A Review of Environmental Policy and Legislation in Bangladesh

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Final Research Report - Section 2

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1. Introduction

Increasing industrialisation and lack of waste treatment is leading to a major water pollution problem in many parts of Bangladesh, impacting on aquatic ecosystems and the population who depend on them for their livelihood activities. However, Bangladesh has a well developed set of environmental policies, Acts and Rules that deal with industrial pollution of water, soil and air. This paper provides a brief synopsis of the content and applicability of the policies and legislation.

2. Responsibility for Water Resources in Bangladesh

Responsibility for control and abatement of water pollution falls to the Department of Environment (DoE) within the Ministry of Environment and Forest (MoEF). Broadly, DoE are mandated to set and enforce environmental regulations for all forms of pollution and media (air, water and soil). Specifically in relation to water pollution, DoE are responsible for: pollution control; setting water quality standards (WQS) for water use and discharge; defining environmental impact assessment (EIA) procedures; issuing environmental clearance permits; and declaring and protecting degraded ecosystems (UNEP, 2001).

The Ministry of Water Resources through several of its agencies, particularly the Water Resources Planning Organization (WARPO) and the Bangladesh Water Development Board (BWDB), are responsible for all other forms of water management in Bangladesh. The BWDB is principally responsible for implementation, operation and maintenance of water related projects, whilst WARPO is mandated to provide advice on policy, planning and regulation of water resources.

The policies and laws through which the BWDB, WARPO and DoE operate include: the National Water Policy; the National Environment Policy and Rules; and the Environmental Conservation Act. There are more than 200 laws aimed at addressing environmental issues in the country.

3. History of Environmental Policy and Legislation

Water Pollution Control Ordinance, 1970

Legislation for the control, prevention and abatement of water pollution in Bangladesh dates back to the East Pakistan Water Pollution Control Ordinance, 1970, East Pakistan Ord. No. V of 1970, which established the East Pakistan Water Pollution Control Board, defined their remit, outlined responsibilities for implementation of policies formulated by the Board and laid out penalty procedures.

The Board consisted of: the Additional Chief Secretary (Planning and Development) to the Government of East Pakistan; the Secretaries to the Government in the Basic Democracies and Local Government Department, the Agricultural Department and the Commerce and Industries Department; the Director of Health Services; the Chief Engineer, Public Health Engineering; and representatives from the Water and Power Development Authority and the

Inland Water Transport Authority. The functions of the Board were to "*formulate polices for the control, prevention and abatement of pollution of waters … and suggest measures for the implementation of these policies*" (East Pakistan Water Pollution Control Ordinance, 1970).

The 1970 Ordinance requires that any persons or commercial or industrial undertaking: adopt measures for the prevention, control and abatement of existing or potential pollution of any waters, including construction, modification, extension or alteration of disposal systems; provide information to the Board regarding wastes, sewerage or treatment works; and permit any officer to inspect and search land and buildings. Neglect or failure to comply with these requirements may lead to a fine and imprisonment.

The Ordinance provided several definitions, the fundamentals of which have been retained in the most recent iterations of environmental pollution policy and legislation in Bangladesh. These are:

"**Pollution** means such contamination, or other alteration of the physical, chemical or biological properties of any waters, including change in temperature, taste, colour, turbidity, or odour of the waters, or such discharge of any liquid, gaseous, solid, radioactive, or other substances into any waters as will or is likely to create a nuisance or render such waters harmful, detrimental or injurious to public health, safety or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses or to livestock, wild animals, birds, fish or other aquatic life".

"**Water** means all waters including all streams, coastal waters, tanks, lakes, ponds, reservoirs, marshes, watercourses, waterways, wells, springs, irrigation systems, and all other bodies or accumulation of waters, surface or underground, natural or public or private".

Environmental Pollution Control Ordinance, 1977

The Environmental Pollution Control Ordinance, 1977, Ordinance No. XIII of 1977 superseded the Water Pollution Control Ordinance, 1970 and extended the control, prevention and abatement of pollution to the entire environment of Bangladesh and expanded the definition of "pollution" from that specifically relating to waters to "air, water or soil". It also further included "contamination or other alteration … likely to, create a nuisance or render such air, waters or soil harmful to … *bonafide uses* " and to *plants* and *forms of life* other than those previously specified.

The 1977 Ordinance also reconstituted the Environmental Pollution Control Board with a similar mandate to that detailed in the 1970 Ordinance but extending to pollution of air and soil and giving the Board the power to appoint expert committees as they deem necessary. The Board included: the Member-in-charge of the Physical Planning and Housing Sector of the Planning Commission; the Secretaries of the Local Government, the Rural Development and Cooperative Division, the Agriculture Division, the Forest, Fisheries and Livestock Division, and the Ministry of Industries, Ministry of Home Affairs, Ministry of Public Works and Urban Development, and Ministry of Power, Water Resources and Flood Control; the Chief, Flood Control and Water Resources Planning Commission; the Director of Health Services; the Director of Fisheries; the Chief Engineers, Public Health Engineering, and Bangladesh Inland Water Transport Authority; and a representative from the Bangladesh Meteorological Department.

The powers of the Board remained similar but were extended beyond permitting officers to inspect buildings and land, to allow them to "*inspect and test any wastes, air, waters, soil,*

plants, materials of disposal system … and to afford all reasonable opportunities to such officers for such inspection, search and test".

National Environmental Policy, 1992

In 1992 the National Environmental Policy (NEP) was drawn up with the aim of providing protection and sustainable management of the environment. The objectives of the Policy include:

- Maintaining the ecological balance and overall development through protection and improvement of the environment;
- Identifying and regulate polluting and environmentally degrading activities;
- Ensuring environmentally sound development;
- Ensuring sustainable and environmentally sound use of all natural resources; and
- Actively remain associated with all international environmental initiatives (MoEF, 1994).

National Environmental Management Plan, 1995

The National Environmental Management Plan (NEMAP) was developed as the framework of programmes and interventions aimed at implementing NEP. Its activities attempt to lead to better management of scarce resources, reducing the rate of environmental degradation, improving the natural and manmade environment, conserving habitats and biodiversity, promoting sustainable development and improving quality indicators of human life (MoEF, 1994). NEMAP proposed actions and interventions are for government agencies, NGOs and wider civil society and include activities relating to fisheries and agriculture (MoEF, 1994).

Environmental Conservation Act and Rules

The Bangladesh Environmental Conservation Act passed in 1995, and the accompanying 1997 Rules, are arguably the most important legislative documents for industrial water pollution. The Act is dedicated to the "conservation, improvement of quality standards, and control through mitigation of pollution of the environment" (Environmental Conservation Act, 1995). The 1997 Environment Conservation Rules made in accordance with the 1995 Act provide additional guidance for specific components of the Act. The Act is in theory enforced by the DoE, which has responsibility for:

- Coordinating with other authorities or agencies that have relevance to the objectives of the Act.
- Adopting safety measures and determining abatement measures to prevent accidents that may cause environmental degradation.
- Advising persons on environmentally sound use, storage, transportation, import and export of hazardous material or its components.
- Conducting research and assisting other authorities and agencies in conservation and improvement of the environment.

- Investigating locations, equipment, manufacture or other processes, ingredients, or materials, to ensure improvement of the environment, and control and mitigation of pollution.
- Collecting, publishing and disseminating information regarding environmental pollution.
- Advising the Government on manufacturing processes and materials that may cause pollution.
- Ensuring potable water quality.

In order to enforce the Act, the DoE has the right to enter, investigate, test, examine and seize, industrial plants, equipment, records, registers, documents or other significant objects, and to search places where it is believed an offence has occurred in contravention of this act. In addition, the DoE is empowered to collect water, air, soil or other material for analysis in the presence of the occupant and under conditions laid down by the Act.

Should any plant or process be found to be contravening the rules of the 1995 Act, the DoE has the power to enforce the Act through closure, prohibition or regulation of industries, initiatives or processes after due notification to the owner of the industry or process. The DoE can also initiate public hearings if an application is submitted by an individual or group of individuals who are being, or are likely to be, affected by pollution or degradation of the environment.

Since the gazetting of the 1995 Act, all industrial units or projects must obtain "Environmental Clearance" from the DoE. For the purposes of this all industrial units and projects have been divided into four categories (Schedule 1 of the Rules) depending on environmental impact and location. In order to obtain Environmental Clearance, industries within these categories must submit applications containing several forms of documentation (Table 1). Once Environmental Clearance has been granted it is valid for a period of 3 years for Green Category industries and 1 year for all other Categories. Applications for renewal must be made 30 days before expiry.

Environmental Quality Standards

In addition to setting reporting criteria for activities, processes and management, the 1997 Environmental Conservation Rules also specify waste discharge quality standards for all industrial units and projects (Table 2) and a selection of classified industries. General industry discharge criteria are given for inland surface water, public sewers at secondary treatment plants and irrigated land. A single emissions standard is given for each of the parameters for classified industries, which include: fertilizer factories; integrated textile mill and large processing units (Table 3); pulp and paper factories (Table 4); cement factories; industrial boilers; nitric acid plants; distilleries; sugar production; leather tanneries (Table 5); food processing and oil refineries. However, there are several parameters that are not specified in the Rules that are toxic. For example, copper, cobalt and aluminium are not specified in the waste quality standards.

Ecologically Critical Areas

Although the Environmental Conservation Act (1995) deals mainly with processes and activities that result in pollution, aspects of the Act also make provision for protection of ecosystems. Under the Act the government can declare "ecologically critical areas" in any area likely to reach environmentally critical conditions, and can specify operations and processes that cannot be initiated or continued in those areas. The Act also confers power to the DoE to order corrective measures to be taken by any person believed to be responsible directly or indirectly, for causing damage to the ecosystem.

The Environmental Court Act 2000

The 2000 Environmental Court Act supports the Environmental Conservation Act (1995) and the Environmental Conservation Rules (1997) by providing for the establishment of environmental courts for the trial of offences relating to environmental pollution. It includes protocols for the establishment of the court, and defines the court's jurisdiction, appropriate penalties, powers of search and entry, and procedures for investigation, trial and appeal.

The Environmental Conservation Act, 1995 and the Environmental Court Act 2000 were amended in 2002 and the Environmental Conservation Rules, 1997 were extended to incorporate ambient air quality and exhaust fan vehicles.

The EIA Guidelines for Industry

Dispute their title, the EIA Guidelines for Industries covers significant water sector interventions, including flood control embankments, polder and dykes and roads and bridges. All these water sector interventions for under the 'Red' category of industrial units. These require, in theory, for proposed project construction, re-construction and extension.

4. Other Sectoral Policies

In addition to the 1995 Act and 1997 Rules, several other policies deal with the wider concerns of ecosystem health and water quality. There are also several proposed policies that have a bearing on the impact of industrial waste on the environment.

The National Water Policy, 1999

The National Water Policy (NWPo) has some 50 clauses of relevance to the environment and it is intended that compliance with the Policy will ensure protection, restoration and preservation of natural habitats, particularly wetlands, mangroves, other forests and endangered species that depend on them (UNEP, 2001). Specific provisions made under the Policy include:

- Protection, restoration and enhancement of water resources;
- Protection of water quality, including strengthening regulations concerning agro-chemicals and industrial effluent;
- Sanitation and potable water;

- Fish and fisheries; and
- Participation of local communities in all water sector development.

The NWP is to be implemented under the National Water Management Plan (NWMP), the drafting of which has involved the revival of the dormant National Water Resources Council (NWRC). The NWRC led the NWPo development process culminating in the first National Water Policy being published in January 1999.

It is acknowledged in the new NWPo that the existing legislation on water management requires supplementing in a number of key areas (GoB, 1999, p21). It is the intention of the Government that the policy will be given effect through a National Water Code (NWC) which will outline the specific provisions of the water policy required to facilitate implementation. The views of government are to enact this NWC by revising and consolidating the laws governing ownership, development, appropriation, utilisation, conservation and protection of water resources.

The policy also refers to standards of effluent disposal in common watercourses being set by WARPO in consultation with the Department of the Environment (DoE). This may lead to issues of conflict with values set out in the Environmental Conservation Act and Rules. The DoE certainly has more expertise on the topic.

However, the greatest concern relates to the fact that the policy is yet to be endorsed by the Parliament or backed by an Executive Order. As a result, no agency including BWDB and LGED or the Ministries of Fisheries and Livestock or Roads and Highways is at present obliged to submit their plans and projects to WARPO even though this is seen as an integral part of the policy. As such, the NWPo in Bangladesh shares with many other policies in many parts of the world the characteristic of being a good document that reflects significant changes to the dominant approach, but also of being limited in terms of the details through which the policy intentions will be implemented or the capacities of the institutions to enact crucial pieces of the policy.

Draft Wetland Policy

A National Wetland policy has been drafted by IUCN on behalf of MoEF. The main features of the draft wetland policy are:

- Establishment of principles for sustainable use of wetland resource;
- Maintenance of existing level of biological diversity;
- Maintenance of the functions and values of wetlands; and
- Promotion and recognition of the value of wetland functions in resource management and economic development.

A policy is to be overseen by the MoEF. At present the policy appears to be going through a series of redrafts and is yet to go before parliament.

5. Policy and Legislation Concerns

In general the policies and legislation in place to protect water from industrial and other effluent is well constructed and comprehensive. The Environmental Conservation Act and Environmental Conservation Rules, and National Water Policy have adequate clauses relating to industrial pollution. This includes water quality protection, effluent discharge monitoring, zoning regulations for new industries and strengthening of the regulatory system for agrochemical pollution control (UNEP, 2001). The two exceptions to this are concerns over the failure to establish the Wetland Policy, which after several years has still not been put before parliament, and the apparent overlap in mandates of the MoEF and WARPO and NWRC in developing and implementing policies regarding water resources development and management. However, such concerns are insignificant in comparison to those in relation to the institutional capacity and capability to enforce them. There are few action programmes and a lack of skills and expertise to take appropriate actions to ensure that both government and private sector developments properly address environmental concerns. With few exceptions there is still a lack of institutional awareness let alone capabilities to address policy goals and objectives. Through the Bangladesh Environment Management Program (BEMP) and the Sustainable Environmental Management Program (SEMP), the DoE is currently working towards improved water quality monitoring, and estimation of pollution loads in rivers and watercourses, as well as trying to strengthen the institutional arrangements through which these will occur. There have also been initiatives such as the development of Guidelines for EIA applicable to several sectors, including flood control and drainage. However, there are few initiatives that aim to tackle the serious problem of water resource degradation that already exists in Bangladesh. The DoE have no guidelines on clean-up and no time bound targets. The absolute numbers of polluting industries that need to be dealt with are conservatively estimated to be 1000 in Dhaka and 600 in Chittagong (UNEP, 2001). There are no estimates outside these two large cities. Moreover, it is generally accepted that no realistic strengthening or expansion of the DoE in the future will be able to cope with all the problems. It is our view that there is no real expectation that DoE could cope with even a fraction of the problems. The only clean-up strategy that is likely to have any impact on the current dire situation is one based on mobilisation of other organisations and the general public including public-private partnerships. What the initial findings of this research suggest is that such an approach could draw heavily on the economic argument for change – businesses are losing money due to inefficient practices, practices that can be improved at little or no cost. It is therefore in the interests of all that the current situation improves.

Table 1: Classification of Industrial Units and Projects Based on Impact and Location Table 2: Waste Quality Standards for Discharge Point of Industrial Units and Projects Table 3: Integrated Textile Mill and Large Processing Unit

Category	Impact	Examples of Industries	Application Requirements
Green	Least	TV, radio and watch manufacture, book binding, rope and mat production, tea packing, candle, motorcycle and toy assembly, cork product, laundry (except washing)	• General information on the industrial unit or project; • Description of the manufactured product and raw materials; and • A "No Objection Certificate" from the local authority.
Orange A		Livestock (below specified numbers), grinding mills, saw mill, cinema, dry cleaning, printing press, industrial machinery, brass/bronze souvenir manufacture, plastic and rubber goods (not PVC)	In addition to the above: • A process flow diagram; • Layout plan showing an effluent treatment plant (ETP); • Waste discharge arrangements; • Outline of relocation or rehabilitation plant (where applicable); and • Other necessary information (where applicable).
Orange B	Most	PVC products, synthetic fibre, edible oil, brick, hotel, foundry, jute mill, plastic product, potable water and soft drinks, galvanising, animal feed, ink, stone crushing, fish and meat processing, pathology, water treatment plant, soap, tea processing, leather goods manufacture, furniture, livestock (over specified numbers)	In addition to the above • Planned industrial unit or project must submit a Feasibility Report and an Initial Environmental Examination (IEE) Report, including Process Flow Diagram, Layout Plan, showing ETP and diagram of ETP; • Existing industrial unit or project must submit an Environmental Management Plan (EMP) Report including Process Flow Diagram, Layout Plan, showing ETP and diagram of ETP and information on its function; and • Pollution Effect Abatement Plan along with Emergency Plan for adverse environmental impact.
Red		Leather producing (tannery), formaldehyde, urea and TSP fertilizer, mineral projects, oil refinery, chemicals, paper and pulp, sugar, distillery, fabric dyeing and chemical treatment, iron and steel, acids, plastic raw materials, electroplating, industrial estate, sewage treatment	In addition to the above: • The IEE Report must include an Environmental Impact Assessment (EIA) based on program outline previously approved by the DoE including Layout Plan and Process Flow Time Frame Diagram.

Table 2: Waste Quality Standards for Discharge Point of Industrial Units and Projects

Parameter (Unit)	Inland surface water	Irrigated Land
Ammoniacal Nitrogen (mg/l)	50	75
Free Ammonia (mg/l)	5	15
Arsenic mg/l)	0.2	0.2
BOD_5 (mg/l)	50	100
Boron (mg/l)	2	2
Cadmium (mg/l)	0.05	0.5
Chloride (mg/l)	600	600
Total Chromium (mg/l)	0.5	1.0
COD (mg/l)	200	400
Hexavalent Chromium (mg/l)	0.1	1.0
Copper (mg/l)	0.5	3.0
Dissolved Oxygen (mg/l)	4.5-8	4.5-8
Electrical Conductivity (micro mho/cm)	1200	1200
Fluoride (mg/l)	7	10
Sulphide (mg/l)	1	2
Iron (mg/l)	2	2
Total Kjeldahl Nitrogen (mg/l)	100	100
Lead (mg/l)	0.1	0.1
Manganese (mg/l)	5	5
Mercury (mg/l)	0.01	0.01
Nickel (mg/l)	1.0	1.0
Nitrate Molecule (mg/l)	10.0	10.0
Oil and Grease (mg/l)	10	10
Phenol Compounds (C_6H_5OH) (mg/l)	1.0	1
Dissolved Phosphorus (mg/l)	8	10
PH	6-9	
Selenium (mg/l)	0.05	0.05
Zinc (mg/l)	5.0	10.0
Total Dissolved Solids (mg/l)	2100	2100
Temperature (^oC) - Summer -Winter	40 45	40 45
Total Suspended Solids	150	200
Cyanide	0.1	0.2

Table 3: Integrated Textile Mill and Large Processing Unit

Parameter	Limit
Total Suspended Solids	100 mg/l
BOD_5 20_oC	150 mg/l
Oil and Grease	10 mg/l
Total soluble solids	2100 mg/l
Wastewater Flow	100 l/kg of fabric processed
PH	6.5-9
Classified for dyes used • Total chromium as Cr molecule • Sulphide as S molecule • Phenolic compounds as C_6H_5OH	2 mg/l 2 mg/l 5 mg/l

Table 4: Pulp and Paper

Parameter	Mill capacity	
	> 50 ton/day	< 50 ton/day
Total Suspended Solids	100 mg/l	100 mg/l
BOD_5 20_oC	30 mg/l	50 mg/l
COD	300 mg/l	400 mg/l
Wastewater discharge	200 m_3/ton paper	For raw material of agricultural source 200 m_3/ton paper For waste paper source 75 m_3/ton paper
PH	6-9	6-9

Table 5: Tannery

Parameter	Limit
Total Suspended Solids	150 mg/l
BOD_5 20_oC	100 mg/l
Sulphide as S molecule	1 mg/l
Total chromium as Cr molecule	2 mg/l
Oil and Grease	10 mg/l
Total soluble solids	2100 mg/l
Wastewater Flow	30 m_3 /ton processed leather
pH	6.5-9

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