

# ENVIRONMENTAL BULLETIN OF KOS “IPPOKRATIS” AIRPORT (KGS)

## Reference year 2020

Fraport Regional Airports of Greece B S.A.

July 2021

BLANK PAGE

## Contents

<b>1. INTRODUCTION</b>	<b>4</b>
1.1. Location	4
1.2. Administration	4
1.3. Environmental licensing	4
1.4. Airport Basic Data	4
1.5. Airport facilities	5
1.5.1. Fuel Handlers	5
1.5.2. Ground Handlers	5
<b>2. TRAFFIC DATA STATISTICS</b>	<b>6</b>
2.1. Annual Traffic Data	6
2.2. High season traffic data	7
2.3. Low season traffic data	7
<b>3. AIRCRAFT NOISE</b>	<b>8</b>
3.1. Noise measurements during the reference year	8
3.2. Noise levels calculation based on noise simulation software	9
<b>4. AIR QUALITY</b>	<b>10</b>
4.1. Air quality measurements during the reference year	10
4.2. Air pollutants emission and dispersion modelling	11
<b>5. WASTE MANAGEMENT</b>	<b>12</b>
<b>6. ECOSYSTEM AROUND THE AIRPORT</b>	<b>13</b>
6.1. Flora-Fauna	13
6.2. Ecologically fragile areas	13
<b>7. WILDLIFE HAZARD MANAGEMENT</b>	<b>14</b>
<b>8. CULTURAL HERITAGE</b>	<b>15</b>
<b>9. RESOURCES CONSUMPTION</b>	<b>16</b>
9.1. Energy consumption	16
9.2. Fuel consumption	16
9.3. Heating oil or natural gas consumption	16
9.4. Water consumption	16
<b>10. GREENHOUSE GAS EMISSIONS &amp; CARBON FOOTPRINT</b>	<b>17</b>
<b>11. HUMAN COMSUMPTION WATER MONITORING PROGRAM</b>	<b>18</b>
<b>12. RAINWATER</b>	<b>19</b>
<b>13. GROUNDWATER AND/OR SOIL AND/OR SOIL GAS MONITORING</b>	<b>20</b>
<b>14. SEWAGE TREATMENT AND DISPOSAL</b>	<b>21</b>

## 1. INTRODUCTION

### 1.1. Location

“Ippokratis” airport of Kos is located in the homonym island of the Dodecanese, near the settlement Antimacheia, at a distance of 27km to the west of the capital of Kos island.

### 1.2. Administration

The airport administratively belongs to the Municipal Unit of Herakleides of the Municipality of Kos, of the homonym Regional Unit that belongs to the Region of South Aegeon.

### 1.3. Environmental licensing

Approved Environmental Terms	
E.T. Decision Reference number	68597/24.06.1999
E.T. Amendment Decision Reference Number	106859/08.08.2006
	197968/03.05.2012
	6126/16.03.2018

### 1.4. Airport Basic Data

Airport name IATA / ICAO	KGS / LGKO
Airport location – Airport Reference Point (ARP)	Latitude: 36° 47' 41" N Longitude: 27° 05' 28" E
Altitude	125.66m
Number of runways	1
Operation hours (summer & winter)	00:01 – 24:00

Runways	Length/Width					Code
Runway	2,390 x 45m					14/32
Full length of parallel taxiway	N/A					
Number of taxiways	4					
Apron capacity	A	B	C	D	E	
	-	-	6	-	2	
Employees	High season (31.08.2020)			Low season (30.11.2020)		
Fraport Greece (FG) employees	38			35		
Employees of other companies	596			326		

Terminal	
➤ Total area (m <sup>2</sup> )	23,013

<b>Other buildings and service/storage areas</b>	
➤ RFF Station (m <sup>2</sup> )	1,557

<b>Parking Areas</b>	
Car parking spaces	420
Bus parking spaces	30
Taxi parking spaces	30

## 1.5. Airport facilities

### 1.5.1. Fuel Handlers

<b>Number of fuel handler companies</b>	
Number of fuel handler companies operating at the Airport	2

<b>Installations inside the airport</b>	<b>EKO</b>	<b>GISSCO</b>	<b>HAFCO</b>
Environmental Management System (EMS)	YES	YES	Not operating at the airport

### 1.5.2. Ground Handlers

<b>Number of ground handler companies</b>	
Number of ground handler companies operating at the Airport	3

<b>Installations inside the airport</b>	<b>SKYSERV</b>	<b>SWISSPORT</b>	<b>GOLDAIR</b>
Vehicles (total number)	21	17	25
Environmental Management System (EMS)	YES	YES	YES

## 2. TRAFFIC DATA STATISTICS

### 2.1. Annual Traffic Data

<b>Annual Traffic Data for the year 2020</b>	
Overall Annual Air Traffic Movements <sup>1</sup>	7,994
Percent of increase or decrease in relation to the previous year	-59.6%
Annual passenger traffic	800,655
Percent of increase or decrease in relation to the previous year	-70.1%
Annual cargo transferred (tn)	162
Percent of increase or decrease in relation to the previous year	-50.20%

<b>Aircraft types</b>	
<b>Prevailing aircraft types for domestic flights</b>	
<b>Aircraft type</b>	<b>No. of flights</b>
AT45	1,002
DH8D	694
A320	481
AT75	224
AT72	134
A32A	106
A319	53
C550	30
EC35	14
A321	12
Other	144
<b>Prevailing aircraft types for international flights</b>	
<b>Aircraft type</b>	<b>No. of flights</b>
B73H	2,130
A320	833
B738	718
A32A	250
A321	212
A319	143
A32B	123
B73W	76
E195	66
A20N	56
Other	493

<sup>1</sup> Military and training flights not included.

## 2.2. High season traffic data

<b>High season traffic data (June-September)</b>	
Highest traffic month	August
Air traffic movements during the month with highest traffic	1,988
Air traffic movements daily average number during the month with highest traffic	64

## 2.3. Low season traffic data

<b>Low season traffic data (October-May)</b>	
Lowest traffic month	April
Air traffic movements during the month with lowest traffic	108
Air traffic movements daily average number during the month with lowest traffic	4

### 3. AIRCRAFT NOISE

#### 3.1. Noise measurements during the reference year

<b>Have noise measurements at the airport’s surrounding area been performed during the reference year?</b>		NO*
<b>Measurement points</b>		
N/A		
<b>Measurement points coordinates</b>	<b>Measurement points description</b>	
1) Position: N/A	N/A	
2) Position: N/A	N/A	
3) Position: N/A	N/A	
<b>Measurement period</b>	N/A	
<b>Noise indicators</b>	N/A	

#### Summary of measurement results:

\*Fraport Greece, during the years 2018-2019, has implemented a noise & air pollution monitoring program, according to the Approved Environmental Terms of the airport. The monitoring program included the implementation of special simulation tools in combination with confirmation measurements, of air pollution and noise, in representative positions around the airport.

At the end of the two year period of the program in April 2020, in implementation of the Environmental Terms, a Technical Evaluation Report was submitted to the Directorate for Climate Change and Air Pollution of the Ministry for Environment & Energy, with proposals for the most suitable in terms of effectiveness, air pollution & noise monitoring program for the years ahead (ref. number 39833/833/29.4.2020).

Given the situation with the COVID-19 pandemic and the subsequent dramatic decrease of the airport traffic no noise measurements were performed during the peak period of the reference year and the competent Ministry for Environment & Energy was informed accordingly.



**3.2. Noise levels calculation based on noise simulation software**

<b>Aircraft noise levels calculation based on noise simulation software</b>	NO*
<b>Software used:</b> N/A	
<b>Noise indicators and respective contours calculation:</b> N/A	
<b>Noise contours:</b> N/A	

**Summary of results:**


\*Fraport Greece, during the years 2018-2019, has implemented a noise & air pollution monitoring program, according to the Approved Environmental Terms of the airport. The monitoring program included the implementation of special simulation tools in combination with confirmation measurements, of air pollution and noise, in representative positions around the airport.

At the end of the two year period of the program in April 2020, in implementation of the Environmental Terms, a Technical Evaluation Report was submitted to the Directorate for Climate Change and Air Pollution of the Ministry for Environment & Energy, with proposals for the most suitable in terms of effectiveness, air pollution & noise monitoring program for the years ahead (ref. number 39833/833/29.4.2020).

Given the situation with the COVID-19 pandemic and the subsequent dramatic decrease of the airport traffic no noise software simulation was performed during the peak period of the reference year and the competent Ministry for Environment & Energy was informed accordingly.

## 4. AIR QUALITY

### 4.1. Air quality measurements during the reference year

<b>Have air quality measurements at the airport’s surrounding area been performed during the reference year?</b>		<b>YES</b>
<b>Measurement points</b>		
		
<b>Measurement points</b>	<b>Measurement points description</b>	
Position 1	Antimacheia Settlement, at a distance of approximately 1.3 km, to the north-east of the airport.	
Position 2	At a distance of less than 500 meters, in the school yard	
<b>Measurement period:</b>	25.02.2020 – 11.03.2020	
<b>Pollutants measured:</b>	PM <sub>10</sub> , PM <sub>2.5</sub> , NO <sub>2</sub> , SO <sub>2</sub> , C <sub>6</sub> H <sub>6</sub> , O <sub>3</sub>	

#### Summary of measurement results:

Air quality is monitored according to the airport’s monitoring program.  
No exceedance of the air quality limits was observed.

**4.2. Air pollutants emission and dispersion modelling**

<b>Calculation of air pollutants concentrations based on an emission and dispersion modelling software</b>		<b>NO*</b>
<b>Software used:</b> N/A		
<b>Pollutants concentrations and respective contours calculation:</b> N/A		
<b>PM<sub>10</sub></b>		N/A
<b>NO<sub>x</sub></b>		N/A
<b>SO<sub>x</sub></b>		N/A
<b>Benzene (C<sub>6</sub>H<sub>6</sub>)</b>		N/A

**Summary of results:**

\*Fraport Greece, during the years 2018-2019, has implemented a noise & air pollution monitoring program, according to the Approved Environmental Terms of the airport. The monitoring program included the implementation of special simulation tools in combination with confirmation measurements, of air pollution and noise, in representative positions around the airport.

At the end of the two year period of the program in April 2020, in implementation of the Environmental Terms, a Technical Evaluation Report was submitted to the Directorate for Climate Change and Air Pollution of the Ministry for Environment & Energy, with proposals for the most suitable in terms of effectiveness, air pollution & noise monitoring program for the years ahead (ref. number 39833/833/29.4.2020).

Given the situation with the COVID-19 pandemic and the subsequent dramatic decrease of the airport traffic no air pollution software simulation was performed during the peak period of the reference year and the competent Ministry for Environment & Energy was informed accordingly.

## 5. WASTE MANAGEMENT

Waste	Collection	Management/Disposal
<b>Recyclables (paper, plastic, metals, glass)</b>	Separate collection by the Municipality of Kos	Disposal at material recovery facility for recycling
<b>Residues (Mixed Waste) and Bulky Waste</b>	Collection by the Municipality of Kos.	Disposal in landfill

### Notes:

1. Regarding the different categories of the MSW (recyclables, mixed waste, bulky waste), the Airport Users handle their waste together with Fraport Greece B (central management).
2. Regarding the “alternative management’ waste categories (Waste lubricant oil WLO, WEEE, etc.):
  - i. Waste Lubricant Oil (WLO): Collection and management by authorized collector “CYTOP S.A.”
  - ii. Waste Electrical & Electronic Equipment (WEEE): Collection and management by alternative management system “Appliances Recycling S.A.”
  - iii. Accumulators: Collection and management by alternative management system “Re-Battery S.A.”
  - iv. Small batteries: Collection and management by alternative management system “AFIS S.A.”
  - v. Used tires: Collection and management by alternative management system “ECOELASTIKA S.A.”
3. The total quantities of the hazardous waste further to the above-mentioned and produced at the airport, are managed by licensed private companies which have a contract with Fraport Greece B, according to the provisions of the legislation in force.
4. The total quantities of the produced waste by category resulting from all activities of the airport, the collectors and final recipients, are recorded by Fraport Greece B and submitted in the Electronic Waste Registry of the Ministry for Environment and Energy via the Annual Waste Producer Report according to the provisions of the legislation in force.

## 6. ECOSYSTEM AROUND THE AIRPORT

### 6.1. Flora-Fauna

Flora	
Are there protected zones of vegetation/habitats in the broader airport area?	NO
<b>(if YES)</b> Short description:	
Fauna	
Are there protected species of fauna/birds in the broader airport area?	YES
<b>(if YES)</b> Short description: Streptopelia turtur (Turtle dove)	

### 6.2. Ecologically fragile areas

The airport is located outside the limits of protected areas included in the National Protected Areas Network. Nevertheless reference is made to the direct proximity of the airport area to the Wildlife Sanctuary “Profitis Ilias-Katsoundria-Mesovouno-Ampella” with code K514. Moreover, at a distance of approximately 1km to the east of the airport is located a Wildlife Sanctuary “Kastro-Tsampi-Sabei-Aeras of the Municipality of Herakleides of Kos island” with code K849.

## 7. WILDLIFE HAZARD MANAGEMENT

<b>Wildlife strikes and wildlife hazard management measures</b>	
<b>Wildlife species that suffered a strike</b>	<b>Strikes (%)</b>
<i>Corvus cornix</i> (Hooded crow)	27%
<i>Galerida cristata</i> (Crested lark)	13%
<i>Hirundo rustica</i> (Barn swallow)	13%
<i>Asio otus</i> (Long-eared owl)	7%
<i>Athene noctua</i> (Little owl)	7%
<i>Burhinus oedichnemus</i> (Eurasian stone-curlew)	7%
<i>Cecropis daurica</i> (Red-rumped swallow)	7%
<i>Merops apiaster</i> (European bee-eater)	7%
<i>Erinaceus europaeus</i> (European hedgehog)	7%
<i>Pluvialis apricaria</i> (Golden plover)	7%
<b>Wildlife strike risk mitigation measures:</b>	
<ul style="list-style-type: none"> <li>• Drainage ditches are regularly monitored and when necessary cleaned, to ensure efficient water run-off and, thus, reducing the attractiveness of the airside to the wildlife</li> <li>• Regular grass cutting at the airside</li> <li>• Fence maintenance</li> <li>• Systematic monitoring of bird species populations and their habitat on and off-airport (at a distance of 13km from the airport).</li> <li>• Seminar awareness video on the identification, conservation and safe relocation of reptiles (snakes), under the collaboration with the Lalitsa Non-Profit Association</li> <li>• Awareness video on the safe handling and relocation of stray dogs</li> </ul>	
<b>Reference year summary results:</b>	
<p>The Hellenic Civil Aviation Authority (Section D3/B, Wildlife Strike Risk Prevention Office) receives annual reports referring to the risk assessment of the wildlife hazard as well as to the wildlife hazard management at the 12 regional airports operating by Fraport Greece. Aktion Airport and Chania Airport “Ioannis Daskalogiannis” are excluded, in accordance with the Concession Agreement, Annex 20, paragraph 6.3.3 &amp; 6.3.4.</p>	

## 8. CULTURAL HERITAGE

<b>Have new cultural heritage properties been discovered during the reporting period?</b>	<b>NO</b>
<i>(if YES)</i> Details provided in the table below:	

Location	Date of discovery	Type of discovery	Additional protection measures taken

## 9. RESOURCES CONSUMPTION

### 9.1. Energy consumption

Energy consumption (monthly electric energy consumption, in Kwh)	
Total annual electric energy consumption (in Kwh)	2,582,892

### 9.2. Fuel consumption

Fuel consumption		
Number of FG vehicles at the airport	11	
Number of firefighting vehicles at the airport	5	
Total annual fuel consumption	Diesel (lt)	7,796
	Unleaded gasoline (lt)	97

### 9.3. Heating oil or natural gas consumption

Heating oil or natural gas consumption	
Total annual heating oil consumption (lt)	-*
Total annual heating natural gas consumption (m <sup>3</sup> )	N/A

*\*Heating and air conditioning is performed via heat pumps*

### 9.4. Water consumption

Water consumption	
Total annual consumption (m <sup>3</sup> )	12,119



## 10. GREENHOUSE GAS EMISSIONS & CARBON FOOTPRINT

Greenhouse gas emissions that were included in the carbon footprint calculation are the CO<sub>2</sub> emissions included in scope 1 & 2 of the GHG protocol:

- Scope 1: Direct GHG emissions that occur from sources that are owned and/or controlled by the airport,
- Scope 2: Indirect GHG emissions from the generation of purchased electricity, steam, heat or cooling consumed by the airport.

Source Flows	Total CO <sub>2</sub> Emissions (t)
	2020
Direct emissions form heating fuel (scope 1)	0.0
Direct emissions from fuel used for fleet vehicles (scope 1)	21.0
Direct emissions from fuel used for firefighting vehicles (scope 1)	15.4
Direct emissions from fuel used for generators (scope 1)	3.4
Indirect emissions from refrigerants (scope 1)	-
Indirect emissions from electricity consumption (scope 2)	1,609.1
<b>Total (t)</b>	<b>1,648.9</b>
<b>Kg CO<sub>2</sub> /passenger</b>	<b>2.06</b>

### Notes:

Fraport Greece B is committed to the monitoring, management and reduction of its airports carbon footprint.

In order for this target to be achieved:

- Direct and indirect carbon emissions from all the emission sources in the airports' boundaries are calculated and reported, based on the GHG Protocol (scope 1 & 2)
- The airport was certified during the reference year according to ISO 14064 regarding greenhouse gas emission by an independent certification body.

## 11. HUMAN COMSUMPTION WATER MONITORING PROGRAM

Human consumption water quality	
Water supply (public water network or airport's boreholes)	Municipal Water & Sewage Company (DEYA) of Kos
Is sampling of the airport's water network performed?	YES
(if YES) Sampling frequency:	Quarterly
<b>Summary of results:</b> The results of the microbiological and chemical analyses show that the parameters analyzed as regards the airport's water network are <b>within the legislative limits</b> defined by the Ministerial Decision Γ1 (δ)/ΓΠ οικ. 67322/ GG 3282 B/19-9-2017 regarding the quality of human consumption water.	

## 12. RAINWATER

<b>RAINWATER (collection, treatment disposal and recipient)</b>		
<b>Area</b>	<b>Collection/treatment/disposal</b>	<b>[YES/NO]</b>
Apron and manoeuvring area	Collected in drainage ditches leading to the sea	YES
Other runoffs (runway etc.)	Collected in drainage ditches leading to the sea	YES
Treatment of rainwater by oil-separator		NO

<b>Rainwater quality</b>	
Is sampling of the airport's rainwater performed?	YES
<b>(if YES)</b> Sampling frequency:	Yearly
<b>Parameters analyzed:</b> pH, conductivity, TSS, DO, NO <sub>3</sub> , NO <sub>2</sub> , Oil & grease, BOD, COD, Total Petroleum Hydrocarbons (TPH), PAHs, BTEX, Heavy metals, PCBs, Detergents	
<b>Summary of results:</b>	
Surface rainwater quality is monitored according to the airport's monitoring program. Due to the absence of designated recipients and relevant national quality limits for surface rainwater, the Environmental Health & Safety Guidelines of the International Finance Corporation (IFC) are adopted. According to FG's analyses results and based on the abovementioned specifications, the airport's rainwater environmental condition is adequate and no further treatment measure is necessary.	

### 13. GROUNDWATER AND/OR SOIL AND/OR SOIL GAS MONITORING

Groundwater and/or soil and/or soil gas quality	
Is sampling of the airport’s groundwater and/or soil and/or soil gas performed?	YES*
<b>(if YES)</b> Sampling frequency:	According to the Environmental Terms
<b>Parameters analyzed:</b> TPH, BTEX, MTBE (groundwater) and Volatile hydrocarbons, aliphatic, aromatic and chlorinated (soil gas)	
<b>Summary of results:</b>	
Groundwater quality is monitored according to the airport’s monitoring program. In addition, the fuel handling companies monitor the quality of groundwater according to the environmental terms. According to the environmental monitoring reports of the fuel handlers, and based on the New Dutch List (20013) which is adopted in the absence of relevant national specifications/limits, the environmental condition of the ground water & soil gas is found adequate and no decontamination measures are necessary. Regarding soil gas the Directive of the Munich Environmental Protection Department in force by 10.02.1998, which is the most widely accepted, is adopted as a basis for comparison.	

*\*During the reference year and due to the low level of the groundwater aquifer it was not possible for samples to be collected from the boreholes managed by Fraport Greece. The results indicated above refer to the samplings performed by the Fuel Handlers.*

## 14. SEWAGE TREATMENT AND DISPOSAL

<b>Sewage</b>	
Sewage network to the municipal waste water treatment plant (WWTP)	YES
Autonomous airport’s waste water treatment plant (WWTP)	NO

<b>Blue water</b>
<b>Collection and disposal:</b> Collection in watertight tank and disposal to the municipal sewage network.

<b>Waste water treatment plant description (where applicable)</b> <i>Description of characteristics and condition of the airport’s WWTP including possible problems. Type and frequency of the effluent quality measurements.</i>	
Degree of treatment of airport’s WWTP	N/A
Treatment method	N/A
Disposal of treated wastewater	N/A
Sludge disposal	N/A
Sampling frequency of WWTP effluent	N/A
Parameters analyzed	N/A
Summary of quality of WWTP effluent	N/A