ENVIRONMENTAL STATEMENT

1st April 2022 to 31st March 2023

DELHI INTERNATIONAL AIRPORT LIMITED

Environmental Statement
For the financial year - April 2022 to March 2023

Part – A

1. Name and Address of the Occupier of the Industry		**: Chief Executive Officer** **Delhi International Airport Limited (DIAL)** **New Udaan Bhawan** **Opp. Terminal 3, IGI Airport,** **New Delhi -110037**
Operation or Process		**: Airport Operation, Management and Development**
II.	**Industry category** **Primary - (STC code),** **Secondary - (SIC Code)**	**: Airport** **: As per CPCB classification– Red**
III	**Production Category – Unit Million**	**: Airport Operation, EC Capacity-109 Passenger Per Annum (MPPA)**
IV	**Year of Establishment**	**: DIAL took over the Indira Gandhi International Airport ("IGIA"/ "Airport") Operation in 2006 as per agreement (OMDA) with Govt. of India, previously It was operated by Airports Authority of India (AAI)**
V	**Date of Last Environmental Statement Submitted**	**: 27th September, 2022**

PART – B

Water & Raw Material Consumption
(i) Water Consumption (m3/day):

Areas	**April 2021 – March 2022 (m3/Day)**	**April 2022 – March 2023 (m3/Day)**
Process	No processing is involved; water is used for Cooling, Domestic and Airport operation purpose.	No processing is involved; water is used for Cooling, Domestic and Airport operation purpose.
Industrial Cooling	30.95	1295
Domestic	4698.41	5486
Passenger Handled/Day	113191	178980
Total water consumption per passenger (m3/Pax)	0.0417 (m^3/pax)	0.0378 (m3/pax)

(ii) Raw Material Consumption:

Name of raw materials	Name of Products	Consumption of RM per unit of output
Not applicable	Not applicable	Not applicable

Note – It is not applicable, Airport provides service to the Airlines & Passengers, not having any industrial production units. Industrial raw materials are not consumed, consumption of water already provided in the table (i)

Form V-the terminologies and table used are as per the airport sector

PART – C

Pollution discharged to Environment/ Unit of Output
(Parameters as specified in the consent issued)

Pollutants	Observed Level	Standard Limits	Percent variation from standards
(A)Water (STP Treated Water): 16.6 MLD STP operates continuously**.** It is a zero discharge plant. All treated water is used for horticulture, landscaping and flushing HVAC applications.The STP water quality is monitored regularly by MoEF&CC/NABL approved labs. The quantity of discharge and its concentration requirement given in the standard table of Form V is provide for STP treated water quality in line with DPCC consent standard, to meet the requirement. The maximum concentrations observed value of each pollutant during the reporting period (April 2022 to March 2023) are given in **Annexure – I (A-Water).** The observed values are well within the limits of prescribed standard given by DPCC.			
(B)Air There is no production or process units stack at Airport. Airport has a grid connection from BSES Rajdhani having 51.8 MVA sanctioned load. To meet the electricity demand during power failure Airport has installed DG sets for emergency/backup. The emissions of DG sets are monitored regularly by MoEF&CC approved labs twice in a year. Given list in Annexure – I (B-Air) include the DGs of capacity 1000KVA and above connected for emergency/backup during the reporting period. The quantity of discharge and its concentration requirement given in the standard table of Form V is provide for DG sets emission in line with CPCB/MoEF&CC standards to meet the requirement. The maximum concentrations observed value of each pollutant during the reporting period (April 2022 to March 2023) are given in **Annexure – I (B-Air).** The observed values are well within the limits of prescribed standard for DG sets by CPCB/MoEF&CC.			

PART – D

Hazardous Waste

(As Specified under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016)

Hazardous Waste	Total Quantity (L)	
	During 2021-22	During 2022-2023
(a) From Vehicle/ DG Sets Maintenance - Used Engine Oil +Hydraulic Oil +Transformer Oil + Gear Oil + Lube Oil	7,130	8253
(b) From process & pollution control facilities	Nil	

PART – E

Solid Wastes

Produces	Total Quantity	
	2021-22	2022-23
(A) From Airport Operation	3.67 MT/day of waste is generated from Airport operation	4.10 MT/day of waste is generated from Airport operation
(B) From Pollution Control Facilities	Sludge generated from the STP is used as manure for agriculture activities	Sludge generated from the STP is used as manure for agriculture activities
(C) (1) Quantity recycled or re-utilized within the unit	2.10 MT/day waste is channelized to recycler through service provider	2.50 MT/day waste is channelized to recycler through service provider
(2) Sold	NA	NA
(3) Disposed	1.57 MT/day Municipal Solid Waste/ Garbage disposed through service provider in approved Compost plant	1.61 MT/day municipal Solid Waste/garbage disposed through service provider in approved Compost plant

Part – F

Please specify the characterizations (in terms of composition of quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

- Hazardous nature wastes generated at DIAL are used engine oil, hydraulic oil, transformer oil, lube oil and gear oil which are categorized under schedule IV Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. No other industrial hazardous waste is generated.
- These wastes were generated during maintenance of vehicles/equipment in workshops and electrical sections from DG sets.
- DIAL had obtained hazardous waste authorization dated 07.06.2019 under hazardous waste (M, H & TM) rules 2016 from Delhi Pollution Control Committee (DPCC). Authorization is valid for 5 years, i.e. till 09.05.2024.
- Hazardous Waste i.e. Used oils/lubricants are stored in barrels in accordance to Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and are being disposed-off to the authorized recyclers.
- For Solid waste, waste bins for waste collection and segregation are placed in the entire Airport with signage to supports in segregation of waste at source by passengers, concessionaires and all service providers.
- The dry and wet waste are sent to authorize recyclers, composters and waste to energy producers by the service provider. Further the e-waste rules are being complied through providing waste to authorized recyclers and waste batteries are given back to battery providers as per Battery Management rules.
- The Construction & Demolition waste generated is being collected, segregated and used for various developmental works and being complied in managing the waste as per Construction and Demolition Waste Rules, 2016.

Part – G

Impact of Pollution Control Measures Taken on Conservation of Natural Resources and consequently on the Cost of Production

Airport has taken various sustainability initiatives towards conservation of the natural resources at Indira Gandhi International Airport (IGIA). As a part of capacity enhancement plan, DIAL has obtained Environmental Clearance (EC) from MoEF&CC for the expansion of IGIA and the Consent to Establish (CTE) is valid until dated 15-08-2024 from DPCC. Currently IGIA is under expansion program. DIAL also received consent to operate under Air and Water Act valid till 06-03-2024. All the various pro-active measure adopted to conserve natural resource have resulted in reduced specific

water, energy consumption and overall GHG emission at IGI Airport. Some of the key initiatives are highlighted below-

Air:

- Bridge Mounted Equipment (BME) have been incorporated in the infrastructure of Terminal-3, IGIA which reduces the requirements for APU, GPU, ladders & related equipment. This leads to less fuel burn & consequently less air pollution. Similar provision is being planned at T1 as a part of airport expansion project.
- Multiple cross and parallel taxiways have been developed so as to minimize extensive aircraft taxing time for aircrafts approaching to and fro and related emissions.
- Adequate number of bus transport has been provided at the terminals, near Terminal-3, IGIA, public transportation Centre (bus/taxi/auto) has been established & Multimodal connectivity is developed at IGIA to reduce possible vehicular traffic emissions. Electric buses have been deployed for passenger movement from IGIA bus terminal to terminal -3.
- All passenger coaches are operating using CNG at airside and CNG Refilling Station has also been commissioned at IGIA.
- Wet scrubbers have been installed at DG sets having less stack heights.
- DIAL has adopted Net Zero Carbon Emission Program for IGIA and Targeted to achieve by 2030. 100% use of renewable energy is one initiative in this programs, this is to reduce its energy indirect emissions from Airport. DIAL has engaged with renewable energy producer with power purchase agreement for its offsite renewable energy sourcing. Further, at onsite, 7.84 MW Solar Plant has been installed at IGI Airport and is the first airport in India to have mega solar power plant at airside premises.
- Airport Collaborative Decision Making (A-CDM) System is in place to control the aircraft emissions. By adopting Airport Collaborative Decision Making (ACDM) system and mixed mode operation in all runways, the aircraft delays and its related emissions are reduced. As a part of emission reduction initiative airlines are advised to start the engine after getting permission from Air Traffic Controller (ATC). This will reduce substantial emission load at IGIA.
- Carbon Emission management is emphasized and DIAL regularly report carbon/ GHG inventories to regulators.
- DIAL has achieved ACI Airport Carbon Accreditation- Level 4+ (Transition) and DIAL is the first airport in the Asia Pacific Region and Second airport globally to have this credentials & GHG inventories of DIAL is ISO 14064 certified.

- Dust is being controlled by adequately barricading of construction sites and spraying of water prior to any excavation works, loading, unloading or transfer operation of soil and other construction materials and by covering the vehicles carrying soils by impervious sheet during transport and also by keeping the stockpiles in the effective slops.

Water:

- To improve water resources, DIAL has installed rainwater harvesting wells at IGIA, water efficient fixtures installed at terminal building, water efficient landscaping and Irrigation systems have been installed.
- DIAL has also installed STP of capacity 16.6 MLD, which is operational 24x7. The entire treated water is reused for flushing, irrigation and HVAC makeup.
- This is a state of the art plant using primary, secondary & tertiary treatment. The STP has been designed as zero liquid discharge plant.
- Various water conservation measures have been adopted in the airport to reduce the water consumption.
- Proper drainage and spill management plans are in place.
- At airport storm water drains are built for discharging storm water from the air-field to avoid flooding/water logging in project area during monsoon season / cloud bursts.
- As a part of current expansion, additional rainwater harvesting structures and storages facilities are being developed for water conservation.

Noise:

Noise level at IGIA is monitored & controlled with the following measures:

- Ambient Noise monitoring is being conducted regularly at different locations in and around the Airport including the areas under the takeoff and landing funnels.
- All project construction activities are performed within the airport area. Noise monitoring and controls are established for vehicles and power machinery and equipment on-site with maintenance.
- All DG Sets, operating at sites are equipped with acoustic enclosures and are being monitored regularly. Ear Plugs are provided to all operating personnel as per requirements.
- Compliance is being ensured as per MoEF&CC & DGCA requirements. Aircraft noise mitigation measures are in place as per regulatory requirements and directions.

- DIAL has established 'Aircraft Noise Monitoring Systems' (ANMS) to monitor Aircraft noise. Monitoring of noise levels help in taking mitigation measures as per requirement. These state-of-art systems (ANMS) instruments are installed and functional in the funnel areas around the airport.
- Various Noise abatement programs are being adopted to reduce the aircraft noise. Continuous Descent Approach (CDA)/ Low Power Low Drag (LP/LD) Approach, Mixed Mode Operation, Restricted use of thrust reversers, Restriction on use of GPU/APU, Restriction on ground run of engines and phasing out of Chapter 2 aircraft for civil use, use of noise barriers, Aircraft Noise Monitoring in the runway funnel area, Noise complaint redressal cell, Noise mapping and noise contours are some of the measures being taken up by DIAL along with the stakeholders at IGIA to ensure noise management.

Waste:

- Waste such as municipal solid waste, hazardous waste, E-Waste, Biomedical waste plastic wastes and construction and demolition waste are handled and disposed as per the legal framework.
- Waste collection is being done in suitable bins in terminal building and airside with signage supports in segregation of waste at source by passengers, concessionaires and all service providers. All the recyclable wastes collected and channelized to recyclers by the service provider and compliances are being ensured as per Solid Waste Management Rules, 2016.
- DIAL has adopted Single Use Plastic free initiatives at IGIA and given awareness to its all its stakeholders. Used Oils and Waste Oils (Hazardous Waste) are collected, stored, transported and disposed to authorized recyclers as per the Hazardous and other waste Management rules. Return is being filed as per requirement to DPCC.
- Electronic wastes are stored as per E-Waste management and handling rules and are being disposed-off to the authorized agencies.
- Used batteries are stored in isolated area and given back to battery service providers as per Battery management and handling rules, return is being filed as per requirement to DPCC.
- Training and Awareness on Environment Sustainability Management and Compliance are regularly provided to stakeholders operating at Airport.
- Quality measures such as Kaizen, Continuous Improvement Programs, and Bottom Level Improvement Programs have been taken for waste management.

Part – H

Additional Measures/Investment proposal for Environmental Protection including Abatement of Pollution

The following additional measures are adopted at airport for environment protection and abatement of pollution:

- Green Building initiative & Energy Efficiency measure are being adopted in terminal buildings using energy efficient technology (Less GHG emitting).
- Terminal 3 is LEED GOLD Certified building under "New Construction" category and also Platinum rated green building under IGBC "Existing Building Category".
- As a part of ongoing expansion, the Terminal 1 is being developed as per LEED standards to conserve more natural resources and being customer friendly. It is pre certified to LEED Platinum Level.
- To reduce the electrical energy consumption DIAL has installed provision of sky lights to utilize natural light.
- A CNG filling station has been established inside the Airport for airlines buses and other vehicles.
- All stakeholders at IGIA are encouraged to use CNG and electric vehicles.
- As a part of ongoing expansion, Airport is developing elevated cross taxiway to reduce the aircraft emission, delays and enhance the operational excellence of the airport.
- Airport has also started operation of Taxi Bots to taxi the aircrafts. This reduces the running time of aircraft main engine during taxi process and has resulted in significant reduction in overall fuel consumption and air pollution.
- Airport also established ISO 14001: 2015 Environment Management System (EMS) to manage its environmental aspect and impacts of various activities and ISO 14064 for GHG Management. IGIA also certified for 50001:2018 – Energy Management System for its energy management.

Part – I

Miscellaneous:

Any Other Particulars for Improving the Quality of the Environment

- IGI Airport has embraced sustainability and is implementing various initiatives towards achieving it. Collaborative Environment Management Program is one of the active measures incorporated towards sustaining environment at IGIA with the support of all stakeholders. All stakeholders along with DIAL members

have united for this cause to achieve a more efficient, effective, pollution free and environment friendly airport environment.

- Continuous trainings, awareness creation & education are an integral part of our efforts in this direction to make IGIA ever green airport. All our stakeholders and respective team members are together trained for various trainings and awareness programs.

To summarize the above statement, it is stated that Delhi International Airport Limited (DIAL) is actively engaged in environment protection and effective environment management in the day-to-day operations. Environment management and sustainable development is DIAL's commitment at IGIA. In order to effectively manage environmental requirements at airport separate environment department comprising of qualified staff has been employed. Considering the need for environment protection and value of natural resource management, DIAL celebrates World Environment Day every year emphasizing importance of environmental sustainability with IGIA stakeholders.

Annexure – I

(A)Water (STP Treated Water): **DIAL - 16.6 MLD STP treated water Quality**			
Pollutants:	**Concentration of pollutants after treatment (Avg)**	**Prescribed standards (As per CTO)**	**Percentage of variation from Prescribed standards**
1. pH	7.36	5.5-9.0	-18%
2. TSS	5.42 mg/l	30mg/l	-82%
3. B.O.D @27^{o}C	4.75 mg/l	20mg/l	-76%
4. COD	37.50 mg/l	250 mg/l	-85%
5. Oil & Grease	ND	10mg/l	-
6. Ammonical nitrogen (as N)	1.04 mg/l	50mg/l	-98%
7. Nitrate Nitrogen (as NN)	8.18 mg/l	10mg/l	-18%
8. Dissolved Phosphate (as P)	2.58 mg/l	5.0mg/l	-48%
(B)Air - DIAL- DG sets emission levels			
DG Sets	**Concentration of pollutants**	**Prescribed standard for DG Sets by CPCB**	**Percentage of variation from Prescribed standards**
DG 1			
PM (mg/Nm3)	50.74	75	-32.35
Nox (ppmv)	185.22	710	-73.91
CO (mg/Nm3)	55.34	150	-63.11
DG 2			
PM (mg/Nm3)	56.93	75	-24.09
Nox (ppmv)	189.64	710	-73.29
CO (mg/Nm3)	58.97	150	-60.69
DG 3			
PM (mg/Nm3)	63.28	75	-15.63
Nox (ppmv)	186.95	710	-73.67
CO (mg/Nm3)	53.62	150	-64.25
DG 4			
PM (mg/Nm3)	54.79	75	-26.95
Nox (ppmv)	179.63	710	-74.70
CO (mg/Nm3)	48.65	150	-67.57

DG 5			
PM (mg/Nm3)	52.16	75	-30.45
Nox (ppmv)	172.57	710	-75.69
CO (mg/Nm3)	50.12	150	-66.59
DG 6			
PM (mg/Nm3)	67.42	75	-10.11
Nox (ppmv)	183.26	710	-74.19
CO (mg/Nm3)	58.34	150	-61.11
DG 7			
PM (mg/Nm3)	58.95	75	-21.40
Nox (ppmv)	169.43	710	-76.14
CO (mg/Nm3)	61.25	150	-59.17
DG 8			
PM (mg/Nm3)	64.12	75	-39.76
Nox (ppmv)	168.33	710	-79.82
CO (mg/Nm3)	53.69	150	-62.39
DG 9			
PM (mg/Nm3)	54.12	75	-27.84
Nox (ppmv)	175.64	710	-75.26
CO (mg/Nm3)	59.62	150	-60.25
DG 10			
PM (mg/Nm3)	56.39	75	-24.81
Nox (ppmv)	179.55	710	-74.71
CO (mg/Nm3)	52.97	150	-64.69
DG 11			
PM (mg/Nm3)	53.27	75	-28.97
Nox (ppmv)	183.25	710	-74.19
CO (mg/Nm3)	51.24	150	-65.84
DG 12			
PM (mg/Nm3)	64.12	75	-14.51
Nox (ppmv)	172.48	710	-75.71
CO (mg/Nm3)	53.64	150	-64.24
DG 13			
PM (mg/Nm3)	52.48	75	-30.03
Nox (ppmv)	189.34	710	-73.33
CO (mg/Nm3)	39.62	150	-73.59
DG 14			
PM (mg/Nm3)	63.14	75	-15.81
Nox (ppmv)	194.26	710	-72.64
CO (mg/Nm3)	47.86	150	-68.09
DG 15			
PM (mg/Nm3)	45.69	75	-39.08
Nox (ppmv)	195.42	710	-72.48
CO (mg/Nm3)	48.97	150	-67.35
DG 16			
PM (mg/Nm3)	51.28	75	-31.63
Nox (ppmv)	174.23	710	-75.46
CO (mg/Nm3)	52.43	150	-65.05
DG 17			
PM (mg/Nm3)	46.33	75	-38.23
Nox (ppmv)	168.95	710	-76.20
CO (mg/Nm3)	56.37	150	-62.42

DG 18			
PM (mg/Nm3)	50.07	75	-33.24
Nox (ppmv)	179.30	710	-74.75
CO (mg/Nm3)	53.45	150	-64.37
DG 19			
PM (mg/Nm3)	53.96	75	-28.05
Nox (ppmv)	162.39	710	-77.13
CO (mg/Nm3)	49.65	150	-66.90
DG 20			
PM (mg/Nm3)	68.53	75	-8.63
Nox (ppmv)	197.40	710	-72.20
CO (mg/Nm3)	51.76	150	-65.49
DG 21			
PM (mg/Nm3)	47.62	75	-36.51
Nox (ppmv)	179.63	710	-74.70
CO (mg/Nm3)	57.15	150	-61.90
DG 22			
PM (mg/Nm3)	39.60	75	-47.20
Nox (ppmv)	143.29	710	-79.82
CO (mg/Nm3)	53.25	150	-64.50
DG 23			
PM (mg/Nm3)	63.14	75	-15.81
Nox (ppmv)	172.34	710	-75.73
CO (mg/Nm3)	58.29	150	-61.14
DG 24			
PM (mg/Nm3)	58.73	75	-21.69
Nox (ppmv)	164.72	710	-76.80
CO (mg/Nm3)	55.16	150	-63.23
DG 25			
PM (mg/Nm3)	53.62	75	-28.51
Nox (ppmv)	154.23	710	-78.28
CO (mg/Nm3)	49.66	150	-66.89
DG 26			
PM (mg/Nm3)	49.12	75	-34.51
Nox (ppmv)	183.06	710	-74.22
CO (mg/Nm3)	58.97	150	-60.69
DG 27			
PM (mg/Nm3)	56.43	75	-24.76
Nox (ppmv)	150.42	710	-78.81
CO (mg/Nm3)	52.26	150	-65.16
DG 28			
PM (mg/Nm3)	48.94	75	-34.75
Nox (ppmv)	159.46	710	-77.54
CO (mg/Nm3)	52.46	150	-65.03
DG 29			
PM (mg/Nm3)	56.28	75	-24.96
Nox (ppmv)	185.24	710	-73.91
CO (mg/Nm3)	54.78	150	-63.48
DG 30			
PM (mg/Nm3)	56.82	75	-24.24
Nox (ppmv)	180.43	710	-74.59
CO (mg/Nm3)	55.36	150	-63.09

DG 31			
PM (mg/Nm3)	49.32	75	-34.24
Nox (ppmv)	165.24	710	-76.73
CO (mg/Nm3)	53.96	150	-64.03
DG 32			
PM (mg/Nm3)	52.78	75	-29.63
Nox (ppmv)	157.48	710	-77.82
CO (mg/Nm3)	55.14	150	-63.24
DG 33			
PM (mg/Nm3)	43.27	75	-42.31
Nox (ppmv)	183.14	710	-74.21
CO (mg/Nm3)	50.24	150	-66.51
DG 34			
PM (mg/Nm3)	49.73	75	-33.69
Nox (ppmv)	140.39	710	-80.23
CO (mg/Nm3)	54.12	150	-63.92