BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-4/T-1   BURP Examinations 2013-2014

Sub : **PLAN 451** (Environmental Planning and Management)

Full Marks: 210   Time : 3 Hours

USE SEPARATE SCRIPTS FOR EACH SECTION

The figures in the margin indicate full marks.

SECTION – A

There are **FOUR** questions in this section. Answer any **THREE**.

1. (a) Write down the concept of "sustainability". Explain the goals applied to cities that contribute to sustainable development.   **(20)**

    (b) Write down the cause of environmental degradation in Bangladesh.   **(5)**

    (c) Write short notes on (i) Physical-chemical environment, (ii) Biological environment, (iii) Cultural environment and (iv) Socio-economic environment.   **(10)**

2. (a) "An organism's survival depends on certain chemical factors and certain physical factors." List the chemical factors and physical factors.   **(5)**

    (b) What are the contrast between biotic and abiotic environment?   **(8)**

    (c) Define with examples organism's', 'populations', 'communities' and 'ecological system'.   **(12)**

    (d) "The earth is not a homogeneous environment but is virtually infinite combinations of climate, soil types, topography and over 30 million different plant and animal species." — Explain.   **(10)**

3. (a) Draw with neat diagrams of the structure of a forest ecosystem and a freshwater pond ecosystem.   **(12)**

    (b) What are the three basic types of ecosystem? Give an example of each.   **(12)**

    (c) "Within an ecosystem, life is not only governed by the interaction between plants, animals and micro organisms but also by environmental constraints." What do you understand by 'environmental constraints' ? Explain with examples.   **(11)**

4. Briefly explain the causes, effects and some solutions of <u>any five</u> of the following problems in Bangladesh: **(7×5=35)**

    (i)   Air pollution
    (ii) Noise pollution
    (iii) Water pollution
    (iv) Land pollution
    (v)   Hazardous waste
    (vi) Forest destruction.

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SECTION – B

There are **FOUR** questions in this section. Answer any **THREE**.

5. (a) State the key differences between EIA and SEA. (8)

(b) Discuss the models of integrating environment in policy making process. (9)

(c) Write down the procedure of issuance of ECC (Environmental Clearance Certificate) for FONSI (Finding of No Significant Impact) projects according to Environmental Conservation Rule (ECR' 97) of Bangladesh. (5)

(d) Which are the contents/sections usually comprised within an EIS (Environmental Impact Statement)? (6)

(e) Define the concepts of RA (Risk Assessment) and IEE (Initial Environmental Examination). (7)

6. (a) Discuss different types of methods and models to predict environmental impact of projects. (12)

(b) Discuss the role of Decision analysis as a multi-criteria environmental impact evaluation technique. (11)

(c) Give three examples of mitigation-measures to avoid, reduce and remedy significant adverse effects of potential development actions on various environmental components associated with the proposed project site. What kind of level of significance can be achieved after applying mitigation measures against project impacts? (9+3=12)

7. (a) Discuss the most widely used Network method for Environmental Impact Identification. (10

(b) Name the most remote method of impact identification. Why manual use of that method is difficult? State the reason why true representation of site/ground condition is not always possible to achieve while using that method. (2+2+2=6)

(c) Why in most cases of conducting EIA, impact identification methods like checklist and matrix are being used? (4)

(d) A major water resource development and irrigation project will be in consideration for undertaking. Potential health impacts will be occurred for the project in future. Prepare a questionnaire checklist as an impact identification tool focusing direct impacts on people in the project area, indirect impacts through effects on disease vectors, direct impacts on workers and impacts on health services. (7)

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Contd... Q. No. 7

(e) A matrix (given below) has been prepared for addressing potential impacts to fish and wildlife as a result of petroleum-industry related environmental perturbations. Interpret the findings from the matrix developed as an impact identification tool.　**(8)**

8.　(a) What is PSI and WQI? Show the equation of computing index for each case.　**(4+3=7)**

(b) How physical and chemical quality of water are measured for quantifying surface water pollution?　**(5)**

(c) Why 'Tragedy of Commons' concept has also been termed as 'Free Rider Problem'?　**(5)**

(d) Is there any difference between Public Goods and Common Pool Resource?　**(5)**

(e) Write short notes on: (any two)　**(2×2=4)**

　　(i)　Weighted Matrix

　　(ii)　Environmental Quality Score

　　(iii)　Amber A Category Project

(f) Differentiate between Monitoring and Auditing in the closing stage of EIA process.　**(9)**

POTENTIAL IMPACTS TO FISH AND WILDLIFE AS A RESULT OF PETROLEUM-INDUSTRY-RELATED ENVIRONMENTAL PERTURBATIONS

Environmental perturbations (rows) × **Impacts to fish and wildlife resources or their habitats** (columns)

Perturbation column key (Land surface disturbances):
DV = Destruction of vegetation; TC = Tree clearing; SD = Slash disposal; ASC = Altered soil characteristics; TE = Thermal erosion/thermokarst; HE = Hydraulic erosion; ASWH = Altered surface water hydrology; FLS = Fill over land surface; AGO = Above ground obstructions

Habitat category	Impact	DV	TC	SD	ASC	TE	HE	ASWH	FLS	AGO
Alteration of Terrestrial Habitat — Direct Habitat Loss	Reduced primary productivity	x		x	x				x	x
	Wildlife range reduction	x		x	x				x	x
	Displacement of low mobility species	x		x	x				x	x
	Elimination of critical habitat	x		x	x				x	x
	Interruption of energy & nutrient flow	x		x	x				x	x
Altered Habitat Charac.	Reduced plant cover & productivity		x	x	x	x	x		x	x
	Altered community composition		x	x	x	x			x	x
	Altered wildlife use		x	x	x	x	x		x	x
	Outbreaks of pest organisms					x				
	Interruption of energy & nutrient flow		x	x	x	x			x	x
Interfer. with Movements	Interruption of critical life history stages	x	x							
	Prevention of access to critical habitats	x	x							
	High energy expenditure—lowered survival	x	x							
	Injury of flying birds	x								
	Death or injury from toxic substances									
Alteration of Aquatic Habitat — Direct Habitat Loss	Reduced productivity									
	Displacement of low mobility species									
	Elimination of critical fish habitat									
	Interruption of energy & nutrient flow									
Altered Habitat Charac.	Reduced productivity							x		
	Reduction of critical fish habitat							x		
	Reduction of fish food organisms							x		
	Interruption of energy & nutrient flow							x		
Interfer. with Movements	Blockage of spawning migration									
	Blockage of access to feeding habitat									
	Prevention of escape from adverse habitat									
	High energy expenditure—lowered survival									
	Interruption of energy & nutrient flow									
	Death or injury to fish or eggs									
Disturbance of Wildlife (Noise, etc.)	Short term displacement of mobile species									
	Long term displacement—range reduction									
	Displacement of some population segments									
	Displacement from critical habitat									
	Increased stress—lowered survival									
	Interruption of critical life history stages									
	Interruption of energy & nutrient flow									
Attraction of Wildlife	Poor survival upon removal of food source									
	Man induced mortality if nuisance animal									
	Altered behavior passed on to progeny									
	Imbalance between pop. size & food supply									
	Breakdown in natural social structure									
	Increased stress—lowered survival									
Human Exploit.	Increased fish mortality									
	Increased wildlife mortality									

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-4/T-1   BURP Examinations 2013-2014

Sub : **PLAN 401** (Project Evaluation and Management)

Full Marks: 210   Time: 3 Hours

The figures in the margin indicate full marks.

USE SEPARATE SCRIPTS FOR EACH SECTION

SECTION-A

There are **FOUR** questions in this section. Answer any **THREE**.

1. (a) "Assumption and pressure-conditions are different" – Explain   (5)

   (b) What do you understand by intervention logic? Which columns fall into horizontal and vertical logics and why? – Use figure if necessary   (3+12)

   (c) Workers of a garment industry are facing a problem of unsafe working environment. Suppose owner of this industry has asked you to construct a Log-frame matrix to solve the problem. Now draw a 4 × 2 matrix and complete the first two columns based on the problem. Only one activity would suffice in the 4th now.   (15)

2. (a) Give an example of a project objective and explain the characteristics of good objectives based on that example.   (8)

   (b) "Strategy is not just an activity, rather if is the organization of different activities." – Explain.   (5)

   (c) Illustrate with a figure how monitoring and evaluation system fits within a project system.   (12)

   (d) Suppose a project namely- 'One farm for one household' is intended to be undertaken. Complete the four tiers on a bottom-up approach taking this project as the highest tier.   (10)

3. (a) What is the difference between project cycle and project life cycle?   (4)

   (b) Over the last two decades the water quality of Buriganga has been deteriorating. Based on that problem draw a cause-effect and means-end relationship diagram giving only one cause, effect, means and end. Also explain the relationship between these two diagrams.   (12)

   (c) Give an example of community development project. Identify its primary and secondary stakeholders and explain the criteria of stakeholder analysis for these primary and secondary stakeholders.   (15)

   (d) When do you think direct procurement is more suitable in buying goods and services?   (4)

4. (a) For a community development project what techniques would you suggest for conducting need assessment and why?   (5)

   (b) What is difference between two-stage tendering and request for proposal method?   (4)

PLAN 401

Contd ... Q. No. 4

(c) Briefly explain two alternative scenario in two-stage tendering. (10)

(d) Explain following method of budget estimation. (2 × 3 = 6)

(i) Apportioning

(ii) Parametric Estimation

(e) Do you agree that risk management is a cyclical process? – justify your answer with a diagram. (10)

SECTION-B

There are **FOUR** questions in this section. Answer any **THREE**.

5. (a) Explain the term 'Internal Rate of Return (IRR) and how it is used to select beneficial projects. Discuss the cases in which IRR cannot be used to get a valid result. (5 + 10 = 15

(b) What are the different sources of risk for a project? Explain. (10)

(c) The average annual income of five income groups has been collected for pre-and post-project scenarios except for income group 5. The projects impact on savings of these income groups is Tk. 22,700. Using this data and the marginal Propensity to save of these groups provided in the following table, Find the annual income of group 5 before the project initiated. (10)

Income Group	Pre-project Annual Income (Tk.)	Post-Project Annual Income (Tk.)	Marginal Propensity to save (%)
1	500,000	580,000	7
2	450,000	620,000	8
3	475,000	330,000	14
4	800,000	900,000	15
5	-	690,000	22

6. (a) To evaluate the minimum level of income required to avoid loss, a company is conducting a breakeven analysis based on the following data. Using this data calculate the accounting and financial break-even point of income. (20)

- Initial Investment : Tk. 18 million
- Variable Cost : Tk. 14 million
- Income : Tk. 19 million
- Fixed cost : Tk. 2 million
- Depreciation : Tk. 1.5 million
- Tax : 20%
- Project life : 15 years
- Interest rate : 11%

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Contd ... Q. No. 6

(b) Make a comparative analysis between 'Accounting Rate of Return' and IRR. What are the advantages and disadvantages of using accounting rate of return in evaluating projects?   (5 + 10 = 15)

7. (a) You have to choose between two finance companies A and B for taking a loan of Tk. 25 million. You can manage Tk. 20,000 per month for the loan repayment. Which of the two companies would be the better for you considering the following criteria? Explain your choice with relevant values or measures.   (15)

Criteria	Company A	Company B
Maximum Payback Period	20 years	22 years
Interest Rate	8% (annual)	9% (quarterly)
Minimum Annual Payment	180,000	190,000

(b) (i) Distinguish between annuity and annuity due.   (5)

(ii) Imperial Incorporated has to repay its loan of Tk. 3 million inn 6 years. Prepare the loan amortization schedule for Imperial incorporated considering an effective interest rate of 12% with semi-annual compounding   (15)

8. (a) A project consists of the following activities with the corresponding time estimates:

Activity	Proceeding Activity	Average Time (weeks)	Pessimistic Time (weeks)	Optimistic Time (weeks)
A	-	5	7	2
B	A	7	10	6
C	A	6	8	5
D	B	2	6	1
E	C	5	9	3
F	B	6	10	5
G	D	5	8	4
H	E, F	3	4	1

The project starts with activity A and ends with activity G and H.

(i) Draw the network diagram for the project including the FOT and LOT for each event.   (10)

(ii) Determine the critical path of he network diagram and the minimum time required for project completion.   (2)

(iii) Determine the probability of completing the project within 23 weeks.   (13)

(b) Briefly explain the similarities and dissimilarities between UNIDO and L-M approaches of Social Cost Benefit Analysis.   (10)

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-4/T-1 . BURP Examinations 2013-2014

Sub : **PLAN 403** (Legal Basis of Planning)

Full Marks: 210   Time: 3 Hours
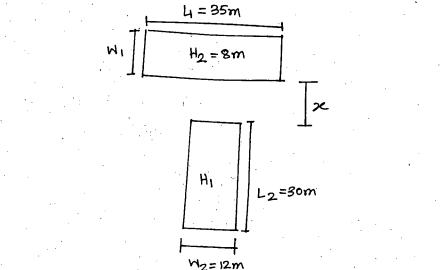
The figures in the margin indicate full marks.

USE SEPARATE SCRIPTS FOR EACH SECTION

SECTION-A

There are **FOUR** questions in this section. Answer any **THREE**.

1. (a) Mention the variables which might help consideration of deviation from designated
    FAR value according to the Bangladesh National Building code 2006.   (5)

    (b) Discuss about the permitted construction in mandatory open spaces according to the
    Bangladesh National Building code, 2006.   (10)

    (c) (i) If the area of plot is 4 katha, ground coverage is 0.6 and FAR value is 3.50; What
    is the allowable height (H) of a building in this plot? (Where overall height of one floor is
    3 meters).   (8)

    (ii)   (12)

    If H_1 + H (from math(i)); Calculate the value of x according to the Bangladesh National
    Building code, 2006.

2. (a) Define the following (Any five)   (5×3=15)

    (i) Universal Design; According to Building Construction Rules, 2008:

    (ii) High Rise Building: according to Building construction Rules 2008;

    (iii) Owner; according to Building construction Act 1952;

    (iv) Urban Area: according to Local government Pourashava Act, 2009;

    (v) Initiator; according to Private Residential land Development Rules, 2004.;

    (vi) Fire Resistance Rating, according to Bangladesh National Building code, 2006.

PLAN 403

Contd ... Q. No. 2

(b) Mention the names of four permission and clearance letters needed sequentially while asking for permission for building construction and use, according to the Building Construction Rules 2008. (8)

(c) If anyone asks for sanction for cutting or razing hills in area under the Building construction Act, 1952, what issues must be addressed to ensure human and environmental safety? What is the valid period for such sanction? (12)

3. (a) Mention some major responsibilities of Pourashavas, according to the Local Government Pourashave Act, 2009. (10)

(b) Mention the responsibilities vested on the Pourashava for collection and management of waste, according to the Local Government Pourashava Act, 2009. (10)

(c) Describe the issues while determining house rent, according to House Rent control Act, 1991. (8)

(d) Describe the evolution of Laws regarding ownership of new 'chair' lands in Bangladesh. (7)

4. (a) Discuss in brief the clauses regarding rehabilitation of owner and affected population by private residential hosing scheme, according to the Private Residential Land Development Rules, 2004. (9)

(b) List nine major occupancy classes of building according to Bangladesh National Building code, 2006. (9)

(c) What conditions are to be met while permitting the land use change of any open space or wetland, according to the open space and wetland conservation Act, 2000. (6)

(d) How the terms "Amin", "Khalashi", "Khatiyan" and "Khanapuri" are interrelated? (7)

(e) State the name of the authorities for land administration according to different functions and also name the ministries under which they function. (4)

SECTION-B

There are **FOUR** questions in this section. Answer any **THREE**.

5. (a) What is the difference between learning planning laws and understanding legal basis of planning? (5)

(b) Discuss the roles of laws in the context of planning and urban development. (12)

(c) Why is it important to check if any land use for example wet land, is categorized into other type, for example into urban land, in structure Plan or DAP? Who will be the beneficiaries or losers if such error-done willingly or unwillingly exists? (6)

(d) What is Public Interest Litigation? Upon which grounds such litigations are suit? Who can suit such cases? (3+7+2)

PLAN 403

6. (a) In 2011, in its verdict stating BGMEA building illegal the High Court Division observed that,

"We cannot allow a class of privileged people to flout the law because they are rich: Lord Denning's command must not be ignored: "Be you ever so high, the law is above you" ... The fact that lots of money had been spent, cannot be a ground to allow it to stay upright. BGMEA must return money to those who bought flats in the building, as those transactions stand vitiated, within 12 months from the receipt of claims. The flat buyers, can however, not, in our view, claim interest, because, as we loot at it, they are guilty of contributory negligence. They had actual or constructive knowledge about BGMEA's bareness title and the illegality as to the construction of the building."

Briefly discuss the issues regarding land ownership of BGMEA building, its adherence to master plan, planning permission etc. that the Honourable Court found faulty. (20)

(b) Differentiate among C.S., R.S. and S.A. survey. (15)

7. (a) If RAJUK or any authority distributes plots among the applicants evenly without any bias, still there remains much scope for unfairness and injustice. Describe, with reference to different notions of justice, how? (17)

(b) Name of documents to be checked while handing-over or buying plots or flats. (8)

(c) In a landmark verdict, written in Bangla which is also unprecedented, against river pollution and river grabbing the High Court in 2009 observed that, (10)

"পৃথিবীর প্রধান ও সুন্দর মহানগরীগুলি নদী পার্শ্বে অবস্থিত। যেমন, লন্ডন শহর টেম্স নদী, নিউইয়র্ক শহর হাড্সন নদী, প্যারিস শহর সীন নদীর পার্শ্বে অবস্থিত। দানিউব নদীর পার্শ্বে তিন তিনটি রাজধানী অবস্থিত। উক্ত নয়নাভিরাম নদীগুলি ও ইহার স্ফটিক সদৃশ পানি রক্ষণার্থে সেইসব দেশের জনগণ ও সরকার সদা সচেষ্ট। ঢাকা মহানগরীর চতুর্পার্শ্বে একটি নয় সাতটি নদী অবস্থিত। কয়েক বৎসর পূর্বেও এইগুলিও স্রোতস্বিনী প্রবাহমান নদীই ছিল কিন্তু এখন এইগুলোকে আর নদী বলা যায় না। উপরে বর্ণিত টেম্স ও অন্যান্য নয়নাভিরাম নদীগুলি ইহার পার্শ্বে অবস্থিত দেশ ও জাতিগুলির সভ্যতার উৎকর্ষতার নিদর্শনও বটে। ইহার বিপরীতে বুড়িগঙ্গা ও অন্যান্য নদীর আলকাতরা সদৃশ পানি বাংলাদেশ সভ্যতার উদাহরণ।"

In such context, the High Court gave a long list of directives to save the rivers. State any eight of them.

8. (a) "Beginning of modern planning law lies in the concern for public health. Again, nowadays planning laws are more concerned with issues of sustainability i.e. beyond spatial development." Based on the statement discuss different phases of development of planning laws. (14)

PLAN 403

(b) If a bill-board on an urban street claims that it is approved by the railway authority or if a 'saree shop' claims to get permission from the conservator of Port, will those claims be valid? Justify your answer, and also state the name(s) of authority(ies) entrusted with those responsibilities. (8)

(c) Differentiate among three approaches to law making: natural or divine, positivist and socio-historical. (13)

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-4/T-1   B. Sc. Engineering Examinations 2013-2014

Sub : **CE 471** (Basic Environmental Engineering)

Full Marks: 210   Time: 3 Hours

The figures in the margin indicate full marks.

USE SEPARATE SCRIPTS FOR EACH SECTION

SECTION-A

There are **FOUR** questions in this section. Answer any **THREE**.

1. (a) What are the essential elements of a water supply system? Rain water could be a potential source of water supply for areas with lack of safe water supply source-explain.   (4+7)

   (b) A tubewell of 6 inch diameter is sunk to withdraw water from a water bearing formation. The expected yield (discharge) from the well is 1.0 ft³/sec. If pumping water depth is 150 ft and the drawdown in the well is 10 ft, determine the coefficient of permeability of the aquifer. Assume the radius of circle of influence is 100 ft.   (14)

   (c) Write down the merits and demerits of branched network and looped network used in water distribution system.   (10)

2. (a) Write short notes on the following water quality parameters – i) Total coliform & Fecal coliform and (ii) Turbidity   (10)

   (b) A groundwater source is used to supply for an industrial process. But water needs to be treated for removal of hardness before supply. If the alkalinity and hardness (both Ca & Mg are present) of that groundwater found to be 310 and 250 mg/L as CaCO₃ respectively, show detail chemical reactions involved in softening process. Assume pH of the groundwater is 7.5.   (10)

   (c) Discuss the major factors which may influence the use of community water consumption. The population of a town was 2.5 million in 2004 and 3.2 million in 2014. What will be the expected population in 2024?   (7+8)

3. (a) It is often more difficult to identify the risk factor than identification of an adverse effect of any environmental pollutant – explain with example. What are the fundamental steps of risk assessment?   (8)

   (b) Briefly discuss different types of aeration technique used in water treatment system.   (12)

   (c) A town with a population of 80000 has a 24-hrs continuous water supply from the treatment plant by direct pumping at a uniform rate. Average per capita daily consumption over 24 hrs is phased as follows: (15)

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Contd ... Q. No. 3(c)

Time	Per Capita Water consumption (L)
6 AM to 12 PM	120
12 PM to 4 PM	60
4 PM to 9 PM	100
9 PM to 12 midnight	40
12 midnight to 6 AM	15

Now a storage reservoir is needed to meet the fluctuation in daily water consumption. Find out the capacity of the tank. Assume no loss from trunk main.

4. (a) Briefly describe the solid waste collection systems with suitable illustrations. (18)

(b) Describe how the drainage system in urban areas are impacting the surface water sources. (4)

(c) Mention the suitability, advantages and disadvantages of the offset double pit toilet with pour flush systems. (13)

SECTION-B

There are **FOUR** questions in this section. Answer any **THREE**.

5. (a) Define 'Integrated Waste Management'? Briefly describe the four basic solid waste management strategies for Integrated Waste Management. (2+16=18)

(b) Discuss the overall planning process for developing a municipal solid waste management program. (17)

6. (a) What do you understand by 'Air Pollution'? What are the major sources of outdoor pollution? (2+5=7)

(b) What is air Quality Index (AQI)? On a particular day, the following air quality data have been recorded at a monitoring station in Dhaka: (3+10=13)

$PM_{2.5}$ = 175 mg/m^3 (24-hr); PM_{10} = 295 mg/m^3 (24-hr); O_3 =0.065 ppm (8-hr), CO =4.8 ppm (8-hr); SO_2 = 0.45 ppm (24-hr)

Determine the AQI for that day. (Use attached table for calculation).

(c) What is the difference between Noise and Sound? How is decibel (dBA) related to the relative loudness of noise? What are the possible solutions for noise protection for workers working in a noisy industrial environment? (2+2+4=8)

(d) Briefly describe the regulations/standards used with respect to air quality monitoring? Why averaging period is considered in air quality standards? (4+3=7)

CE 471

7. (a) What are the drawback in using pit/pour-flush latrines in slums and low-income communities? Provide a brief description with illustrations. (8)

 (b) Discuss the common situation in urban on-site sanitation practice in middle and high-income areas. (8)

 (c) Name commonly used low cost on-site sanitation technologies in Bangladesh. (5)

 (d) Describe the pour flush toilet system with two-chamber septic tank and soak-pit. What are the suitability, advantages and disadvantages of using this on-site sanitation technology? (14)

8. (a) Describe the sources of water pollution in the environment. (18)

 (b) What are the impacts of urban sanitation practices in Dhaka City on the surrounding surface water bodies and water supply scenario? (15)

 (c) Explain how discharge of nutrients in a surface water body affects the overall water quality. (2)

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for Q. no. 6(b)

Breakpoints							AQI
O$_3$ (ppm) 8-hr	O$_3$ (ppm) 1-hr (i)	PM$_{2.5}$ (ug/m3) 24-hr	PM$_{10}$ (ug/m3) 24-hr	CO (ppm) 8-hr	SO$_2$ (ppm) 24-hr	NO$_2$ (ppm) Annual	
0.000-0.064		0.0-15.4	0-54	0.0-4.4	0.000-0.034	(ii)	0 – 50
0.065-0.084		15.5-40.4	55-154	4.5-9.4	0.035-0.144	(ii)	51 – 100
0.085-0.104	0.125-0.164	40.5-65.4	155-254	9.5-12.4	0.145-0.224	(ii)	101 – 150
0.105-0.124	0.165-0.204	65.5-150.4	255-354	12.5-15.4	0.225-0.304	(ii)	151 – 200
0.125-0.374	0.205-0.404	150.5-250.4	355-424	15.5-30.4	0.305-0.604	0.65-1.24	201 – 300
(iii)	0.405-0.504	250.5-350.4	425-504	30.5-40.4	0.605-0.804	1.25-1.64	301.– 400
(iii)	0.505-0.604	350.5-500.4	505-604	40.5-50.4	0.805-1.004	1.65-2.04	401 – 500

(i) In some cases, in addition to calculating the 8-hr ozone index, the 1-hr ozone index may be calculated, and the maximum of the two values reported.

(ii) NO2 has no short-term air quality standard and generate an AQI only above 200.

(iii) 8-hr O$_3$ values do not define higher AQI values (>=301). AQI values 301 or higher are calculated with 1-hr O$_3$ concentrations.