

Appendix-2: Environmental Standards for Bangladesh

List of Industries (Green, Amber A, Amber B, Red)

List of Industries under Green, Amber-A, Amber-B and Red Categories (EIA guidelines, DoE, MoEF, GoB, 1997)

Table 1: List of Industries under Green Category

1. Assembly and manufacturing of TV & Radio	12. Sports goods – excluding plastic items
2. Assembly and manufacturing of Clocks and Watches	13. Tea packaging without processing
3. Assembly of Telephones	14. Re-packing of powdered milk (without production)
4. Assembly and manufacturing of Toys (excluding plastic items)	15. Bamboo and cane goods manufacturing
5. Book - binding	16. Artificial flowers manufacturing (excluding plastic items)
6. Rope, mat & fabrics which are made of mainly cotton, jute and artificial fabrics	17. Fountain and ball point pen
7. Photocopy (excluding film & X-ray)	18. Jewelry shop without manufacturing
8. Manufacturing of artificial leather goods	19. Candles
9. Assembly of Motorcycles, Bicycles & Tricycles	20. Surgical and clinical appliances (without manufacturing)
10. Assembly of scientific and mathematical instruments	21. Manufacturing factory of Cork goods (excluding metals)
11. Musical instruments	22. Laundry; without washing
Foot Note: A. Excluding this list all cottage industries do not require to obtain Environmental Clearance Certificate. Cottage industries are the industries in which members of the family are involved in production activities (goods or services) full or part time basis and maximum investment is up to TK. 5 lac. B. Any industry of this list can not be set up in residential area. C. Position of the industries should be in declared industrial area or industrial area or vacant area, as far as possible. D. Existence of industry/industries in commercial area having potentiality to create intolerable limit of sound, smoke, odor is not permissible.	

Table 2: List of Industries under Amber-A Category

1. Looms and manual ginning	16. Brass and bronze utensils & souvenirs
2. Production of shoes and leather goods (Capital up to 5 Lac Tk.)	17. Biscuits and bread factory(capital up to TK. 5 Lac.)
3. Saw mills/ Timber Workshop	18. Cloth washing
4. Furniture of wood, Iron, Aluminum (Investment upto 5 Lac Taka)	19. Cartoon, Paper box & Printing packaging
5. Plastic & rubber goods - Excluding PVC	20. Flour, Rice, Turmeric, piper, pulse grinding (Capacity upto 20 HP)
6. Printing	21. Poultry (chicken upto 250 in the urban area and 1000 in the rural area)
7. Cinema Halls	22. Animal farm (10 or below in urban area and 25 or below in rural area)
8. Dry Cleaning	23. Restaurant
9. Salt processing (Capital up to TK. 10 Lac)	24. Artificial leather goods processing (Capital up to TK.5 Lac)
10. Agricultural machinery and Components	25. Sports goods
11. Machine tools components and appliances	26. Manufacturing of chocolate & logens factory (capital up to TK. 5 lac)
12. Making of gold ornaments	27. Wooden boat manufacturing
13. Pin and U-pin	
14. Spectacles-frames	
15. Combs	

Table 3: List of Industries under Amber-B Category

1. PVC goods	40. Dairy
2. Artificial fibre (excluding raw material)	41. Re-rolling
3. Glass factory	42. Wood processing
4. Life saving medicines (only formulation)	43. Soap / Detergent
5. Edible Oils	44. Repairing of refrigerators
6. Coal tar	45. Repairing of metallic boats
7. Jute mill	46. Metallic boat repairing
8. Hotel, Multi-stored commercial and apartment building	47. engineering works (up to 10 lakes Tk. only)
9. Casting	48. Cotton Manufacturing (Spinning Mill)
10. Aluminum Goods	49. Electric Cables
11. Adhesive (excluding animal glue)	50. Cold storage
12. Bricks/Tiles	51. Tire retarding
13. Lime	52. Repairing motor works (Capital upto TK. 10 Lac.)
14. Plastic materials	53. Animal farm (more than 10 in urban area and 25 in rural area)
15. Drinking water, Soft Carbonated drinks manufacturing and bottling	54. Poultry (chicken more than 250 in urban area and 1000 in rural area)
16. Galvanizing	55. Flour, Rice, Turmeric, Piper, Pulse grinding (capacity more than 20-HP)
17. Perfume, Cosmetics	56. Artificial leather goods processing (capital above TK. 5 lac)
18. Flour (large)	57. Production of shoes and leather goods (capital above TK. 5 lac)
19. Carbon rod	58. Furniture of wood, Iron, Aluminium (capacity above TK. 5 lac)
20. Stone grinding, cutting & polishing	59. Salt processing (capital above TK. 10 lac)
21. Fish, meat & food processing.	60. Biscuit and bread-factory (rapacity above TK. 5 lac)
22. Printing & writing ink.	61. Chocolate and logens factory- (capital above TK. 5 lac)
23. Animal food	62. Laundry, with washing
24. Ice cream	63. Dress and sweater manufacturing
25. Clinic and Pathological Lab	64. Power looms
26. Utensils (crockery/pottery) made of clay & white clay/ Sanitary wares (ceramics)	65. Road construction/ reconstruction extension (feeder road, local road)
27. Processing of prawn/shrimps	66. Bridge construction/ reconstruction/ extension (length below 100m)
28. Water Treatment Plant	67. Public toilet
29. Metallic utensils/Spoons etc	68. Ship breaking
30. Muriate of potash (Manufacturing)	69. G.I wires
31. Sodium Silicate	70. Assembly of battery
32. Matches	71. Dairy and food.
33. Starch and Glucose	
34. Food for domestic animal	
35. Automatic rice mill.	
36. Assembly of Motors	
37. Wooden boat manufacturing	
38. Photography (movie & x-ray film related programs).	
39. Tea processing	
Foot Note: A. Any industry of this list can not be set up in residential area. B. Position of the industries should be in declared industrial area or industrial area or vacant area, as far as possible. C. Existence of industry/industries in commercial area having potentiality to create sound, smoke, odor exceeding EQS is not permissible.	

Table 4: List of Industries under Red Category

1. Leather processing (Tannery) 2. Formaldehyde 3. Urea - fertilizer 4. T. S. P. fertilizer 5. Chemical dyes, polishes, Varnish and enamels. 6. Power Stations 7. All Mining Projects (coal, Limestone, Hard rock, Natural gas, Mineral Oil, etc.) 8. Cement 9. Fuel Oil refinery 10. Artificial rubber 11. Paper and Pulp 12. Sugar 13. Distillery 14. Cloth dyeing and Chemical processing 15. Caustic Soda, Potash 16. Other alkalies 17. Making of Iron & Steel 18. Raw materials for medicine and basic drugs 19. Electroplating 20. Photo films, Photographic paper and Photo chemicals 21. Chemicals derived from Petroleum or Coal 22. Explosives 23. Acid and their Salts (organic and Inorganic) 24. Nitrogen Compounds (Cyanide, Cyanamide etc.) 25. Production of plastic raw materials (PVC, PP/Fe, Polystyrene etc.) 26. Asbestos 27. Fiber glass 28. Pesticides, Fungicides and Weedicides 29. Phosphorus and it's Compounds/Derivatives 30. Chlorine, Fluorine, Bromine, Iodine and their Compounds/ Derivatives 31. Industrial Gases (Excluding Nitrogen, Oxygen, and Carbon di-oxide) 32. Waste Incinerators 33. Other Chemicals manufacturing 34. Arms manufacturing	35. Atomic energy 36. Alcohol 37. Non-metallic chemicals which are not listed elsewhere 38. Non-metals which are not listed elsewhere 39. Industrial Area/Estate. 40. Basic Industrial Chemicals 41. Basic Metals excluding Iron (Fe) 42. Detergent 43. Land filling by Municipal/Industrial/Commercial waste 44. Sewage treatment plant 45. Life saving drugs 46. Adhesive (animal glue) 47. Rodenticide 48. Refractories 49. Industrial Gas (Nitrogen. Oxygen, Carbon-dioxide) 50. Muriate of Potash (Manufacturing) 51. Battery 52. Hospital 53. Ship manufacturing 54. Tobacco (Processing/Cigarette/Biri-making) 55. Metallic boat manufacturing 56. Wooden boat manufacturing 57. Refrigerator manufacturing 58. Tyre and Tubes 59. Board Mills 60. Carpets 61. Engineering works (capital above TK. 10 lac) 62. Repairing motor works (capital above TK. 10 lac) 63. Water treatment plant 64. Laying down/ replacement/ expansion of sewerage pipeline 65. Exploration/ lifting/ distribution of mineral resources 66. Construction/ reconstruction/ expansion of flood control embankment, polder. dike etc. 67. Construction/ reconstruction/ expansion of roads (regional, national & international) 68. Construction/ reconstruction/ expansion of bridge (length 200 m or above)
Foot Note: A. Any industry of this list can not be set up in residential area. B. Position of the industries should be in declared industrial area or industrial, area or vacant area, as far as possible. C. Existence of industry/industries in commercial area having potentiality to create sound, smoke, odour exceeding EQS is not permissible. D. After obtaining Site Clearance Certificate on the basis of IEE report, EIA report including layout plan, design of and time schedule for ETP- and process flow diagram according to approved TOR will be submitted in due time.	

Ambient standards in relation to water pollution, air pollution and noise, as well as permitted discharge/emission levels of water and air pollutants and noise by industries

SCHEDULE – 2 [See Rule 12 of ECR]

Table 5: Standards for Air (Density in micro gram per cubic meter)

Sl. No.	Categories of Area	Suspended Particulate Matters (SPM)	Sulphur-dioxide	Carbon Monoxide	Oxides Nitrogen
a.	Industrial and mixed	500	120	5000	100
b.	Commercial and mixed	400	100	5000	100
c.	Residential and rural	200	80	2000	80
d.	Sensitive	100	30	1000	30

Notes:

- (1) At national level, sensitive area includes monuments, health center, hospital, archeological site, educational institution, and government designated areas (if any).
- (2) Industrial units located in areas not designated as industrial areas shall not discharge pollutants which may contribute to exceeding the standard for air surrounding the areas specified at Sl. nos. c and d above.
- (3) Suspended Particulate Matter means airborne particles of a diameter of 10 micron or less.

SCHEDULE – 3 [See Rule 12 of ECR]

Table 6: (A) Standards for inland surface water

Best Practice based classification	Parameter			
	pH	BOD mg/L	DO mg/L	Total Coliform Number/100 mL
a. Source of drinking water for supply only after disinfecting:	6.5-8.5	2 or less	6 or more	50 or less
b. Water usable for recreational activity :	6.5-8.5	3 or less	5 or more	200 or less
c. Source of drinking water for supply after conventional treatment:	6.5-8.5	6 or less	6 or more	5000 or less
d. Water usable by fisheries:	6.5-8.5	6 or less	5 or more	---
e. Water usable by various process and cooling industries :	6.5-8.5	10 or less	5 or more	5000 or less
f. Water usable for irrigation:	6.5-8.5	10 or less	5 or more	1000 or less

Notes:

1. In water used for pisciculture, maximum limit of presence of ammonia as Nitrogen is 1.2 mg/l.
2. Electrical conductivity for irrigation water – 2250 µmhoms/cm (at a temperature of 25°C); Sodium less than 26%; boron less than 0.2%.

Table 7: (B) Standards for drinking water

Sl. No.	Parameter	Unit	Standards
1	2	3	4
1.	Aluminum	mg/l	0.2
2.	Ammonia (NH ₃)	mg/l	0.5
3.	Arsenic	mg/l	0.05
4.	Barium	mg/l	0.01
5.	Benzene	mg/l	0.01
6.	BOD ₅ 20°C	mg/l	0.2
7.	Boron	mg/l	1
8.	Cadmium	mg/l	0.005
9.	Calcium	mg/l	75
10.	Chloride	mg/l	150–600*
11.	Chlorinated alkanes		
	carbontetrachloride	mg/l	0.01
	1.1 dichloroethylene	mg/l	0.001
	1.2 dichloroethylene	mg/l	0.03
	tetrachloroethylene	mg/l	0.03
	trichloroethylene	mg/l	0.09
12.	Chlorinated phenols		
	- pentachlorophenol	mg/l	0.03
	- 2,4,6 trichlorophenol	mg/l	0.03
13.	Chlorine (residual)	mg/l	0.2
14.	Chloroform	mg/l	0.09
15.	Chromium (hexavalent)	mg/l	0.05
16.	Chromium (total)	mg/l	0.05
17.	COD	mg/l	4
18.	Coliform (fecal)	n/100 ml	0
19.	Coliform (total)	n/100 ml	0
20.	Color	Hazen unit	15
21.	Copper	mg/l	1
22.	Cyanide	mg/l	0.1
23.	Detergents	mg/l	0.2
24.	DO	mg/l	6
25.	Fluoride	mg/l	1
26.	Hardness (as CaCO ₃)	mg/l	200 – 500
27.	Iron	mg/l	0.3 – 1.0
28.	Kjeldahl Nitrogen (total)	mg/l	1
29.	Lead	mg/l	0.05
30.	Magnesium	„	30 – 35
31.	Manganese	„	0.1
32.	Mercury	„	0.001
33.	Nickel	„	0.1
34.	Nitrate	„	10
35.	Nitrite	„	<1
36.	Odor	„	Odorless
37.	Oil and grease	„	0.01
38.	pH	„	6.5 – 8.5
39.	Phenolic compounds	„	0.002
40.	Phosphate	„	6
41.	Phosphorus	„	0
42.	Potassium	„	12
43.	Radioactive materials (gross alpha activity)	Bq/l	0.01
44.	Radioactive materials (gross beta activity)	Bq/l	0.1
45.	Selenium	mg/l	0.01
46.	Silver	„	0.02
47.	Sodium	„	200

Sl. No.	Parameter	Unit	Standards
1	2	3	4
48.	Suspended particulate matters	„	10
49.	Sufide	„	0
50.	Sulfate	„	400
51.	Total dissolved solids	„	1000
52.	Temperature	°C	20-30
53.	Tin	mg/l	2
54.	Turbidity	JTU	10
55.	Zinc	mg/l	5

SCHEDULE – 4 [See Rule 12 of ECR]

Table 8: Standards for Sound

Sl. No.	Category of areas	Standards determined at dBA unit	
		Day	Night
a.	Silent zone	45	35
b.	Residential area	50	40
c.	Mixed area (mainly residential area, and also simultaneously used for commercial and industrial purposes)	60	50
d.	Commercial area	70	60
e.	Industrial area	75	70

Notes:

1. The time from 6 a.m. to 9 p.m. is counted as daytime.
2. The time from 9 p.m. to 6 a.m. is counted as night time.
3. Area up to a radius of 100 meters around hospitals or educational institutions or special institutions/ establishments identified/to be identified by the Government is designated as Silent Zones where use of horns of vehicles or other audio signals, and loudspeakers are prohibited.

Table A2.5: Bangladesh Standards for Odor

Parameters	Unit	Values
Acetaldehyde	PPM	0.5-5
Ammonia	PPM	1-5
Hydrogen Sulfide	PPM	0.02-0.2
Methyl Disulfide	PPM	0.009-0.1
Methyl Mercaptan	PPM	0.02-0.2
Methyl Sulfide	PPM	0.01-0.2
Styrene	PPM	0.4-2.0
Trimethylamine	PPM	0.005-0.07

Notes: 1. Regulatory standards at emission/discharge outlets (apply to those outlets which are higher than 5 meters): $Q = 0.108 \times H e^2$ cm,

1. Where Q – gas emission rate (Nm³/hour), He – effective height of the outlet (m), cm – above mentioned standard (ppm)
2. Where there is a range given for a parameter, the lower value will be used for warning and the higher

value for initiation of legal procedure or punitive measures.

Source: Department of Environment (DOE). Schedule –8, Rule-12, Environment Conservation Rules, 1997. (Page 3130, Bangladesh Gazette, 28 August 1997).

Table A2.6: Bangladesh Standards for Sewage Discharge

Parameters	Unit	Values
BOD	mg/l	40
Nitrate	mg/l	250
Phosphate	mg/l	35
Suspended Solids (SS)	mg/l	100
Temperature	oC	30
Coliforms	number/100ml	1000

mg/l = milligram per liter

Notes: 1. These standards are applicable for discharge into surface and inland water bodies. 2. Chlorination is to be done before final discharge.

Source: Department of Environment (DOE). Schedule- 9, Rule-13, Environment Conservation Rules, 1997. (Page-3131 of Bangladesh Gazette of 28 August 1997).

Table A2.7: Bangladesh Standards for Industrial and Project Effluent

Sl. No.	Parameters	Unit	Discharge To		
			Inland Surface Water	Public Sewer to Secondary Treatment Plant	Irrigable Land
1	Ammonical nitrogen (as elementary N)	mg/l	50	75	75
2	Ammonia (as free ammonia)	mg/l	5	5	15
3	Arsenic (as As)	mg/l	0.2	0.05	0.2
4	BOD5 at 20°C	mg/l	50	250	100
5	Boron	mg/l	2	2	2
6	Cadmium (as Cd)	mg/l	0.05	0.5	0.5
7	Chloride	mg/l	600	600	600
8	Chromium (as total Cr)	mg/l	0.5	1.0	1.0
9	COD	mg/l	200	400	400
10	Chromium (as hexavalent Cr)	mg/l	0.1	1.0	1.0
11	Copper (as Cu)	mg/l	0.5	3.0	3.0
12	Dissolved oxygen (DO)	mg/l	4.5-8	4.5-8	4.5-8
13	Electro-conductivity (EC)	µsiemens/cm	1200	1200	1200
14	Total dissolved solids	mg/l	2100	2100	2100
15	Flouride (as F)	mg/l	2	15	10
16	Sulfide (as S)	mg/l	1	2	2
17	Iron (as Fe)	mg/l	2	2	2
18	Total kjeldahl nitrogen (as N)	mg/l	100	100	100
19	Lead (as Pb)	mg/l	0.1	1	0.1
20	Manganese (as Mn)	mg/l	5	5	5
21	Mercury (as Hg)	mg/l	0.01	0.01	0.01
22	Nickel (as Ni)	mg/l	1.0	2.0	1.0
23	Nitrate (as elementary N)	mg/l	10.0	Not yet set	10
24	Oil and grease	mg/l	10	20	10
25	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	1.0	5	1
26	Dissolved phosphorus (as P)	mg/l	8	8	15
27	Radioactive substance	(to be specified by Bangladesh Atomic Energy Commission)			
28	PH		6-9	6-9	6-9
29	Selenium (as Se)	mg/l	0.05	0.05	0.05
30	Zinc (as Zn)	Mg/l	5	10	10
31	Total dissolved solids	Mg/l	2100	2100	2100
32	Temperature	°C (summer) °C (winter)	40 45	40 45	40 45
33	Suspended solids	Mg/l	150	500	200
34	Cyanide	Mg/l	0.1	2.0	0.2

Source: Department of Environment. Schedule -10, Rule-13, Environment Conservation Rules, 1997 (Page 3132 – 3134 of Bangladesh Gazette of 28 August 1997) (Own authentic translation from original Bengali).

Notes:

1. These standards will be applicable for all industries other than those which are specified under 'industrial sector specific standards'.

2. These standards will have to be compiled from the moment of trial production in case of industries and from the moment of the very beginning in case of projects.

These standards will have to be met at any point of time and any sampling. In case of need for ambient environment condition, these standards may be made stringent. Inland surface water will include drains, ponds, tanks, water bodies, ditches, canals, rivers, streams and estuaries. Public sewer means leading to full fledged joint treatment facility comprising primary and secondary treatment. Land for irrigation means organized irrigation of selected crops on adequate land determined on the basis of quantum and characteristics of waste water. If any discharge is made into public sewer or on land which does not meet the respective definitions in notes 5 and 6 above, then the inland surface water standards will apply.

Sn. No.	Parameters	Values (in mg/Nm ₃)
1	Particulates (ka) Power station of capacity of 200 MW or more (kha) Power station of capacity of less than 200 MW	150 350
2	Chlorine	150
3	Hydrochloric acid vapor and mist	350
4	Total fluoride (as F)	25
5	Sulfuric acid mist	50
6	Lead particulates	50
7	Mercury particulates	10
8	Sulfur dioxide (ka) Sulfuric acid production (DCDA* process) (kha) Sulfuric acid production (SCSA* process) (* DCDA : Double conversion, double absorption, SCSA : Single conversion single absorption) Lowest height of stack for sulfur dioxide dispersion : (ka) Coal based power plant 500 MW or more 200 MW – 500 MW Less than 200 MW (kha) Boiler Steam per hour – up to 15 tons Steam per hour – more than 15 tons (Q = SO ₂ emission in kg/hour)	kg/ton acid 4 100 275 m 220m 14(Q)0.3 11m 14(Q)0.3
9	Oxides of nitrogen (ka) Nitric acid production (kha) Gas based power stations 500 MW or more 200 – 500 MW Less than 200 MW (Ga) Metallurgical oven	3 kg/ton acid 50 ppm 50 ppm 40 ppm 30 ppm 200 ppm
10	Kiln soot and dust (ka) Blast furnace (kha) Brick kiln (Ga) Coke oven (Gha) Lime kiln	Mg/Nm ₃ 500 1000 500 250

Source: Department of Environment (DOE). Schedule-11, Rule-13, Environment Conservation Rules, 1997 (Page 3135, 3136, Bangladesh Gazette, 28 August 1997).