



## Poverty and Environment in Bangladesh

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*The Policy brief was written as a desk study, at the request of Sida's Asia department (att: Jan Essner/Helena Thorfinn) and MIL (att: Jörgen Eriksson) by Olof Drakenberg at the Environmental Economics Unit (EEU), Department of Economics, Göteborg University<sup>1</sup>. The aim of the policy brief is to serve as a starting point for a discussion on how environment can be integrated in the Swedish cooperation strategy for Bangladesh. See also the EEU policy brief on Bangladesh and Climate Change.*

### Summary

Poverty reduction in Bangladesh will largely be based on growth in rural agriculture and aquaculture. Recent government interventions to save the Hilsa<sup>2</sup> show both the need for policy action to protect ecosystems upon which the economy rests and the potential for reducing negative environmental trends.

Bangladesh has experienced a yearly GDP growth of about 5 % during the last decade. However, half of the population is still below the poverty line and 85 % of the poor live in rural areas.

The majority of the poor are highly dependent on natural resources and some 80 % of the population depend to some extent on common property resources (open water, wetlands, grazing lands etc). The poor are increasingly excluded from access to common property resources and the quality of these assets is degrading.<sup>3</sup>

Polluted water and air have significant impact on human health causing respiratory infections and diarrhoeal diseases predominantly in rural areas and urban slums. Reduced fish stocks, contaminated water and deforestation are clear signs of unsustainable management of ecosystems and natural resources which directly impacts on the livelihoods of the poor.

Climate change adds to Bangladesh extreme vulnerability for natural disasters including flooding, hurricanes, droughts and tidal waves. The frequency of disasters is expected to increase and food security will decrease.

Implementation of environmental regulatory frameworks is weak due to lack of institutional capacity for monitoring and enforcement. This is further aggravated by high levels of corruption.

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<sup>2</sup> A range of efforts to protect the Hilsa, the most important fish in capture fisheries, seem to have resulted in encouraging recovery. Capture of Hilsa had declined by 60% when measures were set in including the provision of safe breeding grounds, catch quotas etc.

<sup>3</sup> PRSP 2005

The Bangladesh PRSP underlines the importance of sustainable use of natural resources and environmental protection for poverty education. Bangladesh would significantly improve its prospects for sustainable development if environmental priorities in the PRSP would be turned into action.

A strategic priority in the PRSP is to integrate environmental issues in all sectors and plans. *What role could/should Sida play to ensure that this is accomplished in Sida supported sectors?*

### **Key environmental issues for poverty reduction**

Key issues include; water pollution and scarcity, air pollution, biodiversity losses (marine, forests and agriculture), vulnerability to natural disaster and land degradation.

Water pollution and scarcity impacts on economic growth. Causes of contamination include untreated industrial effluents and municipal waste water and runoff pollution from pesticides. Almost half the population are exposed to naturally contaminated arsenic water.<sup>4</sup> Annual costs for inadequate water management in Dhaka have been estimated at US\$ 670 millions<sup>5</sup>. Pressure on water quality is expected to rise with expansion of urban centres.<sup>6</sup> Lower dry season water flows contribute to reduced catches of inland capture fisheries and lower agricultural yields<sup>7</sup>.

Air pollution such as particulate matters are significantly higher in Bangladesh than the regional average<sup>8</sup>. Major sources are vehicles, industry and household burning of biomass.

Biodiversity and functioning ecosystems and ecosystem services form the basis for livelihoods and economic growth. The poorest are often relying on “wild” non-protected biodiversity for food security. Causes of biodiversity losses include population pressure, conversion of forests and wetlands and overexploitation of flora and fauna<sup>9</sup>. Inland and coastal capture fisheries are declining and almost 30 % of inland fish species are endangered.<sup>10</sup>

Natural disasters (hurricanes, droughts, flooding etc) affect Bangladesh more frequently than any other country in the world<sup>11</sup>. In 2004 severe flooding caused an estimated \$ 2,3 billion in property damage and income loss. Climate change will aggravate existing vulnerabilities. Major impacts that threaten development and poverty reduction targets due to climate change are: increased frequency of storms, cyclones and tidal surges, salinity intrusion, drought and floods leading to significantly reduced agricultural yields and food insecurity.

Land degradation relates to degraded quality of soil (nutrient losses, salinity etc) and loss of land. Causes for land degradation include: unplanned land use, encroachment on forest areas for agriculture and contamination from industries, pesticides etc. Salinity intrusion in coastal areas has impacted on mangrove forests and agricultural productivity.<sup>12</sup> Although official figures report an increased forest cover other sources indicate that deforestation continues at a rate of more than 1,3 % per year.<sup>13</sup>

### **Economic development and the environment**

Natural resource based sectors provide employment for the majority of the people. About two thirds are employed in agriculture and 10 % are employed in fisheries. The seafood sector is the second

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<sup>4</sup> Contamination levels above WHO recommendations. (World Bank, 2005).

<sup>5</sup> Estimated costs relates to productivity losses in industry and agriculture and impacts on human health

<sup>6</sup> World Bank (2005)

<sup>7</sup> Agricultural yields, fisheries etc rely on inflow of freshwater from the upstream countries during the dry season. Regional cooperation regarding water regulation is important. Indian damms have caused tension between the two countries.

<sup>8</sup> World Development indicators (2005)

<sup>9</sup> PRSP (2005)

<sup>10</sup> UNEP (2002)

<sup>11</sup> World Bank, 2005

<sup>12</sup> PRSP, 2005

<sup>13</sup> This means that 1,3 % of the forest cover is lost every year. (Asian Development Bank, 2005)

largest source of foreign exchange and fisheries are estimated to provide two-thirds of the population's animal protein needs.

The PRSP singles out agriculture and rural development as the priority sector to achieve rapid poverty reduction. The ambition is to increase agricultural yields and to move from subsistence farming to more diversified and commercialized agriculture. The subsector fisheries is planned to expand mainly through intensified aquaculture of export-oriented species.

Sustainable economic growth in these sectors depends on well functioning ecosystem services (water, fish, purification, nutrient recycling etc). As noted above there are a number of worrying environmental trends that needs to be addressed to reach growth objectives and poverty reduction (including decreasing catches of captured fish, land degradation, deforestation and ground water contamination).

### **Health and the Environment**

Pollution of water and air contribute to about 20 % of Bangladesh total burden of disease (respiratory infections, diarrhoeal diseases, arsenicosis etc). Savings in the area of 1,3- 3,5 % of Gross National Income could be achieved if measures were taken to reduce indoor and urban air pollution and universal access to safe water (without high levels of arsenic) and sanitation. Arsenicosis is estimated to cause significantly less morbidity and mortality than the other causes of bad health even though approximately 36 million people are exposed to water, naturally contaminated by arsenic.<sup>14</sup>

Indoor air pollution is mainly caused by burning firewood or dung for cooking and heating. High levels of particulate matter cause respiratory infections that notably affect women and children and is a major constraint to reaching the MDG on child mortality. Air pollution in urban centres is above all attributed to vehicles. Levels of particulate matters in Dhaka are 4-8 times higher than the local environmental standard requirements and are estimated to cause premature deaths of 3500 children annually. Additionally noise is becoming a

The three largest industrial contributors to water pollution are pulp and paper, pharmaceuticals and metal industries. In the rural area excessive use of fertilizers and pesticides is the main source of run off water pollution.<sup>15</sup> In Bangladesh, safe drinking water coverage is 74 percent while sanitation coverage is only 33 percent (29 percent in rural areas and 57 percent in urban areas), while 25 percent use unhygienic latrines and 43 percent do not use latrines. Despite relative improvements in coverage over the past two decades, the absolute number of people without water and sanitation coverage has increased.<sup>16</sup>

*PRSP priorities include:*

- Reduce number of population not having access (66percent) to sanitation by half in 2006
- Introduce water quality monitoring & surveillance programme
- Build coalitions with NGOs for wider dissemination of fuel-efficient cooking stoves

### **Urban environment**

Dhaka is one of the largest cities in the world and is extremely densely populated. About half of Dhaka's population live below the poverty line. Polluted air and water constitute severe challenges for the projected fast growth of the city. Other cities in Bangladesh face similar risks to human health and ecosystems services such as water purification.

Lack of sewerage systems in metropolitan Dhaka and disposal of solid waste create highly unsanitary conditions. Untreated waste from humans, animals, industries and agriculture infiltrate the groundwater and pollute the surface water. During the dry season with low water flows the pollutions

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<sup>14</sup> Khaliqzaman, 2004.

<sup>15</sup> Asian Development Bank, 2004

<sup>16</sup> World Bank, 2005

levels in surface water are high and unsuitable for productive purposes (agriculture, fisheries, livestock, process water for industry etc). Pollutions levels threaten the capability to provide safe drinking water.

In urban areas the problem with indoor air pollution is aggravated by high concentration of emissions in the ambient air. Noise pollution in Dhaka has become an important health issue.

*PRSP priorities include:*

- Provide fiscal and other financial incentives for reduction of effluents from industries
- Extend solid waste collection service, water points and sanitary latrines in slums
- Prepare and adopt a national policy on urban development

### **Capacity development, institutions, legislation and the environment**

Generally justice, law and order are beneficial for sustainable management of natural resources and ecosystems. Corruption is a major problem for Bangladesh which makes enforcement of legislation more difficult. Bangladesh has a framework for sustainable use of natural resources and environmental protection.<sup>17</sup> However, lack of institutional capacity, including weak enforcement and monitoring is an underlying cause of environmental degradation<sup>18</sup>. Donors and civil society have been important in creating improved systems for managing the environment<sup>19</sup>.

Evaluations of the legislation of environmental impact assessments show that the law has not been adequately implemented. Transparency and public consultation has been lacking in EIA implementation. The Department of the Environment (DOE) is a regulatory and enforcement department. It is highly centralized and lacks significant presence at regional and local level.

Coordination between the DOE, the Ministry of Environment and Forests (MOEF) and line ministries is weak<sup>20</sup>.

Bangladesh is party to six of the eight international environmental conventions that Sida are giving specific attention to. Bangladesh has signed but not ratified the Stockholm convention on persistent organic pollutants and the country is not party to the Rotterdam convention pertaining to hazardous chemicals and pesticides in international trade.

*PRSP priorities include:*

- Fast track operationalization of Anti-Corruption Commission
- Enforce strictly the Environmental Conservation Act and Rules,
- Strengthen professional and resource management capacity of the MOEF and DOE

### **The PRSP and the environment**

“Unlocking the potential” makes strong references to the importance of well functioning ecosystems and sustainable management of natural resources for poverty reduction. Environment is seen as one of four supporting strategies. The PRSP takes a big step in integrating environment into various sectors (water, agriculture, health, disaster management) and promises further mainstreaming of environment in future policy making<sup>21</sup>. Furthermore the PRSP make several links between causes and effects and include government commitments to improve the situation.

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<sup>17</sup> National environmental policy 1992, National environmental management action plan 1995, Environment court act 2000 etc.

<sup>18</sup> Bangladesh State of the Environment 2001

<sup>19</sup> Donors were particularly important for the establishment of legislation for Environmental Impact Assessments, Ahammed and Harvey, 2004

<sup>20</sup> See Ahammed and Harvey, 2004; Momtaz, 2002

<sup>21</sup> The Government need to initiate studies of on the impact of macroeconomic, sectoral, fiscal, and trade policies and pricing of resources on the environment (PRSP, 2005).

The integration would be further improved if the environmental aspects to a greater extent appeared in the respective policy matrixes rather than as a separate matrix on environmental and sustainable development. If these priorities were transformed into action Bangladesh would significantly improve its sustainability. The PRSP lacks rigorous analysis of the constraints to implement these ambitious objectives and it is difficult to judge the realism of the plans.

### **Implications for Swedish Development Cooperation**

Environment is not a sector. The question for Sida is: What does it mean to integrate the environment and sustainable use of natural resources in the sectors of Swedish priority? Or put differently. What can be done within sector programmes to maximize positive impacts on ecosystem services and natural resource assets and to minimize the negative impacts?

#### *General issues*

A strategic priority in the PRSP is to integrate environmental issues in all sectors and plans. What role could/should Sida play to ensure that this is accomplished in Sida supported sectors?

According to the PRSP “The Government needs to initiate studies on the impact of macroeconomic, sectoral, fiscal and trade policies and pricing of resources on the environment”.

Could the donor group or civil society groups follow up on how this progresses?

What does the division of labour within the donor group look like when it comes to environment sector and for mainstreaming environment in all sectors?

How can Sida show support for the work of the ENR sector leads (towards the leads directly, towards the government, within the “Swedish” sectors)?

#### *Sector specific issues for consideration*

##### *Health*

The strong links between health and environment have been elaborated on above.

Health: Points for discussion

- How could the health sector keep track of the health burden that relates to environmental factors (respiratory diseases, diarrhoeal diseases etc)? What are the implications of the findings for preventive health care, information etc? What are the policy implications for other sectors?
- Has the Ministry of Health mainstreamed environment and dependence on natural resources in its programs?

##### *Education*

Lack of knowledge is a problem that increases environmental degradation and negative health outcomes. Better ventilation practices and sending the children outside during cooking can significantly reduce exposure to polluted air. Healthy children raise attendance in schools thus improving education outcomes. Environmental education has been introduced into the syllabus at primary and secondary levels.

Education: Points for discussion

- Has the Ministry of Education mainstreamed environment and Bangladesh dependence on natural resources in its programmes?
- Does the Ministry of Education have significant capacity to ensure environmental education is adequately implemented?

##### *Urban environment and infrastructure*

The environmental challenges for the urban poor have been elaborated on above.

Urban environment and infrastructure: Points for discussion

- How can Sida support environmental integration in the development of a national policy on urban development?

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## Annex 1 Selected Environmental indicators

	Bangladesh	South Asia
Agricultural land (%) of land area	70	55
Forest area (%) of land area	10	16
Annual deforestation (%)	-1,3	0,1
Nationally protected area (%) of land area	0,8	4,8
CO2 emissions per capita	0,2	0,9
Particulate matter in air*	147	69
Rural access to water	72	80
Urban access to water	82	93
Rural access to sanitation	39	23
Urban access to sanitation	75	64

\*(population weighted average, particulate matter  $\mu$ /cubic meter)

Source: World Bank, World Development Indicators, 2005