100,700 hector areas is covered by shrimp firms in Satkhira, Khulna and Bagerhat area. Around 56% of the rivers in this area are contaminated by salinity. Water-logging and salinity has caused the death of most of the vegetation in the region, rendering this once bountiful land into a watery desert. Moreover, the shrimp producers keep on adding extra salt into the water during heavy monsoon rainfall to ensure better growth of shrimp which increases the level of soil salinity.

An overview of the valuation of ecosystem degradation by the shrimp farming

Issue of degradation	Pattern	Production loss *(%)*	Estimated amount of Production loss in physical terms	Monetary loss *(Tk. In million)*	Economic loss *(%the total GDP in 1994)*
Land degradation	moderate degradation	45 %	146,160 Mt. of Rice production	1237.6 million	0.11 % GDP
Reclamation cost for degraded land in shrimp cultivating areas (except Chittagong)				2331.6 million	0.22 % GDP
Loss of Livestock the rate of reduction in cattle		(-) 8.9 % per year per household	22,792 cattle	91.2 million	0.01 % GDP
Health Impact mortality cost due to shrimp farm induced water pollution				925.6 million	0.09 % GDP
medical treatment cost due to shrimp farming			Average TK, 97.05 per person	4.7 million	
Losses due to illness related workers' absence at work				3.9 million	

Source: United Nations Environment Programme (UNEP), 1999: Environmental Impacts of Trade Liberalization and Policies for the Sustainable Management of Natural Resources, A Case Study on Bangladesh's Shrimp Farming Industry

The local people have identified two most important problems due to extensive shrimp farming in their localities. One problem is the depletion of fisheries resources and other one is the reduction of plants and trees that affect their lives, livelihood and environment. The rapid growth of the unplanned practice of shrimp farming has drastically reduced the mangrove forests and destroyed the breeding habitat for many fishes and hampering the traditional livelihood practice as well as creating social conflict among the local communities within the Sundarban Impact Zone (SIZ). As the profits from industrial shrimp farming is comparatively high, the rural elites and the urban influential investors introduced the present practice of shrimp farming and want to maintain the practice as it is.

[19] Water-body is lease-able common resources as per the government policy but the natural wetlands can not be leased out.

Chapter Four

Community-based Certification for Responsible Shrimp Farming

4.1 Responsible shrimp farming: The need of a CLOSER paradigm

Corporate Social Responsibility (CSR) is about how business takes responsibility for its current, past as well as future actions in the world as a whole. CSR is not legal obligation, rather voluntary social and environmental positive initiative to establish an image of environmentally and Socially Responsible Business. CSR perform through a set of policies, practices, and programs that are integrated into business process (operations, productions, and decision making) of the company. CSR could be viewed as a value-based transformation of profit oriented corporate approach to a social responsibly approaches because it concentrates on accountability of business to all stakeholders, not merely to the company stockholders.

The overall status of responsible corporate practices in Bangladesh is still very meager due to the lack of Good Governance, absence of strong labor unions or consumer rights groups, and inability of the business community to perceive importance of CSR. AT a Roundtable organized by CSR Center of Bangladesh Enterprise Institute, held on Thursday, 23 February, 2006, speakers identified lack of expertise, poor accountability as major obstacles to practicing CSR in Bangladesh. Some incidents like EU ban on Shrimp or rejection of shipments from the importer has taught the local business community about the importance of CSR and adoption of the international certification practice. The process of globalization has also provided a sense of necessity for practicing CSR in Bangladesh.

4.2 Corporate Local, Social & Environmental Responsibility (CLOSER)

People or consumer expectations are very important aspect of the modern business area. One study[20] found that 72% of respondents stated that they would be more likely to buy seafood bearing an environmentally responsible label. Consumers are interested in the social and environmental conditions under which their purchases are produced[21]. More than two-third (70%) of European consumers across 12 European countries have revealed that a company's commitment to social responsibility is important when buying a product or service.[22] According to another survey, three quarters (75%) of the opinion elite in 10 countries (people who are among the top 10% of each society in terms of media consumption,

[20] Seafood Choices Alliance (2003), The Marketplace for Sustainable Seafood: Growing appetites and shrinking sea, Washington D.C. (http://www.seaweb.org/documents/PR_2003.6.5.pdf)
[21] UNEP (2005), The Trade and Environment Effects of Ecolabels: Assessment and Response. (http://www.unep.ch/etb/publications/Ecolabelpap141005f.pdf)
[22] MORI (Market and Opinion Research International), on behalf of CSR Europe (2000), The first ever European survey of consumers attitudes towards corporate social responsibility, CSR Europe, Brussels, Belgium, November 2000.

interest in public policy and civic participation), have purchased a company's products or services in response to positive news about a company's social responsibility[23]. These surveys envisage the potentiality of redefining Corporate Social Responsibility (CSR).

CSR in commercial shrimp farming is yet in preparatory phase, mainly focused on sustainable production in terms of environmental dimension, not on social aspects. Many fisheries companies have been working to comply with international fishery regimes including the FAO Code of Conduct for Responsible Fisheries. Perhaps, for shrimp farming CSR is not adequate to ensure responsible aquaculture. The term "Corporate Environmental Responsibility (CER)" could be introduced to ensure that environmental dimension of the business is not overshadowed by the social dimension.

Considering the social, environmental and local issues integrated commercial shrimp farming, the present study would like to rename CSR as CLOSER (Corporate Local, Social & Environmental Responsibility) so that Corporate Environmental Responsibility (CER) could be intergrated. In this context, we wouldlike to stress on the term "Local" which represent the immediate vicinity of the production or production impact zone so that in the name of broader social gain, even the few people or small neigborhood must not be neglected.

One study has documented a strong association between poverty (income levels) and environmental problems related with pollution, water and sanitation, solid waste and the risk of disasters, e.g. floods[24]. The long chain of interdependence observed in the shrimp cultivation and processing in Bangladesh is likely to create a chain reaction when any shock affects the sector. Corporate Local, Social & Environmental Responsibility (CLOSER) should be viewed as an investment for risk reduction and quality management, not a cost. CLOSER could be an effective tool for protecting ecosystem & community at local production level as well as to promote Environment-Friendly Export-Oriented Shrimp Cultivation. Active participation of the community in CLOSER is expected to reduce the monitoring and enforcement cost.

4.3 Prospects of Community-based Certification for the Shrimp Farms

People's concern over food safety, environmental and social sustainability of shrimp production, have influenced market for introducing certification of aquaculture products, to credibly ensure that the shrimp farming practices are non-polluting, non-disease transmitting and/or non-ecologically threatening[25].

Certification is a process of supplying information to the marketplace for enabling the consumer to make purchasing decisions with knowledge and confidence. The certificate, label, symbols or logos are tools to provide information on overall characteristics of the product at the point of purchase. It is quite known that there current shrimp certification systems are non-participatory and do not incorporates the social problems linked with the shrimp industry. Some certifications are highly qualitative or descriptive.

[23] APCO (2004), Communicating CSR: Talking to people who listen, Washington, D.C.
[24] Smith D, Timberlake M (2002). "Global Cities" and "Globalization" in East Asia: Empirical Realities and Conceptual Questions. University of California. Paper 02-09. http://repositories.cdlib.org/csd/02-09
[25] The state of world aquaculture 2006. FAO Fisheries Technical Paper. No. 500. Rome, FAO. 2006.

SELECT STANDARDS	DESCRIPTION OF THE STANDARD	SCOPE OF COMMUNITY INVOVEMENT
Global Aquaculture Alliance /Aquaculture Certification Council (GAA/ACC) Standard 4- Environment: Mangrove Conservation And Biodiversity Protection	• "Shrimp farms shall not be located in mangrove areas, seagrass beds or other coastal wetlands. • Farm operations shall not damage wetlands or reduce the biodiversity of coastal ecosystems. • Mangroves removed for allowable purposes shall be replaced by replanting an area three times as large. • If suitable replanting areas are not available on or near a farm, proof of financial contribution to a recognized mangrove reforestation project shall be provided. • Certified farms shall not discharge effluents into public mangrove areas and the total suspended solids in discharge effluents do not exceed 100 mg/L or 50 mg/L after five years. • All farms in mangrove areas are encouraged to demonstrate mangrove stewardship by replanting mangroves or contributing to reforestation. Farms should restore mangroves or other wetland vegetation in the abandoned areas.	1. Demarcation & Monitoring of suitable Shrimp farms location 2. Shrimp Farm related damage of the wetlands 3. Monitoring Shrimp farms impacts on biodiversity & ecosystems. 4. Identifying & Monitoring suitable mangrove replanting areas 5. proof of financial contribution to a recognized mangrove reforestation project 6. Monitoring discharge effluents of the shrimp farms 7. Monitoring the status of restoration of wetlands vegetation 8. Development of local mangrove stewardship norms for the shrimp farms
GAA Standards 1-3: "Community Relations"	• Shrimp farm management should schedule meetings with local communities to exchange information. This is particularly important in the planning stages for new farms or expansions. • Local workers should be employed to the extent possible, and all practical means made to prevent conflicts between local people and workers from outside	9. Periodic update of the shrimp farm status 10. Approval of the new farms or expansions 11. Monitoring the local labor involvement 12. Conflict identification & resolution
General Principle II. Principles of Management (Naturland Standards for Organic Aquaculture)	• It is not permitted to remove or damage mangrove forest for purposes of construction or expansion of shrimp farms.	13. Approval of the new farms or expansions
International Principles for Responsible Shrimp Farming, Principle 1 – Farm Siting	• No net loss of mangroves or other sensitive wetland habitats. • Do not locate shrimp farms on sandy soils or other areas where seepage or discharge of salt water may affect agricultural land or freshwater supplies mangrove restoration	14. Monitoring loss of mangroves or wetland habitats 15. Demarcation & Monitoring of suitable Shrimp farms location

Shrimp certification is already recognized a tool for global market access issue. However, the certification process has not yet up to the people's expectations. Community based certification process might fill the missing grassroots human dimension of the existing certification system.

4.4 Community Certified Eco-friendly Shrimp Farms (CECOS)

In Bangladesh, the rich and the power elites are increasingly gaining greater control over the natural resources, who very often overexploit the resources without considering the future productivity and sustainability of the resources base (Rahman et al, 2002[26] and Ahmed,

[26] Rahman A.A, Mallick D.L., Haque N., and Nishat A., 2002. Trends in Natural Resource Management in Bangladesh: Looking for Integration and a New Institutional Framework, A workshop Paper of BCAS and DFID Bangladesh, Dhaka

2002[27]). Non-resident shrimp entrepreneurs control the shrimp culture in Bangladesh. The non-resident entrepreneurs of export-oriented shrimp culture used to produce shrimp in leased-in lands and have no motivation to practice sustainable shrimp farming as well as have no social obligations to the area. Moreover, common property resources like open water bodies and community grazing lands are gradually becoming the property of large shrimp farmers due to illegal occupation.

Increasing consumer awareness of environmental issues in developed countries has generated demand of environmental information of products. However, internationally acceptable product certification labeling requires adherence to complex guidelines for accreditation and would be unfeasible for small farms. Community Certification can offer better management of natural resources, conservation and sustainable use of bio-diversity in their respective locality.

Research NGOs can play role for collection, compilation, analysis and time series update of the quality and quantity of data on the shrimp farming. As the cost of acquiring information on certification and standards may be high for small farms or beyond the capacity of the small farms, NGOs can assist in the certification process. Grassroots NGOs can also offer infrastructural facility to reduce the infrastructure development cost for certification and labeling. NGOs can also offer training to the shrimp farmers and all categories of shrimp workers because hiring of consultants for training is difficult for small farms.

Standards and codes require significant investments in supporting infrastructure: reliable and well-regarded inspection and accreditation capacity is needed; extensive training is required, including for poorly educated or illiterate producers; materials such as specialist clothing or IT equipment may not be available locally. Shrimp buyers and retailers must take responsibility to recognize local knowledge base and any shrimp Certification must account for social and environmental externalities in production.

The promotion of CECOS as a part of the EurepGAP & ACC standards may improve existing farms in inter-tidal and mangrove areas through mangrove restoration, retiring unproductive ponds and increasing productivity of remaining farm areas above the inter-tidal zone will have an impact on current policies & practices.

The market research has recognized that consumers prefer products and services that produced under responsible production conditions and they are also willing to pay a higher price for such products. However, shrimp buyers have not shown any interest to pay more for products bearing a certification mark that is accredited by the local community & civil society as certifiers.

The global trend of shrimp business envisages that without informing consumers about sustainable farming practices, it will be gradually difficult to sell the shrimp products. The global retail giants of shrimps can play important role for linking local community with the local

[27] Ahmad M., 2002. Governance of Natural Resources in Bangladesh: Changing a Limping Mule into a Flighty Horse - Local Governance in Bangladesh, A Workshop Paper, BCAS and DFID Bangladesh, Dhaka

producers by forcing them to seek community certification in order to remain in their suppliers list. The mangrove re-plantations would help to reduce the negative image of the shrimp industry as the destroyer of mangroves. It has to be noted that after the tsunami hit, some areas buffered by coastal forests, like mangroves, were found to be less damaged than areas without tree vegetation, highlighting the protective services of mangroves (Danielsen et al. 2005[28]).

4.5 Future of Commercial shrimp farming in Bangladesh

USAID based on the comparative advantages of Bangladesh over Thailand and Vietnam in terms of "availability of cheap labor and ample water resources", has predicted that shrimp exports from Bangladesh would increase to approximately $1.5 billion annually by 2010 if certain production problems were overcome. If environmentally sustainable shrimp production practice can be ensured it is believed that the country will benefit not only environmentally but also economically though such achievements are not without costs. The SSOQ estimation[29] has shown that the cost of introducing a Seal of Quality to be in the range of US$500,000 to 2,000,000 with its yearly operating costs of around US$300,000 to 500,000. The potential costs for establishing a hatchery certification scheme are equivalent to US$500,000 per annum, excluding the costs for setting up laboratories (US$265,000).

Government of Bangladesh has made registration compulsory for Shrimp Farm (gher). The shrimp farms are required to be registered without any fees through the Thana Development and Management Committee for Shrimp Resource. However, registration declaration does not indicate to which component of the Shrimp Farm has to be registered. Besides, there is no option for fine or any other punitive measure for noncompliance of registration declaration. If the registration is not limited only to record keeping exercise, it might produce much information that Shrimp Farms may use for certification process.

In shrimp industry, violations of labor laws, health and safety regulations are common picture. The ACC's Best Aquaculture Practices program is very inadequate in Bangladesh. Building social institutions like schools, health care centres for the local people near the ghers and ensuring sanitary and safe drinking water facilities in the areas is an important task. Also, there should be some provisions to ensure that the shrimp farms should also employ the majority of their workers from the locality to decrease social tensions and to address the unemployment caused by the loss of land to shrimp cultivators.

The commercial shrimp sector is dependent on natural, human and physical resources; responsible practice is necessity to ensure long-term sustainability. Shrimp farm associations with support from government and NGOs can provide technical assistance, training and extension services to producers to promote responsible shrimp farming. The strengthening of the local certification and accreditation infrastructure will provide space to flourish the responsible farming. The imposition of tax according to the size of the shrimp farms and

[28] Danielsen, F., M.K. Sørensen, M.F. Olwig, V. Selvam, F. Parish, N.D. Burgess, T. Hiraishi, V.M. Karunagaran, M.S. Rasmussen, L.B. Hansen, A. Quarto, and N. Suryadiputra. 2005. "The Asian Tsunami: A Protective Role for Coastal Vegetation." Science. 310(5748): 643. Online at: http://www.sciencemag.org/cgi/content/abstract/310/5748/643

[29] GOB, (2002) "Shrimp Aquaculture in Bangladesh: A Vision for the Future", Department of Fisheries, Government of Bangladesh.

intensity of pollution apart from the positive revenue effect, may also ensure more environmentally sound production practices. In addition, the international shrimp buyers can stop child labor in the shrimp farms and ensure health support services for the workers.

It is quite known that the international shrimp certification schemes are growing rapidly. International shrimp certification is likely to become a prominent decision-making tool for the shrimp aquaculture industry over the coming years and a significant percentage of the global production of farmed shrimp would be certified by at least one scheme within the next 5 years. Given the interest of major retailers in the US and Europe, it can be reasonably anticipated that International Shrimp Buyers and Consumers will play significant role to ensure ecosystem friendly responsible shrimp farming. Multi-stakeholder platforms at the national level are required to co-ordinate and monitor implementation of standards, codes and value chain innovations, for mutual support and the sharing of good practices.

Background information of the Coastal Development Partnership (CDP)

Coastal Development Partnership (CDP) is human rights focused not-for-profit, and public interest serving research and advocacy organization in Bangladesh. Since 1997, CDP has been implementing various program activities to safeguard the coastal ecosystem from irresponsible commercial shrimp farming, reduce climate change vulnerabilities & environmental degradation, ensure food sovereignty, and establish poor people's rights over the common biodiversity & natural resources in coastal region of Bangladesh. However, on issues like Responsible Shrimp Farming, Climate Change, Food Sovereignty, Nature Conservation, and monitoring IFIs, CDP has achieved leadership & expertise to assist both national & international development process. CDP works with the local community, civil society and grassroots NGOs/CBOs to build their capacity for addressing the challenges of food insecurity & food sovereignty, Responsible Shrimp Farming, loss of biodiversity, ecosystem, climate change, poverty and environmental governance in Bangladesh. CDP regularly monitors the issue of contract farming, monoculture, commercial shrimp farming and the adverse affects of WTO & IFIs (ADB, World Bank) projects. CDP provide capacity building supports to the poor communities for creating relevant people's institution to establish their rights over the common biodiversity & natural resources in all the 19 coastal districts of Bangladesh. CDP is currently operating in the Khulna, Bagerhat, Shatkhira, Jessore, Jhenaidha, Pirojpur Barguna, Patuakhali, Barisal and Gopalgonj districts.

At present, CDP has been implementing a project "Safeguarding Sundarban Ecosystem from Irresponsible Commercial Shrimp farming (SECO)" with the support of EGP of the Netherlands Committee of the IUCN. The project will continue till May 2010. In 2006, with the support of World Fish Center, CDP had implemented a project "Awareness Creation among the shrimp Farmers on socially responsive and environment friendly shrimp culture in the southwest coastal region of Bangladesh". During 2003-2006, CDP had monitored Human Rights, Land Rights, Labor Rights and environmental degradation by the shrimp farms in South West Coastal Region under 'CDP- SSOQ Partnership Program'. In 2002, as a member in the DFID supported Steering Group for the development of Wild Shrimp Fry Collectors, CDP tried to improve the lives and livelihoods of the shrimp fry collectors. The primary Beneficiaries of the CDP development intervention include a wide range of vulnerable livelihood group who are poor, marginalized and dependent on natural resources but have very limited or no access to the renewable natural resources for sustaining livelihood.

CDP

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