CLEAN AIR AND SUSTAINABLE ENVIRONMENT PROJECT

MINISTRY OF ENVIRONMENT AND FORESTS (MOEF)

Implemented by

Department of Environment
Dhaka City Corporation
and
Dhaka Transport Coordination Board

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Foreword

The Ministry of Environment and Forest with the assistance of the World Bank has undertaken the Clean Air and Sustainable Environment (CASE) project to address the issue of urban air pollution through demonstration interventions and providing technical assistance for capacity building and reform in key polluting sectors. The urban environmental problems in Bangladesh are numerous and inter-related. Addressing these in a comprehensive manner would require an all out and concerted efforts between a large number of sector ministries and agencies, which is a challenge in itself. The CASE project is a first step towards the integration of environmental, transport and city government concerns and priorities under one project.

The objective of this brochure is to give an insight into different aspects of the project succinctly so as to keep abreast the stakeholders, media, civil society and the people in general. I hope the engagement of the environment, transport, local government ministries and agencies (DOE, DCC and DTCB) under the CASE project will pave the way for a more fruitful collaboration in the future.

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Clean Air and Sustainable Environment project
An Overview

STRATEGIC CONTEXT AND RATIONALE

Rapid urban population growth: More than one-third of the population of Bangladesh lives in cities. It is projected that, by the middle of the century, more than half of the population of Bangladesh will be urban-based. Already most of the population growth is concentrated in and around Dhaka, the capital of Bangladesh. Since 1970, it has seen an eightfold increase in population which stands at more than 12 million, making it the eighth largest city in the world. It is projected to become the third largest city by 2020 with a population of approximately 20 million.

High level of air pollution: The concentration of the key air pollutant of concern (Particulate Matter or PM) in Dhaka and other major cities has been steadily increasing in recent years, with an annual average much higher than the World Health Organization (WHO) guidelines. If exposure to urban air pollution is reduced by 20% to 80%, between 1,200 to 3,500 lives can be saved and 80 to 230 million cases of respiratory diseases can be avoided per annum. In economic terms, this is equivalent to an estimated US$170 to 500 million in savings due to reduced health care costs and increased productivity per annum[1]. Polluting sectors, like industries and transport, are likely to grow manifold over the coming years. This, in turn, will drive the growth of air pollutants and greenhouse gas (GHG) emissions, unless efforts are initiated urgently to contain the air pollution sources. Notwithstanding that on a per capita basis, GHG emissions in Bangladesh are among the lowest in the world and it is not required for her to limit GHG emissions under the Kyoto protocol, the driving force behind reducing GHG emissions is primarily the carbon credits that can be earned from the sale of emissions reduction. In recent times, Bangladesh has taken the initiative to tap the carbon market through the Clean Development Mechanism (CDM).

Transport conditions in Dhaka: Rapid urban population growth has far outstripped the capacity of urban infrastructure, leading to low level of efficiency and massive shortages. The transport conditions in Dhaka are characterized by

[1]World Bank. 2006 *Bangladesh Country Environmental Analysis.*

chronic traffic congestion and delays, low quality of public transport service, lack of comfort and safety for pedestrians and growing air pollution. Key factors affecting the urban transport sector are: (a) rapid growth in urban population; (b) generally poor infrastructure or lack of infrastructure with low level of maintenance; (c) weak local government institutions with inadequate capacity for planning and implementing projects; (d) overlapping and poor coordination among different ministries, departments and municipal agencies entrusted with managing urban transport ; and (e) inadequate public transport regulation.

Proposed interventions in the transport sector: The Strategic Transportation Plan for Dhaka (STP), prepared under the World Bank financed Dhaka Urban Transport Project (DUTP), has recently been approved by the Government after a significant consultative process. It underscores the large size of the transport investment needs in the metropolitan area and recommends a program that includes new roads, Bus Rapid Transit (BRT) systems and metro, clearly exceeds the financial capacity of the Government and the scope of the proposed project. In fact, the proposed project is seen as a bridge to prepare for a more substantive urban transport project for Dhaka. It includes physical investments in traffic management, and preparatory studies and institutional reforms needed for a priority BRT line. Once sufficient progress is achieved towards technical preparation and institutional and legal reforms, a more ambitious urban transport project could be prepared to address the needs of the metropolitan area.

Adopting a co-benefit approach to address air pollution: The CASE project is designed to address the issue of urban air pollution by undertaking demonstration interventions and providing technical assistance for capacity building and reform in key polluting sectors (i.e., mainly brick making and transport). It aims to encourage integration across environment and transport through the demonstration of possible "co-benefits" of addressing local air pollution, such as, PM and GHG emissions reduction. Two of the primary sources of urban air pollution in Bangladesh - vehicles and small industries - lend themselves well to the co-benefits approach. The CASE project design recognizes that addressing air pollutants not only reduces health impacts and costs but also generates other benefits including better mobility in the case of transport and reduced energy consumption in the case of small industries.

First step towards integrating environment and transport concerns: The urban environmental problems in Bangladesh are numerous and inter-related. Addressing these in a comprehensive manner would require coordination between a large number of sector ministries and agencies, which is a challenge in itself. The CASE project is a first step towards the integration of environmental and transport concerns and priorities under one project. The engagement of the environment and transport ministries and agencies under the proposed project will pave the way for a more fruitful collaboration in the future.

Challenges in the transport sector: Past Bank financed projects in the transport sector in Bangladesh have indicated weaknesses in terms of internal control, governance and transparency. In order to safeguard against this environment, several measures have been introduced in CASE project that include a procurement risk mitigation framework, explicit bid evaluation procedures, special technical oversight, the system for handling complaints and disclosure of information in a procurement website.

PROJECT BACKGROUND AND WB INVOLVEMENT

Given the commitment to the implementation of sustainable environmental initiatives across sectors, and its resolve to meet some of its international and domestic obligations vis-à-vis environmental sustainability; the GOB decided to approach the World Bank for the financing of the project as the CASE project builds on the experiences and lessons of two past Bank-supported projects in Bangladesh, namely the Air Quality Management Project (AQMP) and the Dhaka Urban Transport Project (DUTP). The WB had agreed to finance the project as its continuing support for implementation of actions that are multi-sectoral and demonstrate how to comprehensively address air quality and urban transport issues.

PROJECT OBJECTIVES

The project envisages a combination of technical assistance to key polluting sectors and investments in demonstration sub-projects that have an impact in terms of environmental sustainability, with a particular focus on emissions reduction. The total project cost is approximately US$ 71.25 million with a World Bank credit of US$ 62.20 million. The project development objective is: ***to***

improve air quality and safe mobility in Dhaka through the implementation of demonstration subprojects in urban transport and brick making.

The interventions in urban transport will focus on reducing conflict between motorized and non-motorized transport, reducing congestion, and providing safer and cleaner mobility for those who walk and use public transport, particularly working women - in the areas of project intervention. In addition, the project will help lay the foundation for longer term improvements in urban transport. In the case of small scale industries, the focus will be on improving energy efficiency and reducing emissions, starting with demonstration projects in the brick making industry. In order to support the achievement of the objectives and ensure sustainability, the project also aims at a number of regulatory reforms.

Higher level objectives to which the project contributes

Since being launched in 2000, the Millennium Development Goals (MDGs) have become the most widely accepted measure of development efforts, and GOB is committed to achieving the targets embodied in the Millennium Declaration by 2015. GOB's strong commitment to the MDGs is reflected in its Poverty Reduction Strategy Paper (PRSP) and achievement of two of the MDGs in particular is closely dependent on improvements in environmental management. Meeting the target relating to the reduction of child mortality under Goal 4 will require continued reductions in environmental health risks, particularly those leading to respiratory infections and diarrhea, which together account for about a quarter of under-five year old deaths. Meeting the targets to ensure environmental sustainability under Goal 7 will require renewed effort to strengthen environmental governance, reverse the loss of natural resources and degradation of urban environmental quality.

While the Government has made major strides towards these targets, there are a number of environmental issues which present important development challenges. Among them is the growing significance of health risks posed by the pollution resulting from rapid urban and industrial growth which is a major source of environmental degradation. Ambient air pollution in particular merits greater emphasis. Pursuing initiatives to undertaken in the project will not only bring Bangladesh closer to achieving the MDG targets, but will also contribute to the removal of environmental constraints to poverty-reducing growth.

The GOB is also committed to energy conservation and reducing GHG emissions from energy use and has recently launched a national campaign on energy efficiency and renewable energy. There is a push to reduce GHG emissions and capitalize on the carbon market, as evidenced by a number of carbon finance projects under implementation in Bangladesh.

PROJECT DESCRIPTION

The project is structured into two components: (i) environment, which includes addressing brick kiln emissions; and (ii) transport, which includes addressing traffic management and engineering issues. The details of the components are provided below.

Component 1: Environment (US$ 16.23 million)

Implementing Agency: DOE

This project component is aimed at strengthening the environmental agency's capacity and capability to effectively address air pollution issues and demonstrate the effectiveness and efficacy of new approaches for reducing air pollution emissions through application to the brick industry and the transport sector. It will be executed by the Department of Environment (DOE) within MOEF, in consultation with stakeholders from the key polluting sub-sectors.

Sub-component 1A: Capacity building for air quality management

This sub-component will: (i) support the newly established Air Quality Cell (AQC) at DOE; (ii) improve air quality monitoring, data analysis and reporting; and (iii) improve standards, enforcement and control for emissions reduction.

1A (i) Support for Air Quality Cell

This sub-component will provide support to the AQC at DOE. The newly established AQC has been envisaged as the vehicle to implement all air pollution abatement activities in Bangladesh. DOE recognized the need for creating an AQC because air quality activities were dispersed among many units within the ministry and they needed to be consolidated. The AQC is proposed to be responsible for programs in air quality monitoring, data analysis and reporting, program planning (including, standards, enforcement and controls for emissions

reduction from vehicles and industrial facilities) as well as public information and administration.

***1A (ii)** Air quality monitoring, data analysis and reporting*

The previous Bank-supported AQMP project helped create an air quality network of five Continuous Air Monitoring Stations (CAMS) and equipped DOE with nine Satellite Air Monitoring Stations (SAMS), and laboratory equipment. The CASE project will build on the progress made under AQMP and will support the provision of appropriate hardware and software facilities, selected studies to strengthen DOE's various functions, enhancements for reporting, use of air quality information for planning, public awareness (via website and other media) and development of public alert systems. Six new CAMS will be installed and industrial facility monitoring undertaken, in order to complement ambient air quality data with source-oriented emissions data. The strengthened air quality monitoring arrangements, combined with analysis and reporting, will help in identifying the sources of emissions and developing targeted action plans for reducing air pollution.

***1A (iii)** Standards, enforcement and controls for emissions reduction*

This subcomponent will focus on strengthening the regulatory framework for emissions reduction from vehicles and small-scale industrial sources. By law, DOE within MOEF has the legal authority and responsibility for air quality management. However, the Environmental Conservation Act (ECA) of 1995 and Environmental Conservation Rules (ECR) of 1997 do not have adequate enforcement mechanisms. Revisions of the 1997 ECR are needed in order to introduce stricter standards and an amendment of the 1995 ECA is required in order to enforce "the polluter pays" principle for industrial emissions. These will be supported by the project. The enforcement of current standards - a crucial part of environmental regulation - remains weak. Under the proposed project, the vehicular emissions control program will also be further strengthened with a focus on addressing emissions from diesel commercial vehicles, and on stronger enforcement. The emissions control program will be expanded to include control of industrial air emissions through the introduction of stricter standards, compliance monitoring and strengthened enforcement.

Sub-component 1B: Brick kilns emissions management

This sub-component aims to usher in a new era for brick manufacturing in Bangladesh. On the one hand, DOE will work towards changing the institutional, legal and regulatory framework. To that effect, the project will provide technical support to the newly established Brick Advisory Committee. DOE will ensure the representation of concerned Government agencies, civil society, brick industry and stakeholder institutions. The project also aims to develop a long-term strategic policy framework for the brick industry that will include strengthening of laws and regulations. The latter will include the revision of the Brick Burning Act and other related legislation. In addition, it is expected that the capacity of GOB's personnel will be substantively built through awareness raising, competence building programs and exposure visits.

On the other hand, the adoption of cleaner technologies and practices will be promoted among the brick enterprises through demonstration projects. As these demonstration projects are under way, substantial technical support to these cleaner technologies and practices will be done in parallel as these are vital for replication across the industry sector. Such technical capacity development, an integral part of this sub-component, will be provided to brick enterprises and stakeholder institutions.

Sub-component 1C: Communication campaigns and analytical studies

The communications campaign will be rolled out using all available media channels in English and Bangla to highlight the impact of local and global emissions from key transport and industrial sources, and the "co-benefits' of addressing the same. It will contain targeted messages for different stakeholders and will also be linked with the national program for HIV/AIDS awareness to enhance the impact of the messages among workers in the transport and brick industry. Social marketing tools will be used to address socio-cultural issues. The media campaign will also serve as the tool for GOB to reach out to different stakeholders and include them in the efforts to achieve the project's development objectives. In doing so, it will work as a risk management tool for the project since there are likely to be some winners and losers during project implementation.

To strengthen the technical capacity of DOE and AQC in air quality management

the project will support the preparation of various **technical studies** related to: emission inventory, dispersion modeling, source apportionment, `health impact study, clean air regulatory framework, dust management etc.

Sub-component 1D: Project management, coordination

Project implementation of the DOE component will support the operating costs necessary for project implementation and reporting. The project director will set-up a departmental technical committee (DTC) to provide technical inputs as needed, and facilitate the operation of the Brick Project Advisory Committee. While project implementation will be carried out by the three agencies through their respective Project Implementation Units (PIUs), the overall project coordination will be anchored at the MOEF. A Project Coordination Unit (PCU) will be created at the MOEF under a Project Coordinator, who will be the rank of Joint Secretary.

Component 2: Transport (US$ 45.97 million)

This component will support capacity building through technical assistance and demonstration initiatives in urban transport in Dhaka that will focus on reducing conflict between motorized and non-motorized transport (NMT) and congestion, as well as providing safe and better mobility for those who walk and use public transport, particularly, working women. It will also help strengthen the institutional, policy, and regulatory framework for public transport, and help mainstream environmental considerations into urban transport related decision making. The initiatives will be consistent with the recommendations in the 2005 Strategic Transport Plan (STP) for Dhaka and will be designed to deliver and demonstrate tangible but modest results during the project duration, while helping plan and prepare for a larger urban transport intervention. The outcomes of this component will consist of improved traffic flow, reduced congestion, enhanced mobility and safety of pedestrians and those who use public transport, in those areas of Dhaka where the project will be undertaken.[2] In addition, it will help lay the foundation for longer term improvements in urban transport through technical assistance and regulatory changes. The development and execution of this component will involve a number of key stakeholders including, the Roads

[2]Some of the more direct interventions for control of emissions from motor vehicles will be addressed through the environment component of the project. These will include enhanced enforcement of vehicle emission standards.

and Railways Division (RRD) under Ministry of Communications (MOC), Bangladesh Road Transport Authority (BRTA), Dhaka Transport Coordination Board (DTCB), Dhaka City Corporation (DCC), Dhaka Metropolitan Police (DMP) as well as public transport owners and operators.

Sub-component 2A: Transport (US$ 39.30 million)
Implementing agency: DCC

***2A (i)** Physical improvement of traffic flow and pedestrian mobility*

This sub-component will include investments in traffic engineering and management aimed at improved traffic flow and pedestrian movement, particularly where there is significant conflict between traffic flow and pedestrian movement. Investments will comprise foot over bridges (FOBs), traffic signals, one-way streets, separation of motorized and non-motorized traffic, and people-with-disability (PWD) friendly sidewalks. Investment in sidewalks is expected to assist in the reduction of re-suspension of particulate matter, a known problem in Dhaka, and one of the major contributors to local PM air pollution. This sub-component will also support the development of a parking strategy, capacity building efforts and institutional strengthening related to the investments.

***2 A (ii)** Institutional strengthening and regulatory review*

This sub-component will support an institutional review of DCC's Traffic Engineering Division (TED) with a view to updating and upgrading its role in the context of the Strategic Transport Plan. The review will specifically explore the options for a Traffic Signal Cell and Road Safety Cell at DCC. An organogram as recommended in the STP may be followed for capacity building of DCC under the project. Technical assistance and capacity building will also be provided to DCC in the following areas: (i) design of traffic engineering; (ii) traffic signal systems operation and maintenance in coordination with DMP; (iii) mainstreaming environmental management in urban transport and (iv) traffic management in coordination with DMP.

***2A (iii)** Project Management*

Project implementation of subcomponent 2A will be carried out by through a Project Implementation Unit (PIUs) at DCC. The PIU will be headed by a project director. There will be a budget for project management which will cover the costs

of consultants, travel, office equipment, audits and other operating costs necessary for project implementation and reporting. The project director will setup a departmental technical committee (DTC) to provide technical inputs as needed.

Sub-component 2B: Transport (US$6.67 million)
Implementing agency: DTCB

***2B (i)** Preparation of the bus route network rationalization and franchising*

The overall objective of this subcomponent is to encourage a modal shift from existing transport modes to cleaner and safer transport modes in Greater Dhaka in the long term.

This sub-component will finance the preparation of technical studies, namely: (i) a feasibility study for a bus rapid transit (BRT) system in Greater Dhaka; (ii) the BRT detailed design and (iii) a public transport network study for Greater Dhaka.

It is envisaged that, once the basic elements for bus route network rationalization and franchising (i.e. institutional strengthening, legal and regulatory reform, and stakeholder consensus building) are in place and detailed designs available, the physical investments for implementation of franchised operations on a priority corridor, including BRT on a pilot corridor, could commence as a follow-on project to be prepared on a fast track.

***2B (ii)** Institutional strengthening and regulatory review*

A review of the institutional and regulatory framework for public transport will be undertaken with a view to: (i) providing a pivotal role to DTCB in planning and coordination of urban transport including BRT; (ii) enabling bus sector reform with a focus on route rationalization and franchising; and (iii) facilitating the implementation of the action plan developed in the context of STP (and AQMP) to reduce air pollution from diesel vehicles. This is expected to lead, in the long term, to the establishment of a unitary authority for urban transport that would plan and coordinate a multi-modal urban transit system.

Technical assistance and capacity building will also be provided to DTCB so as to: (i) strengthen its role as a public transport regulatory institution, (ii) mainstream environmental management in urban transport planning, and (iii) improve the management of motor vehicle emissions in coordination with BRTA.

The project would also support the creation of a Traffic Management Committee (TMC) anchored at DTCB. The TMC would have representation from all relevant stakeholders and would ensure information sharing and coordination on urban transport related initiatives and interventions among them.

***2A (iii)** Project Management*

Project implementation of subcomponent 2A will be carried out by through a Project Implementation Unit (PIUs) at DCC. The PIU will be headed by a project director. There will be a budget for project management which will cover the costs of consultants, travel, office equipment, audits and other operating costs necessary for project implementation and reporting. The project director will setup a departmental technical committee (DTC) to provide technical inputs as needed.

PROJECT COORDINATION, MONITORING AND EVALUATION

The MOEF will be responsible for the overall coordination of the project. A Project Coordination Unit (PCU) has been created at the MOEF with a Joint Secretary as its coordinator. It will be responsible for project coordination and monitoring. Overall project oversight will be ensured by a Project Steering Committee (PSC). The PSC will be chaired by the Secretary of MOEF and include members of all implementing agencies as well as relevant stakeholders.

The three implementing agencies will receive funds directly from three special accounts and will be responsible for managing their respective accounts. Funds for the PCU/PSC will be channeled through the DOE special account. The implementing agencies will provide reports on overall progress, including procurement and financial management, to the PCU on a regular basis.

The above mentioned implementation arrangement, whereby three separate PIUs and one PCU/PSC are to become operational for a single project, does increase the cost of project management as well as supervision. However, it also helps spread the risk of non-performance and fosters healthy competition between the PIUs. For a multi-sectoral project in Bangladesh, this approach is better suited for implementation as compared to having all the activities implemented through a single implementing agency. Most of the project management cost is to be borne out of the GOB's contribution.

The project will have a comprehensive monitoring and evaluation framework based on qualitative and quantitative indicators for each sub-component. These include transport, social, environmental and capacity development indicators. These data would also be used, in turn, at the locations of the project interventions to estimate improvement in air emissions/quality and pedestrian safety and mobility as well as vehicle speeds.

The monitoring of the environment and transport outputs and outcomes will be conducted separately by the three agencies (DOE, DCC, and DTCB) annually. The monitoring and evaluation will be coordinated by the PCU at MOEF, which will be equipped with a monitoring and evaluation specialist.

AGENCIES DIRECTLY INVOLVED IN PROJECT IMPLEMENTATION

Ministry of Environment & Forests (MOEF)

The Ministry of Environment & Forests is the nodal agency in the administrative structure of the GOB, for planning, promotion, co-ordination and overseeing the implementation of environmental and forestry programs. MoEF oversees all environmental matters in the country and is a permanent member of the Executive Committee of the National Economic Council. It is a comparatively new ministry created in 1989. The organizational structure of the Ministry covers number of Divisions, Directorate, Board, Subordinate Offices, Autonomous Institutions, and Public Sector Undertakings. The two major department under the Ministry are Department of Environment and Department of Forest. Besides these two departments, MOEF controls the Bangladesh Forest Industries Development Corporation (BFIDC), Bangladesh Forest Research Institute (BFRI) and Bangladesh National Herbarium (BNH).

Department of Environment (DOE)

It is an agency under the MOEF. The Department was created in 1989 to ensure sustainable development and to conserve and manage the environment of Bangladesh. The Departmental activities are overseen by a Director General. The Department discharges its responsibilities through a head office at Dhaka and six Divisional offices located in Dhaka, Chittagong, Khulna, Bogra, Barisal and Sylhet. DOE's mission is to help secure a clean and healthy environment for the benefit of present and future generations:

- Through the fair and consistent application of environmental rules and regulations;
- Through guiding, training, and promoting awareness of environmental issues; and
- Through sustainable action on critical environmental problems that demonstrate practical solutions, and that galvanize public support and involvement.

Dhaka City Corporation (DCC)

DCC is a statutory organization constituted under the Dhaka Municipal Corporation Ordinance, 1993 and is headed by an elected Mayor. The executive power of the Corporation is vests in and exercised by the Mayor. The City area is divided into 90 wards represented by one Commissioner, elected directly, form each ward. There are 18 reserved seats exclusively for women Commissioners who are elected by the Mayor and the Commissioners. The term of the elected executives is five years. The Corporation constitutes eight Standing Committees and other Committees to monitor and guide the diversified activities of the organization. The Mayor is assisted by the Chief Executive Officer, who in turn, is assisted by the Secretary, the Heads of Departments and Zonal Executive Officers. There are about 12,200 employees carrying out various duties catering to the civic needs of the people. The area of the City Corporation at present is about 360 Sq. km. The area of Dhaka Metropolitan City is nearly 1530 Sq. km and the estimated population is currently about 12 million.

Dhaka Transport Co-ordination Board (DTCB)

It is a statutory body constituted under an act of same name of 2001. Its objective is to enable efficient mobility of the people and freights of Bangladesh through planning of integrated multimodal, safe and environment friendly transportation strategies and plans for the better quality of life of the people of Greater Dhaka and Bangladesh. The board is headed by an Executive director. The aims and objectives of the Board are as follows:

- To advise the concerned agencies on an integrated and safe traffic and transportation system for Dhaka and to make necessary arrangements with that purpose;
- to co-ordinate the traffic and transportation infrastructure development plan with the overall development strategy plan for Dhaka as envisaged in the structure plan;
- to formulate strategic planning for traffic and transport sector of Dhaka and to co-ordinate inter agency co-operation.