

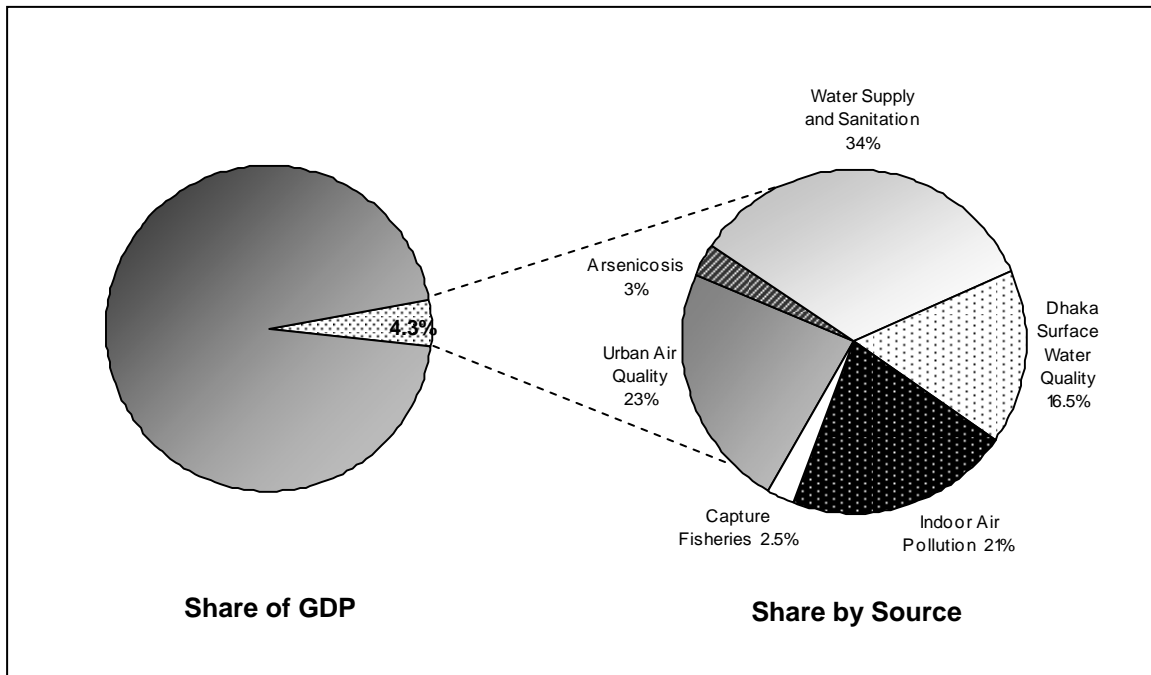
Chapter 7: Environmental Constraints to Growth - Priorities for Additional Action

256. The environmental challenges chosen for analysis in the CEA were selected jointly by MoEF and the World Bank based on their relevance to growth and poverty reduction, as well as a consideration of the additional value of further analysis. These criteria led to the selection of the following five topics:

- environmental risks to human health;
- protection of water quality in Dhaka;
- management of capture fisheries;
- sustaining soil quality; and,
- strengthening institutions for environmental management.

Based on the analysis presented in the preceding chapters of this report, the economic costs associated with these sources of environmental degradation may amount to more than 4% of GDP. The estimated share of each factor is indicated in Figure 7.1, below.

Figure 7.1: The Costs of Environmental Degradation



257. Among the sources of environmental degradation reviewed, the lack of access to safe water and sanitation imposes the greatest costs, equivalent to almost 1.5% of GDP, as a result of the productivity lost through the premature death and sickness caused by water-borne disease. In addition to these losses, the poor quality of surface water in and around Dhaka imposes additional costs amounting to more than 0.7% of GDP, in the form of lost

agricultural and industrial productivity, reduced amenity, and additional health care costs.¹³⁹ The death and disease that could be avoided by reducing urban air pollution to one-fifth of current levels is equivalent to almost 1% of GDP, and the costs associated with indoor air pollution from the burning of biomass fuels are at least as high. Initial estimates of the disease burden associated with exposure to elevated levels of arsenic in water indicate economic costs equal to about 0.13% of GDP, approximately equal to the annual losses from the declining productivity of capture fisheries. The analysis presented in this report found no evidence for falling agricultural yields as a result of declining soil productivity, and while there is significant scope to strengthen institutional capacity for environmental management, no attempt was made to assign an economic cost to poor environmental governance.

258. The costs associated with the sources of environmental degradation analyzed in this report, and the fact that in all cases the poor are most severely affected, together form significant constraints to the achievement of Bangladesh's goals for growth and poverty reduction. The following sections of this chapter consider the extent to which adequate initiatives are underway to address these constraints, and identify priorities for additional action, including potential World Bank support. While this report estimates the economic losses associated with the environmental impacts considered, it does not provide a benefit-cost or cost-effectiveness analysis of the proposed mitigating actions. It will be important to examine the costs of the proposed actions in more detail as an element of the follow-up work in each of the priority areas.

I. Environmental Risks to Health: the Need to Better Address Air Quality

259. This report estimates that initiatives to reduce exposure to environmental health risks could result in economic savings equivalent to as much as 3.5% of GDP. This would be achieved mainly by improving access to adequate sanitation and safe water supplies, and by reducing exposure to indoor and urban air pollution, which together account for about 97% of the environmental factors contributing to the burden of disease.

260. The wide range of initiatives underway to improve access to water supply and sanitation was reviewed in the World Bank's Country Water Resources Assistance Strategy, 2005. In addition to the Government's Total Sanitation Campaign, a variety of schemes are supported by a number of development partners including the Water and Sanitation Program for South Asia, ADB, UNDP, the Government of the Netherlands, DANIDA, WHO, JICA, WaterAid, UNICEF, and many national NGOs. The World Bank is also actively engaged in this sector, both through the Dhaka Chittagong Water Supply and Sanitation Project currently under preparation, and the ongoing Bangladesh Water Supply Program Project, which represents an important step towards the integration of arsenic mitigation into an overall vision for safe water supply.

261. While significant resources are committed to improving water supply and sanitation, air pollution attracts relatively little attention, although respiratory infections and disease

¹³⁹ To avoid double-counting, the economic costs associated with Dhaka's poor surface water quality are adjusted in Figure 7.1 to exclude (i) lost productivity as a result of water-borne disease, and (ii) reduced fisheries production. Health care costs are retained, as these are not included in the estimate of productivity lost due to poor access to water and sanitation. As a result of these adjustments, the estimated annual cost of poor surface water quality in Dhaka indicated in Figure 7.1 is about US\$360 million, compared with the total cost estimate of US\$400 million provided in Chapter 3.

caused by poor air quality, both indoor and urban, may contribute up to 10% of the total burden of disease, equivalent to the diarrhoeal disease caused by inadequate access to safe water, lack of sanitation and poor hygiene. Indoor Air Pollution (IAP) in particular remains almost entirely ignored, and urban air quality continues to deteriorate, despite a temporary improvement following the 2003 ban on two-stroke three-wheelers in Dhaka. To help address IAP, the World Bank plans to provide technical assistance to explore sustainable delivery models for the information and technology necessary to reduce IAP exposure. The Bank is also supporting efforts to better control urban air quality through the on-going Air Quality Management Project, for which a follow-up operation is under consideration, focusing on gross diesel polluters, fuel quality, and the expansion of air quality monitoring both within the capital and to other major cities. While exposure to agro-industrial toxics represents a relatively small, but growing share of environmental health risks, the World Bank is also prepared to assist the DoE address this challenge, including through the use of global resources to identify and control the risks posed by Persistent Organic Pollutants (POPs).

II. Protecting Environmental Quality in Dhaka: a Focus on Water Quality

262. Environmental quality in the capital city faces the triple threat of air pollution, inadequate solid waste management, and contamination of surface water. While initiatives are underway to better manage air quality and solid waste with the support of the World Bank and JICA respectively, little has yet been done to improve water quality, identified as a priority for World Bank engagement in the Bangladesh Country Water Resources Assistance Strategy (2005). The total economic cost of the poor management of water resources in Dhaka is estimated at US\$670 million annually, including impacts on human health, as well as industrial and natural resource productivity. Given that economic activity in Dhaka contributes about one-fifth of GDP, environmental constraints to growth in the capital constitute a national priority.

263. Improving the quality of surface and groundwater in and around Dhaka will require significant public and private investment. The rehabilitation of the existing sewerage and drainage system is alone projected to cost about US\$100 million. In response to the Government's request, the World Bank is helping prepare a project to improve sewerage, sanitation and storm water drainage services in Dhaka. A proposed separate initiative to strengthen the management of environmental quality and water resources would supplement these investments with support for appropriate treatment technologies targeting industrial effluent. Environmental compliance initiatives will form components of both these projects, as well as planned support for private sector development.

III. Natural Resources under Pressure: Protecting Capture Fisheries

264. With population density among the highest in the world, pressure on natural resources in Bangladesh is necessarily high, and this report considers the impact of this pressure on capture fisheries and soil productivity. As a Forest Sector Review was recently completed, the pressure on forest resources was not considered, although the land area under forest cover is the second lowest in South Asia and most of the nation's natural forests are significantly degraded.

265. Agriculture accounts for some 21% of GDP, and the ability of soil to sustain agricultural production is an issue of national concern. Declines in rice yields in some areas

of Bangladesh in the mid-1990's led to a decline in soil productivity being inferred. The analysis of more recent data presented in this report indicates, however, that yield trends are stable or increasing, and that earlier assessments were influenced by a period in which yields were below trend. Nevertheless, there remain causes for concern, including evidence that fertilizer inputs are imbalanced and nutrient mining is occurring, suggesting that greater attention to the monitoring of soil quality is warranted.

266. Bangladesh's fisheries are estimated to provide two-thirds of the country's animal protein needs, which is twice the regional average and the seventh highest in the world. Capture fisheries and associated wetlands play a particularly important role in the nutrition and welfare of the poor. There is general consensus, however, that inland and coastal/marine capture fisheries are in decline. Threats include losses of floodplain habitat due to agriculture and urbanization, lost connections along critical fish migration pathways, significant reductions in dry season river flows, over-fishing, and rapidly increasing industrial, human and agricultural pollution. Almost 30% of all inland fish species are in some danger of extinction, and there is a fear that the inland major carps, Indian Salmon and other coastal inshore fisheries, may be in danger of collapse. The value of the production currently lost each year is estimated at about \$60 million, with the nutritional and livelihood consequences being felt most severely by the poor.

267. The remarkable recovery of Hilsa in 2004, most likely as a result of Government management activities, demonstrated that recovery of the capture fisheries is possible if political will combines with good management. The actions needed to reverse the decline of Bangladesh's capture fisheries are reasonably clear, and a framework for their implementation is provided by the Government's draft Inland Capture Fisheries Strategy. The Aquatic Biodiversity Conservation Project (closed in 2005) and the Fourth Fisheries Project (closing in 2006) were supported by the World Bank, and among other achievements led to the development of this strategy. The Bank is prepared to provide further assistance to support the implementation of the strategy and strengthen community management of fisheries, as well as regional collaboration for the management of marine and coastal resources in the Bay of Bengal.

IV. Environmental Governance: an Over-Arching Concern

268. An over-arching theme that emerges from this report is the need to improve environmental governance to strengthen incentives for behaviour and investments that lead to better environmental quality. The most important governance elements to support such incentives are access to environmental information, transparency and consultation for accountable decision-making, adequate institutional capacity for credible enforcement, and economic policies that promote improved environmental performance.

269. Strengthening environmental management in Bangladesh will require action on a number of fronts, from enhanced inter-sectoral coordination by the National Environment Council, through mainstreaming of environmental management capacity in sectoral agencies, down to wider public consultation by Union Parishads. It is clear, however, that essential requirements for better environmental management in Bangladesh are additional resources for the DoE, and improvements in the transparency of its functioning. Despite its critical and wide-reaching mandate, the DoE currently receives less than 1% of MoEF's annual budget, which itself is less than 0.5% of the Government's total revenue and development budget.

With the support of CIDA, DoE recently undertook an institutional assessment and developed a Strategic Plan to clarify its goals, expected results and major initiatives. Securing the financial support necessary to implement DoE's Strategic Plan will be challenging, and must be accompanied by improvements in transparency and accountability to enhance the credibility of the effort.

270. Given the continued availability of technical assistance resources for DoE, particularly from CIDA and UNDP, the most important role for the World Bank will be to help address the revenue budget implications of the Department's Strategic Plan through dialogue with the Ministry of Finance and the World Bank's ongoing program of development policy lending. Such efforts may be complemented by planned World Bank support for the strengthening of local government, which provides an avenue to increase consultation and accountability for environmental decision-making at this level.

V. Priorities for Additional Action and World Bank Support

271. Among the environmental challenges considered in this report, a number are being addressed through a range of initiatives that are already underway or planned, and a few pose risks that are relatively less pressing. The following three concerns emerge, however, as priorities currently receiving insufficient attention given their relative significance:

- the threat of air pollution to human health;
- the need to better control urban and industrial effluent in Dhaka; and
- the continuing decline of capture fisheries.

The economic losses associated with these three environmental challenges alone may amount to more than 2.7% of GDP, in each case with the poor suffering disproportionately as a result. In addition to these three sectoral priorities, an over-arching concern is the need to strengthen environmental governance.

272. To better address these challenges, this report recommends that the World Bank provide additional support for action in each of these three areas. Such support could take a variety of forms:

- to reduce exposure to IAP, it would be appropriate at the current stage of understanding for the World Bank to provide further technical assistance to explore sustainable delivery models for the necessary information and technology. As urban air quality continues to deteriorate, the Bank will maintain support for the on-going Air Quality Management Project, as well as a possible follow-on operation;
- in response to the Government's request for assistance in better managing effluent in Dhaka, the World Bank is helping prepare a project to improve water supply, sewerage, sanitation and storm water drainage services in Dhaka. In addition, the World Bank would be prepared to support a separate initiative targeting industrial effluent, drawing on proposed further analysis of industrial environmental compliance and pollution control in the city. Environmental compliance initiatives may also form a component of planned support for private sector development;

- with the Fourth Fisheries Project closing in 2006, the Bank is prepared to provide further assistance to support the implementation of the Inland Capture Fisheries Strategy developed under this project, and to strengthen community management of fisheries. The Bank is also prepared to support the development of a strategic action plan for the management of marine and coastal resources in the Bay of Bengal, for which an ecosystem approach would be adopted to foster regional collaboration in addressing the transboundary issues.

To help strengthen environmental governance, the World Bank will use the ongoing program of development policy lending to help address the revenue budget implications of the DoE's Strategic Plan. The need to implement the DoE's Strategic Plan is reflected in the policy matrix for the series of Development Support Credits supported by the World Bank, and will continue to be incorporated in future development policy lending discussions. In addition, proposed support for the strengthening of local government provides an opportunity to increase consultation and accountability for environmental decision-making at the local level.

273. The technical assistance, investment and budget support operations discussed above are reflected in the World Bank's Country Assistance Strategy (CAS) for the period FY06-09. Appendix III provides a summary of the relevant products, and indicates the principal environmental management outcomes associated with each. Such initiatives will complement the investment support and technical assistance being provided by other development partners to strengthen environmental management in Bangladesh.

274. The activities proposed above will help the Government fulfil its strong commitment to the MDGs as reflected in the National Strategy for Accelerated Poverty Reduction, in particular the Goals related to child mortality and environmental sustainability. Meeting the target for reduction in child mortality under Goal 4 will require efforts to reduce respiratory infections, which account for 18% of under-five deaths, up to half of which may be associated with IAP. Meeting the targets to ensure environmental sustainability under Goal 7 will require renewed efforts to reverse the degradation of urban environmental quality, particularly in Dhaka, better manage natural resources, including capture fisheries, and strengthen environmental governance. Initiatives to undertake the key actions summarized above will not only bring Bangladesh closer to achieving its targets under the MDGs, but will significantly contribute to the removal of environmental constraints to poverty-reducing growth.