

# ANNUAL 2020 REPORT 2020



AUTHORITY	NAME	DATE	SIGNATURE
ANA	Claudio CLORI Director ANA	17.12.2021	Corrighton two

### DOCUMENT CHANGE CONTROL

EDITION NUMBER	EDITION DATE	REASON FOR CHANGE	PAGES AFFECTED
Edition 0.1	-	Revision	All
Edition 0.2	-	Revision	All
Edition 1.0	-	Released version	All

### DOCUMENT STATUS & TYPE

STATUS	CATEGORY
Released	Annual Report

### DOCUMENT APPROVAL



Public

# ONTENTS

### 03 DOCUMENT APPROVAL

06 FOREWORD

### 09 ANA'S NEW DEPUTY DIRECTOR

### 10 COVID-19 CRISIS How ANA managed the COVID-19 crisis Practical mitigations ANA put in place right away Specific mitigations in place for Air Traffic Controllers

### 13 ANA MISSIONS AND TASKS

16 FACTS & FIGURES Movements, Passengers, Freight & Service Units

### 18 ANA 2020 CALENDAR OF EVENTS

### 20 KEY PERFORMANCE AREAS

Safety Capacity Cost – Efficiency En-Route costs & revenues Terminal costs & revenues Investments (CAPEX) Environment Security Risk

### 38 HIGHLIGHTS IN 2020

Setting Priorities in Projects **CERT** Highlights **Risk Management** Safety Management Just Culture Compliance management Security management 373 Re-certification Air traffic services Dislocation of holding points on RWY24 for CAT II/III Performance Based Navigation Communication, Navigation & Surveillance Preliminary Electrotechnical activities for runway refurbishment Aerodrome activities Aeronautical operations Meteorological services Enhanced digitalization of finance services IT services Our people, our competence Corporate communications during the pandemic

### 54 ENVIRONMENTAL MANAGEMENT

Reducing our environmental footprint Noise Air Quality Water & Ground Quality Waste Biodiversity Use of Resources Staff involvement and training on ENV issues External collaboration and stakeholders

### 59 STAKEHOLDERS CONSULTATION

60 INTERNATIONAL ACTIVITIES Participation in FABEC, EUROCONTROL and CANSO activities

### 62 DEVELOPMENT OF FINANCE PROCESS

2020 Investments – ATM/ANS & Aerodrome Services Financial Situation 2020 2020 Results

68 GLOSSARY

5

# FOREWORD

This Annual Report for 2020 presents the results was a loss of revenues i.e. liquidity and, in and achievements of ANA, the Air Navigation Service Provider (ANSP) of Luxembourg. The reporting is different in scope and content due to the COVID-19 crisis. This document reports how and with what measures ANA managed the crisis, successfully continued its services uninterrupted and to what effect, and what targets were met despite the impacts of the crisis.

While during the last Reporting Period 2 (RP2) air traffic in Luxembourg airspace and airport had steadily increased, the pandemic started in line with the new Reporting Period 3 (RP3). In the EUROCONTROL area, the total number of flights plummeted by -55.2% in 2020. This corresponded to 6.1 million fewer flights in 2020 - with grave consequences on the aviation industry.

At ANSP level, the actual total annual En-Route (ER) Traffic Service Units (TSU), the basis for charging, dropped in 2020 for Luxembourg/Belgium to -59% compared to 2019. This is a dramatic loss.

The loss of Terminal TSUs in Luxembourg was less severe: -29% fewer Traffic Service Units were charged in 2020 compared to 2019, mainly thanks to a slightly increasing cargo operation at Luxembourg airport of about 6%.

The Air Navigation Service (ANS) cost recovery scheme was not designed to cope with a crisis of this magnitude. One immediate consequence

particular, an opening gap between revenues and costs in 2020. ANA required and still requires additional public funding to sustain and mitigate the effects of the lack of liquidity and to ensure business continuity. Further measures are needed to adjust operations to the change in demand whilst providing reliable services to airspace users, prioritize projects, cancel, postpone or reduce investments.

The modulation of terminal charges, implemented and managed by ANA, proved again being a fair, cost-effective and beneficial scheme for airspace users in Luxembourg. The scheme will continue in 2021 with only a small increase of the unit rate despite less traffic. This clearly shows that ANA and the State of Luxembourg are shouldering a high share of the COVID-19 burden.

ANA commits to always give support to our partners by providing reliable and efficient services. My thanks go to our staff in ANA for their special efforts and their commitment during these difficult times.



Claudio Clori ANA Director







"As deputy Director, I intend to bring all the technical and managerial skills I gathered during my career to the service of an efficient Management. That, for the benefit of Safety, of a good management of our administration while keeping in mind the interests of all our stakeholders."

"As engineer, I started my career in the private department. sector in a technical domain. I quickly joined the Luxembourg public sector. First for another "My progression reflects my interest and administration, then I joined the ANA adventure. investment in all the domains our administration Throughout these years I accumulated a manages, including the necessary internal strong technical and managerial experience. structure to rely on" Within ANA, I had several responsibilities. Some Now, Mr. Faber's role and responsibilities in the needing expertise, other being more transversal administration are new and challenging. He and managerial

Mr. Faber joined the Administration de la navigation aérienne in 2008 in the

# ANA'S NEW DEPUTY DIRECTOR

2020 saw the taking up of Thierry Faber as the new ANA deputy Director in replacement of Mr Cos Rausch who's now retired.

Communication Navigation Surveillance (CNS) service. From 2009, he endorsed several strategic responsibilities. Among others, Mr. Faber was Security Manager, Head of administrative service, and was responsible for the public procurement management. In 2018, Mr. Faber entered the administration upper management by becoming the new Head of Technical department.

Now, Mr. Faber's role and responsibilities in the administration are new and challenging. He advises and assists our Director in the daily and strategic management of the administration and replaces him when he is not present.

# COVID-19 CRISIS

The pandemic was exceptional and unforeseeable but is a consequence of globalization of trade, effects of climate change, transport and travel. Up to now, there is no clear view if, when and how air traffic volumes will return to former (2019) levels. The economic impact of the pandemic for the aviation sector is high and the future remains uncertain.

# HOW ANA MANAGED THE COVID-19 CRISIS

The pandemic and its impacts on ANA's operations and management were one of the main issues throughout 2020. The responses required to mitigate the risks and impacts and to continue to operate safely as well as the responsibly in view of our own staff and stakeholders likewise. Measures had to be necessarily diverse and complex. The dynamic nature required flexibility and promptness at the same time in a coordinated approach.

Through enforced sanitary rules, the crisis prevention scheme helped to avoid contagion with COVID-19 of people on site. ANA kept traceability of contacts, ensured that personnel working from home had the right technical equipment, adapted and re-enforced internal cooperation and communication, and supported staff to continue delivering services and project work as required, while relying on clear and efficient means of communication.

ANA had to adapt its operations to customer demand, prioritizing the portfolio of activities and investments and focusing efforts saving resources whilst ensuring safe, efficient and effective services. The additional efforts and strain could not always be balanced within and between the teams. Overall, major projects continued with extra work and prioritization. ANA, nevertheless had to select projects to be postponed or cancelled even though a need of them was present.

The support of Luxembourg State and especially the responsible Ministry (MMTP) was and is vital in managing the immediate impacts: ensuring the required liquidity and continue the funding of key investments. Airspace users benefit in return from reduced charges due to investment and capital costs excluded from the determined costs for ER and Terminal Navigation Charges (TNC).

The TNC unit rate could again be slightly reduced in 2020; the 2019 traffic forecast was maintained, in accordance with the charging regulation, for 2021. The financial situation of ANA was tense with minute flexibility as budgets for planned and ongoing investments were secured.

# PRACTICAL MITIGATIONS ANA PUT IN PLACE RIGHT AWAY

COVID-19 posed until then unprecedented general and specific risks to ANA's personnel and to ANA as a service provider. ANA responded and keeps on responding correctly to these risks through efficient risk management and decision-making. All measures and communications were coordinated by mid-March 2020 in ANA through the Crisis and coordination unit, which was supported by the efficient ANA communication unit. It interfaced with internal focal points and including State authorities i.e. the ministry.

The first actions from the *Crisis and coordination unit* were focused on:

- Ensuring the safety and sanitary conditions of all staff;
- The fast mobilization of staff to work from home and reduce time in office to the minimum;
- The timely provision of IT equipment and communication tools to enable seamless home-office work;
- The continuity of operation ensured by flexible teams on site with adapted working rosters, tasks, and projects.

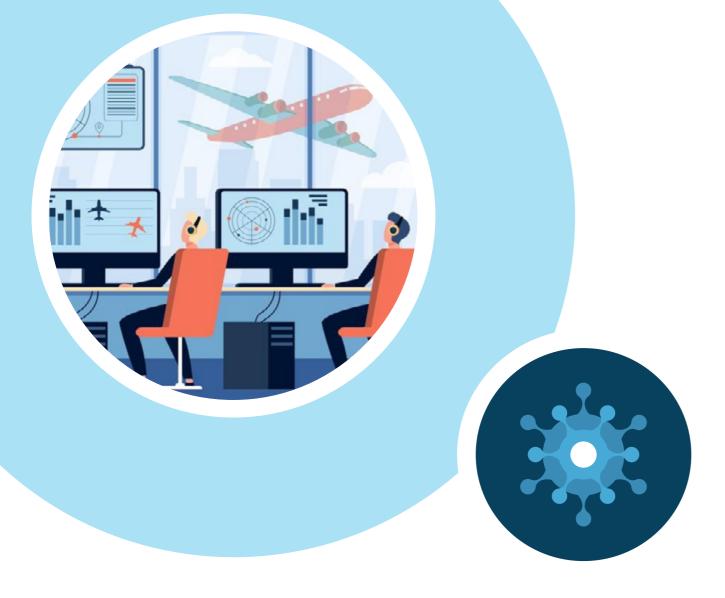
In order to support the effort, ANA put a high priority on Communication – regular and to the point was and is paramount! Communication covered all relevant aspects from sanitary rules and regulations to housekeeping, health and safety situation in ANA, schedules and shifts. It continued from lock-down to progressive return. Learning quickly where and how to improve the situation and how to adapt flexibly was challenging.

Being transparent, consistent, coordinate actions and in a predictable way have helped to create trust and ensure the commitment of our people in ANA : We continue working-but we do it differently.

For most of our services, a split in two independent teams (A+B) ensuring on-site or remote support to ANA's staff was pertinent and guaranteed continuity of services in case of COVID-19 infection in one team.

The use of new IT technologies including videoconferencing, instant messaging groups and the secure access (i.e. Virtual Private Network (VPN)) to internal documents of the organization through IT made it possible to provide the nominal service.

To allow personnel to work from home with secure and effective office equipment and access to the network, IT delivered, configured and or installed additional equipment and software in shortest possible time.



# SPECIFIC MITIGATIONS IN PLACE FOR AIR TRAFFIC CONTROLLERS

During the entire crisis and lock-down period, Air Navigation Services (ANS) continued to be provided by Approach service (APP) and Tower service (TWR). Working in dedicated teams helped to reduce contacts to an absolute minimum. The strict disinfection of the Controller Working Position (CWP) and equipment between shifts and position swaps, plus using more distant CWP coordinator consoles helped to reduce the risks of infections. Despite some infections with COVID-19 in ATC, all services continued uninterrupted. Training of new staff was likewise continued and no project work came to a halt.

Overall, the experience was good and confidence rose after measures induced showed effect and controllers got used to the unusual working arrangements.

### ANA counts 7 different departments.

Supported by cutting-edge technologies, our highly qualified teams with managerial, operational, technical and administrative expertise are trained in air traffic management, aerodrome operations and in developing innovative solutions to minimize risk and anticipate the occurrence of problems to ensure safe and smooth flights.

The administrative department has a transversal dimension within ANA. Administrative activities are supporting all of the upper management and operational departments.

The administrative department is in charge of:

- Managing legal affairs in all areas of ANA's activity as well as public procurement
- Guaranteeing a good management of the

The finance department's mission is to provide support to ANA's departments through sound management of ANA's financial resources. It supports the upper management and all the departments in all financial planning and budgetary matters and is in charge of ANA's accounting in accordance with national and international regulations. It ensures the financial integrity of ANA by promoting responsible resource

The certification department's mission is to guarantee compliance with certification obligations in terms of Air Navigation Service Provider (ANSP) and Aerodrome service (AER), safety, quality, environment, health and safety at work by the implementation and development of management systems (e.g. project-, risk-, compliance-, performance-management) and strategic analysis. Our ANSP and aerodrome safety management teams ensure the development, maintenance and improvement

The aeronautical operations department is responsible for receiving reports concerning air traffic services and flight plans submitted before departure, as well as providing the aeronautical data and information necessary for air navigation, including the dynamic and integrated management of the latter by the provision and collaborative exchange of digital

# ANA MISSIONS AND TASKS

human resources of the administration and the supervision of the administration staff in general

- Ensuring internal and external communication and the promotion of ANA to the outside community
- Managing buildings and follow-up of real estate projects and maintenance of ANA's buildings

allocation, providing oversight of resource usage, and improving financial accounting and management processes. Furthermore, the finance department is responsible for the cost-efficiency Key Performance Area (KPA) of the performance plan and monitoring of it, which includes also the calculation of determined and actual costs and the chargeable unit rates for terminal (TNS) and En-Route (ER) Air Navigation Service.

of the aviation safety management system and the security of ANA.

Furthermore, the certification department is responsible for guaranteeing aerodrome operations in accordance with agreements with lux-Airport for inspections, management of winter conditions, prevention of bird strikes, coordination of operational activities related to works on the maneuvering area.

data that has been subject to quality control.

The department is divided into two services:

- The Aeronautical Information Management (AIM) service;
- The ATS Reporting Office (ARO).

The technical department manages all systems, networks and technical data under the responsibility of ANA. It is composed of 3 main services:

• The Communication, Navigation and Surveillance service (CNS): The mission of the CNS service is to provide and ensure the optimal use of current and future electronic air navigation systems. The CNS service counts three areas of specialization:

### - Communication:

The technical team acquires, integrates, and certifies radio- and telecommunication svstems like ATN (Aeronautical Telecommunications Network) bringing together Very High and Ultra High Frequency (VHF-UHF) communications, network communications with other control centers, as well as data channels allowing the exchange of air traffic management data, to comply with national and worldwide civil airspace requirements.

### - Navigation:

Navigation refers to the process of planning, recording, and controlling the movement of an aircraft from one place to another by providing accurate, reliable and seamless position determination proficiency through radionavigation systems. This includes the landing assistance installations (Instrument Landing System - ILS) and the En-Route and terminal radionavigation means (DVOR, DME, DF and NDB).

### - Surveillance

The surveillance and visualization installations and systems group together

14

Air Traffic Control (ATC) department: Air traffic • controllers are responsible for guiding pilots to ensure the safety of the skies. They take charge of all planes that come within their perimeter.

Our air traffic control services are provided by two separate teams:

- Tower controllers and
- Radar approach controllers

Together, they ensure effective air control, surveillance and safety in Luxembourg airspace and in the adjacent airspace for which delegations of services have been established by the competent air traffic control centers,

while respecting the regulations in force.

the primary radars, the secondary radars, the processing and calculation of multi-radar trajectories, the radar visualization equipment and the processing of data relating to coordination of air traffic.

Electrotechnical service: The The operation of the airport requires a network of cables of several hundred kilometers, such as, medium and low voltage cables, telephone and data cables as well as fiber optic cables. In total, nearly 2,500 beacon lights are installed on the runway, taxiways, parking areas and in the approach sectors. In this context, ANA's electrotechnical experts are responsible for:

- the commissioning and maintenance of all the main and auxiliary systems for supplying and distributing electrical energy to the administration equipment, including back-up groups and transformers;

- the installation and maintenance of the control and visualization system as well as any other airport lighting equipment;

- the installation and maintenance of the administration's telephone communication platform;

-the establishment of equipment programs relating to airport lighting as well as to the supply and distribution of electrical energy, including the corresponding studies and research;

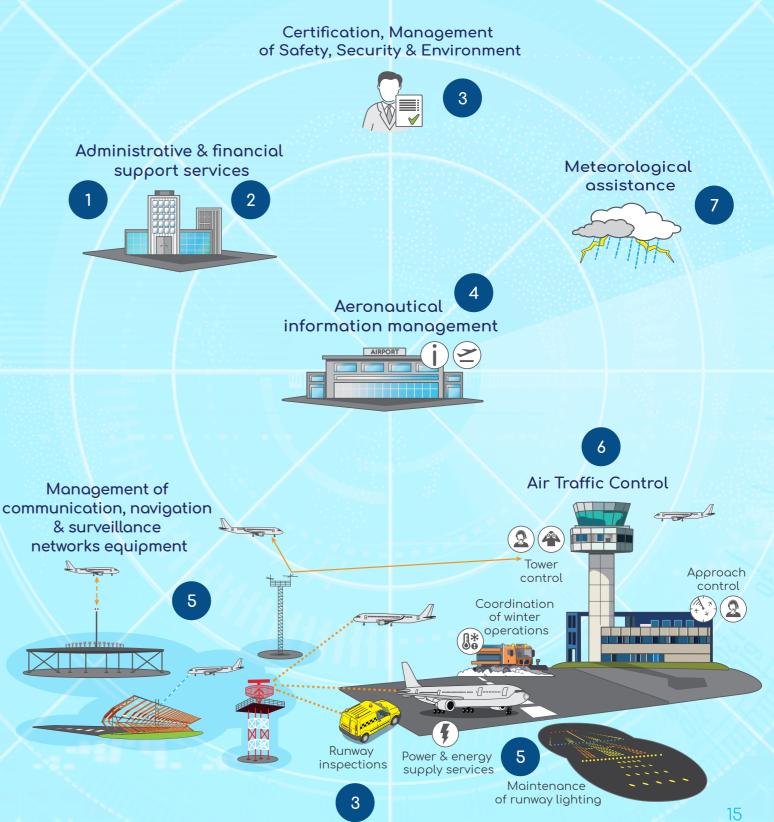
- the management of electronic conduits and networks and distribution of electrical energy.

- IT services: The IT team manages the IT stock, develops and administers the IT network and provides services that make everyday life easier for users.
- ANA operates the Luxembourg En-route control center, LU (ATC Luxembourg), to provide air control of ground movements up to 4,500 meters above sea level above Luxembourg territory and over parts of the territory of the neighbor countries (Belgium, Germany and France).
- From 4501 to 8000 meters above sea level, air traffic control is provided by the en route control center in Brussels, BE (CANAC2), operated by skeyes.
- Above an altitude of 8000 meters, responsibility falls to the En-Route control center in Maastricht, NL (Maastricht Upper Airspace Control Centre - MUAC), operated by EUROCONTROL.

The meteorological department is made up the general public. The technical service of an operational service and a technical service. The operational service provides meteorological information in order to ensure the safety, regularity and efficiency of flight operations and delivers the services incumbent on national meteorology including the publication of warning messages for

support services





(METTECH) is responsible for the installation and maintenance of meteorological measurement systems and sensors as well as for the establishment of equipment programs for technical infrastructures and future meteorological systems.

# FACTS & FIGURES

# MOVEMENTS, PASSENGERS, **FREIGHT & SERVICE UNITS**

Table 1, page 17 shows the activities in Luxembourg terminal airspace and Luxembourg Airport during Reporting Period 2 (RP2) and 2020, the first year of Reporting Period 3 (RP3).

During RP2 air traffic on Luxembourg airport steadily increased - the number of flights and even more the number of terminal Traffic Service Units (TSUs) (from 2015 - 2019) - both had outgrown the projection in the Statistical Forecast of the Luxembourg Performance Plan (PP). This changed dramatically in 2020 when the current crisis had set in: At the end of 2020, a steep decrease in terminal Traffic Service Units (see Table 1, page 17) compared to 2019 had summed up with a minus of 29%. This was mainly due to a high decrease of passenger flights (international movements dropped to nearly 46% with a full month total stop).

Cargo traffic on the other hand had even grown by 6% at the same time. This flattened the curve of the loss in TSUs to the final numbers to the minus 29%.

The overall outcome is a substantial loss in revenues in terminal charges, but less severe than in En-Route charges.



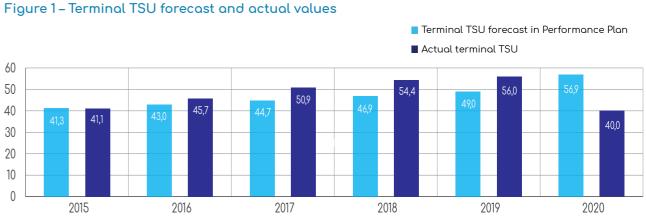
Table 1 – Traffic movement, passengers, freight & service units over RP2 (2015-2019) and 2020 in comparison

	2015	2016	2017	2018	2019	2020	Change 2019-20
Reporting Period			RP3				
Total movements	85.031	86.402	89.944	94.586	94.985	64.705	-31,9 %
International Movements	65.128	69.577	74.515	79.109	80.557	43.639	-45,8 %
Commercial Movements	52.142	55.854	59.979	63.963	65.256	28.988	-56,0%
Passengers (Mio)	2,687	3,022	3,599	4,037	4,416	1,446	-67,3 %
Cargo Movements	10.170	11.137	12.547	13.364	13.367	13.307	-0,45%
Freight (t)	737.625	801.807	897.127	894.649	853.354	905.223	+6 %
Actual terminal Traffic Service Units (in .000)	41,1	45,7	50,9	54,4	56,0	40,0	-29 %
EUROCONTROL STATFOR Forecast Nov 2020 - Terminal TSU for 2021						41,0	+2,5% (1)
Terminal TSU forecast in PP before COVID-19	41,3	43,0	44,7	46,9	49,0	56,0 <sup>(2)</sup>	+14,3%

	2015	2016	2017	2018	2019	2020	Change 2019-20
Reporting Period			RP2			RP3	
Total movements	85.031	86.402	89.944	94.586	94.985	64.705	-31,9 %
International Movements	65.128	69.577	74.515	79.109	80.557	43.639	-45,8 %
Commercial Movements	52.142	55.854	59.979	63.963	65.256	28.988	-56,0%
Passengers (Mio)	2,687	3,022	3,599	4,037	4,416	1,446	-67,3 %
Cargo Movements	10.170	11.137	12.547	13.364	13.367	13.307	-0,45%
Freight (t)	737.625	801.807	897.127	894.649	853.354	905.223	+6 %
Actual terminal Traffic Service Units (in .000)	41,1	45,7	50,9	54,4	56,0	40,0	-29 %
EUROCONTROL STATFOR Forecast Nov 2020 - Terminal TSU for 2021						41,0	+2,5% (1)
Terminal TSU forecast in PP before COVID-19	41,3	43,0	44,7	46,9	49,0	56,0 <sup>(2)</sup>	+14,3%

(1) (2) Forecast grow compared to actual TSU in 2020 Latest available forecast in 2019 in the RP3 PP before COVID-19 (November 2019)

The outlook for the coming years remains uncertain as the recovery depends on many factors, which include vaccine effectiveness and availability, government policies on travel



restrictions, passenger behaviour and trust as well as the evolution of the general economic climate. ANA continues to adapt its operation accordingly.

# ANA 2020 CALENDAR OF EVENTS

Table 2 gives a chronological overview of the 2020 events in projects and in managing the COVID-19 crisis at corporate level.

### Table 2 – ANA 2020 Calendar of Events

Month	Progress and Events in Air Traffic Management (ATM)	Managing COVID-19 - Corporate level
01	<ul> <li>New Visual Flight Rule (VFR) Routes Traffic Circuit North &amp; South were implemented</li> </ul>	<ul> <li>First meetings of airport stakeholders and medical experts to prevent contagion of passengers</li> </ul>
02		<ul> <li>ANA conducted first risk assessment and informed management</li> <li>Development of initial risk management plan</li> </ul>
03	<ul> <li>Global Positioning System (GPS) based precision approach procedures (Performance Based Navigation - PBN) for Runway (RWY) 06 and 24 were released for use by the airspace users.</li> <li>New ENVINET weather data network server installed</li> </ul>	<ul> <li>First communication of specific health and sanitary rules</li> <li>Initiation of crisis management</li> <li>Risk prevention and plan approved</li> <li>Crisis coordination unit in place and communicated to Ministère de la Mobilité et des travaux Publics (MMTP)</li> <li>Lock-down starts – home office and work on site,</li> </ul>
04	<ul> <li>Updated Statistic Tool was implemented</li> </ul>	<ul> <li>Lessening of lock-down plan developed and approved</li> </ul>
05		<ul> <li>Progressive / optional return to normal operations started</li> </ul>
06	<ul> <li>Final version of ANA's Environmental Statement 2020 released and published</li> </ul>	<ul> <li>Continuous and close monitoring of the sanitary situation</li> </ul>
07	<ul> <li>New big screens in Meteo (MET) Forecast office</li> </ul>	<ul> <li>Return of Experience – taking stock and lessons learned / improvement actions identified</li> </ul>
08	<ul> <li>Update of a complete and transparent citizen noise complaints process and template (online)</li> </ul>	<ul> <li>Continuous and close monitoring of the sanitary situation</li> </ul>
09	<ul> <li>Instrument Landing System (ILS) 24 replaced and commissioned</li> </ul>	<ul> <li>Continuous and close monitoring of the sanitary situation</li> </ul>
10	<ul> <li>Digital tool for managing/ monitoring/tracking of budget engagements and purchase orders in Finance Department</li> <li>Phase 1 Airfield Lighting Control and Monitoring System (ALCMS) update</li> </ul>	<ul> <li>Continuous and close monitoring of the sanitary situation</li> </ul>
11	<ul> <li>Aerodrome work – CAT II/III Holding Points moved closer to the RWY</li> </ul>	<ul> <li>Continuous and close monitoring of the sanitary situation</li> </ul>
12	<ul> <li>Foundation of the Luxembourg Airport Environmental Committee with partners Luxembourg airport, Luxair and Cargolux</li> <li>ANA's Environment Management System (EMS) ISO 14001 Re-certification audit</li> <li>Signing the Integrated Management System (IMS) Luxembourg Zero single-use plastic manifesto</li> </ul>	<ul> <li>Possibility for all ANA agents to undergo a PCR test, on a voluntary basis, at the ANA premises.</li> </ul>



# KEY PERFORMANCE AREAS

One immediate experience made during the COVID-19 crisis and its impacts is clear: "Resilience" – the ability to provide a safe, consistent or improving level of service and deliver a performance in the major Key Performance Areas (KPAs) - no matter how profound the crisis, external

factors or economic pressures might prevail – is key to overcome the situation in an orderly, coordinated and effective manner. ANA demonstrated this capability during the crisis and provided safe and uninterrupted services and continued activities on vital projects.



regulated performance plan

KPA	Performance Indicators	Targets	2020 Results
Safety	Effectiveness of Safety Management	Level D in Safety Risk Management Level C in all other Objectives	Partly achieved (3Ds , 1C) Partly achieved (4 Bs)
	Maximum tolerable Air Traffic Management (ATM) SE incidents	No ATM SE Class A	Achieved
	Availability of safety critical Communication Navigation Surveillance service (CNS) equipment)	Availability according to targets between 99,90 – 99,99% of time	Achieved
	Effectiveness of contingency exercises to ensure safe mode of operation	No target set; for monitoring and establishment of targets.	Not used in 2020
Capacity	Air traffic Flow Management (ATFM) arrival delay	0,20 min/flight	Achieved (0,06 min/flight average)
	Slot adherence	> 80%	Achieved (90,2%)
	Additional taxi-out time	No target set (min/flight)	No data available on Performance Review Unit (PRU) dashboard for Luxembourg
	ATFM pre-departure delay	No target set (min/flight)	No data available on PRU dashboard for Luxembour
	CRSTMP delay	No target set for RP3	0 min /flight
	Cost-efficiency (terminal Air Navigation Service (ANS))	Reduce Determined Unit Cost (DUC) for terminal services (in real terms)	See Cost-efficiency (En-Rou ANS)
	Cost-efficiency (En-route ANS)	Reduce DUC for En-Route services (in real terms)	According to Implementing Regulation (EU) 2020/1627, th key performance indicator on the DUC for En-Route air navigation services at local level shall be defined, in respect of calendar years 2020 and 2021, as a combine value for those 2 years.
Invironment	Vertical flight efficiency	Continuous Descent Operations (CDO) Usage	19,3 % of incoming flights
	Night flights 2300-0600	Reduce flights < 95	Achieved (83 flights outsid curfew)
		Number of flights /10 k flights	13 /10k
Security	ANS security	ANS Security Management	Ensured
		Access control system	Improved compared to 201
	Cyber-security	IT security watch	Constant
Risk	Risk Management Framework maturity	80% of all risks assessed and monitored	Not achieved

Further achievements on other important local and internal KPIs and projects are reported chapter 2020 Investments – ATM/ANS & Aerodrome Services, page 63.

### Table 3 - Overview of the achievements in the six KPAs and (local) PIs / targets that are subject to the EU



The Safety KPAs are split up in several Key Performance Indicators (KPIs), Effectiveness of Safety Management (EOSM), Maximum tolerable ATM system/equipment (SE) incidents, Availability of safety critical CNS equipment, Effectiveness of contingency exercises to ensure safe mode of operation.

### Table 4 - Effectiveness of Safety Management (EOSM) from 2020 onwards

New Scale	New Management Objective	Target	2020 Results
Component 1	Safety Culture	С	с
Component 2	Safety Policy and objectives	С	В
Component 3	Safety Risk Management	С	с
Component 4	Safety Assurance	В	В
Component 5	Safety Promotion	С	В
Component 6	Safety Interdependencies	С	С

The Effectiveness of Safety Management were already reached after RP3's questionnaire was different in 2020 as it was first year in all but five questions: revamped with additional questions, focus 1.3, 4.1, 7.1, 15.1 and 17.1. The perspective areas and targets for the Reference Period 3 to reach these targets in 2021 already (RP3) period compared to RP2. Although some is promising based on 2020's results and questions are equal to RP2 questions, the the tendency to fulfill the requirements and National Supervisory Authorities (NSAs) to ask reflected in the end result. Plans are in place for different means of compliance evidence. to raise the score for 2021. Nevertheless, ANA's overall 2020 performance was good as the Union-wide performance targets for the end of RP3, December 2024,

European Union Aviation Safety Agency (EASA) guidance of the next higher level for a few RP3 Safety Supporting Material Part (A), (B) and guestions. ANA actually achieved Level C in (C) published by the European Commission (EC) most components, we just scored 3 Bs overall, on the European Union (EU) portal requests but as the lowest level counts, that is what is

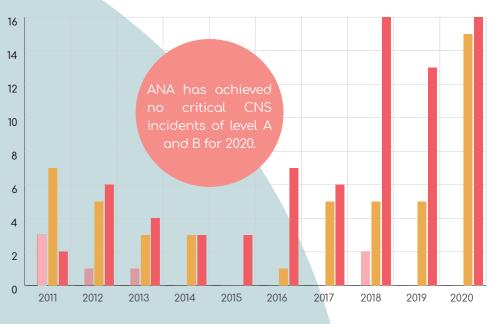


Class A

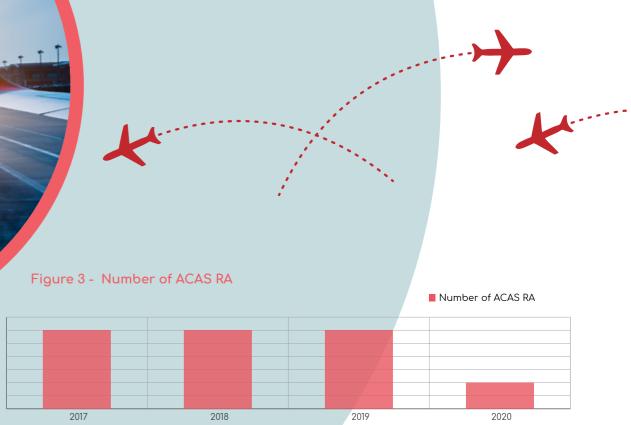
Class B

Class C

Class D



are on-going.



Most ACAS RAs in Luxembourg airspace (when 2 aircraft come within a defined range of each other and a proximity alarm is triggered) happened in the vicinity of the airport within VFR and IFR aircraft and between IFR aircraft and gliders not under control of ATC. ANA has implemented measures with our partners to mitigate the causes and has achieved the desired results despite a steep increase in VFR traffic in 2020.

### Figure 2 - Maximum tolerable ATM SE incidents

ANA had more incidents of Category C and D (no safety effect) as the reporting rate increased a lot. These incidents are tracked and solutions Figure 4 - Airspace infringements



Airspace infringements have increased over the years as recently temporary restricted airspace for drone usage was implemented in the north of the country which lead to more infringements of unaware aircraft.

Figure 5 - Separation Minima Infringements



Runway incursions of aircraft have decreased over the last years due to lower traffic.



Luxembourg airport and airspace have no permanent capacity problem, as the traffic is diverse and peak times occur at different times depending on the type of traffic. To cope with the traffic peaks and keep ATM delays at the current low, third position projects are being realized in both Air Traffic Control (ATC) units.

......

# LEY PERFORMA. COST EFFICIENCY

The crisis year 2020 is without precedence especially when it comes to the financial impacts. Revenues from terminal and En-Route (ER) traffic are at a low and remain there since March 2020. A comparison with 2019 actual costs and targets is difficult. The finance department analyzed the revenue-to-cost gap swiftly and advised stakeholders and management on the impacts, on possible savings and additional financial needs.

Before going into detail about En-Route and terminal costs & revenues, we cannot hide the fact, that despite the COVID-19 crisis, which resulted in a significant drop of air traffic, ANA records an increase of costs from 2019 to 2020.

The main cost driver is related to staff costs and to be more specific ATC staff costs. The increase of ATC staff was originally planned in the initial performance plan for the third reference period (RP3), submitted in 2019 before the COVID-19 crisis. At the beginning of the pandemic, the course for the future was already set, with only very limited possibilities to react at short-term. In order to ensure safe flights despite the permanent growth of traffic volume and knowing that ANA's tower (TWR) and approach (APP) were operating close to and even above the air space's capacity limits to respond to user demands at peak times, ANA took in early 2019 based on an extensive needs analysis the decision to implement a third position in the tower (the ground position) and in the approach (the director position). Besides technical aspects, one major part of this project was of course the recruitment and training of a significant number of ATCOs. Due to the fact that ANA, as a State administration, relies on State decisions regarding recruitment of human resources (HR), as all staff are civil servants or public employees, a longer planning and budgeting process and due justification is the norm before any recruitment can start. Every new vacancy needs the prior authorization of ANA's supervising ministry and the central human resources' management of the State. After years of drought, in 2019 ANA finally obtained a significant number of new vacancies.

> In order to anticipate the expected market-oriented failure rate of 50%, the central HR management of the State granted even more vacancies than expected. Willing to improve safety and capacity as rapidly as possible, ANA simply couldn't miss this unique opportunity and started immediately the recruitment of new ATCO trainees and looked for the necessary training opportunities for "ab initio trainees" all over Europe.

Since ANA invested in recent years in its market visibility and was more than usual present at regional job fairs, ANA could select among a larger pool of candidates. This is certainly one reason, why the failure rate is with around 10% not even close to 50%. In principle a good thing, but with a negative effect on the costs. The significant decrease of traffic in 2020 and 2021 due to the COVID-19 crisis was of course not predictable, same as for the duration of the crisis, since even today, there is no definitive end in sight.

Furthermore, it is important to notice that the staff costs of a State administration are not very flexible. Partial unemployment during the crisis was not an option because all staff are employed as civil servants or public employees at ANA and no such general decision has been taken for the Luxembourg State's civil servants. In addition, it is needless to say, that ANA, same as all other ANSPs have the obligation to continue service provision and to keep critical infrastructure in operation with 24/7 service levels.

beyond, i.e.:

- Reduction of Experts contracts and consulting expenses;
  - Budget reduction for social events and any other communication related cost, bonus features in times of crisis:
- Cost reduction thanks to an analysis of running contracts (i.e. related to internet connections).

Unfortunately the reduction of running costs was not sufficient, so that ANA's Management initiated a complete overhaul of the investment portfolio, which lead to cancellations and postponements of several projects and will have major impacts for the future.

Since cost-containment measures are possible only in a very limited way, ANA started in parallel the search for additional revenue sources. Together with its supervising Ministry, the Ministry of Mobility and Public Works, ANA worked last year on a plan for additional public funding from the government in order to reduce the ANA related Unit rate for the next years. End of August 2021, the talks with the competent public bodies are still ongoing and the outcome of the negotiations remains still uncertain.

After those general remarks about ANA's cost and cost containment measures in 2020, as a first response to the crisis, the following paragraphs will provide a more specific view at the En-Route and terminal part.

Since ANA's hands were tied regarding staff costs, ANA did its outmost to reduce the other operating costs for 2020 and

- Reduction of travels and meeting expenses to the strict minimum;
- Cost reduction related to training expenses;
- Reduction of Office costs;

### **EN-ROUTE COSTS & REVENUES**

Our partner skeyes is the main ANSP for the provision of En-Route services in the common charging zone (Brussels FIR) for Luxembourg and Belgium; Luxembourg upper airspace (above Flight Level (FL) 245) is managed by EUROCONTROL MUAC, whilst the lower airspace (below FL 145/165) is under ANA's control. Luxembourg and Belgium form a common charging zone for ER services. All three ANSPs provide their respective cost parts in full transparency in separate cost tables and MUAC costs are even split between MUAC Luxembourg and MUAC Belgium. For the remainder of this report, we will however focus on ANA's own contribution to the costs of this common ER charging zone.

With regard to the crisis, the European Commission has fixed in June 2021 <sup>(3)</sup> new EU-wide targets in terms of cost reduction. However, it is foreseen to consider 2020 and 2021 together. The average costs for ER services for both years should not exceed 97% of the actual costs from 2019; a target ANA can't reach due to the local circumstances explained above. Anyway, we consider this comparison regarding cost reduction misleading. What ANSPs planned for 2020 in the performance plans submitted in 2019 should be the baseline value against which cost reductions should be judged, not the actual costs of 2019.

The actual total costs in nominal terms for the ANA ER cost part were 7,230 M€ in 2020 and 6,543 M€ in 2019, an increase of 10,5%. Compared to the initial draft performance plan for the third reference period (RP3), submitted in 2019 before the COVID-19 crisis, it is a slight decrease of costs by -2%.

The Unit Cost in real terms per service unit for the common charging zone was  $73,93 \in$  in 2019 with the ANA unit cost part of  $2,42 \in$ . Mainly due to the traffic drop caused by the COVID-19 pandemic, the unit costs increased to  $196,77 \in$  in 2020 including the ANA part of  $6,46 \in$ . However, the chargeable unit rates for 2020 were not based on these actual costs, but on the determined costs from the draft performance plan for RP3. Furthermore, Luxembourg State charges neither the cost of capital to the users, nor the cost of depreciation of investments in the ER (and Terminal Navigation Charges (TNC))

Table 5, gives the ANA related unit rates for En-Route services for the past period RP2 (2015-2019) and 2020, the first year of RP3, after adjustments related to inflation and traffic.

### Table 5 – Unit rate for En-Route services 2015-2019 (RP2) and 2020 (only ANSP ANA)

(in k€)	2015	2016	2017	2018	2019	2020
Total determined costs	5.823	6.176	6.318	6.487	6.560	7.340
Inflation adjustment	0	-117	-68	б	61	123
Traffic adjustment	0	0	-4	2	-4	2
Adjust. Determined costs	5.823	6.058	6.246	6.495	6.618	7.465
Other revenues	-534	-676	-769	-598	-585	-880
Remaining costs (chargeable costs)	5.288	5.382	5.477	5.896	6.033	6.585
Total Service Units (PP forecast)	2.440	2.510	2.580	2.650	2.720	2.759
Unit rate (in €/SU)	2,17	2,14	2,12	2,23	2,22	2,39
Annual variation of UR (in %)		1,15%	0,29%	1,24%	-0,73%	7,50%

charges. These costs are offset through an equivalent amount in "Other Revenues". After deductions of over-recoveries and carry forwards from past years and further deductions by "Other Revenues" for depreciation and capital costs borne by Luxembourg State, ER users were charged in 2020 a unit rate (UR) of 2,39  $\in$  per service unit (SU) relative to ANA. Together with a severe drop in ER traffic, this lead to a significant decrease of the annual amount actually recovered through the EUROCONTROL route charges system to Luxembourg from 7,9 M $\in$  in 2019 to 4,0 M $\in$ in 2020.

<sup>(3)</sup> COMMISSION IMPLEMENTING DECISION (EU) 2021/891 of 2 June 2021 setting revised Union-wide performance targets for the air traffic management network for the third reference period (2020-2024) and repealing Implementing Decision (EU) 2019/903

Table 6 gives the Total Costs, actuals and determined (DC) in real terms at 2017 price level, actual and forecasted SU's and the actual and Determined Unit Cost (DUC) in real terms.

Actual costs were 10% higher than in 2019, and equal to the DC for 2020. The actual unit cost in real terms is 167% higher in 2020 than in 2019 and 155% over the Determined Unit Cost mainly due to the COVID-19 crisis.

Table 6 – Total costs and unit costs for En-Route services in real terms at 2017 price level (only ANSP ANA)

	2020 Actuals	2019 Actuals	2020 DETERMINED (AS PLANNED IN THE DRAFT PERFORMANCE PLAN (PP)
Total costs (real terms; Inflation index - Base 100 in 2017) for terminal services (.000€)	6.979	6.341	6.980
Service Units (in .000)	1.080,87	2.619,59	2.759,01
Unit costs in real terms (in €/SU)	6,46	2,42	2,53





### **TERMINAL COSTS & REVENUES**

ANA as Luxembourg ANSP provides approach (APP) and aerodrome control (TWR) services in Luxembourg airspace and on the airport.

The actual costs in 2020 in nominal terms for terminal ANS (only the ANSP part) were 14,530 M€ and an increase of 11,3% compared to 2019 (13,052 M€). As for the ER part, this increase was however foreseen in the initial draft performance plan for RP3 and is mainly due to the implementation of a third ATCO position in TWR and in APP. When compared to those initial determined costs (14,933 M€), actual costs were around 3% lower.

The ANSP unit cost per terminal service unit was 351,67  $\in$  in 2020 compared to 225,69  $\in$  in 2019. In analogy to ER, the unit rate charged for TNC services was based on the draft initial performance plan for RP3. Whereas traffic risk-sharing is mandatory for ANA as well from RP3 on, ANA did not apply a traffic risk sharing scheme for its terminal services in RP2 and thus has to reimburse users all over-recoveries due to an increase in the number of terminal service units related to 2018 and 2019.

Furthermore, ANA operates since 2015 a charging scheme for departures from Luxembourg airport with a modulation of the charges based on the Maximum Take-off Weight (MTOW) in accordance with EU Regulation 391/2013 Art 16 (repealed by EU Regulation 2019/317 Art 32 for RP3). The scheme honours the efforts of airlines to use equipment that emits less noise (based on the aircraft noise certificate in four noise categories, factor E). Charges are less for flights departing during day times compared to late hours or during night time (>24:00) in three categories, factor D. Charges due and bills are calculated and issued through (ANA's) charging and billing office. After closure of the billing year, traffic and modulation effects are calculated. The full amount in excess of the Determined Cost (DC) reduces user charges in the year after the following year (n+2).

After deduction of the costs carried by the State of Luxembourg and taking into consideration the different carry-forward adjustments related to traffic and modulation in RP2, the unit rate charged in 2020 was set at 185,83 € per service unit, slightly higher than for 2019 (186,63  $\in$ ).

Although the decrease of traffic and revenues from TNC was less severe than for ER, mainly thanks to a prospering freight air traffic despite the general crisis, the amount of actually recovered TNC charges was however with 7,9 M€ still significantly lower than expected (10,6 M€) and lower than in 2019 (10,1 M $\in$ ).

Table 7, gives the unit rates for terminal services for the past period RP2 (2015-2019) and 2020, the first year of RP3, after adjustments related to inflation, traffic and modulation.



### Table 7 – Unit rate for terminal services 2015-2019 (RP2) and 2020 (only ANSP ANA)

(in k€)	2015	2016	2017	2018	2019	2020
Total determined costs	10.868	11.725	12.027	12.293	12.487	14.933
Inflation adjustment			-186	-402	-382	-381
Traffic adjustment			63	-515	-1.383	-1.820
Modulation adjustment						327
Adjust. Determined costs	10.868	11.725	11.904	11.377	10.721	13.059
Other revenues	-1.529	-2.061	-2.034	-1.766	-1.568	-2.482
Remaining (chargeable costs)	9.339	9.664	9.870	9.610	9.153	10.576
Total service units (PP forecast)	41,3	43,0	44,7	46,9	49,0	56,9
Unit rate (in €/SU)	226,00	224,80	220,64	204,92	186,63	185,83
Annual variation of UR (in %)		-0,53%	-1,85%	-7,13%	-8,93%	-0,43%

Table 8 gives the Total Costs, actuals and determined (DC) in real terms at 2017 price level, actual and forecasted SU's and the actual and Determined Unit Cost (DUC) in real terms.

Table 8 - Total costs and unit costs for terminal services in real terms at 2017 price level (only ANSP ANA)

2020 Actuals	2019 Actuals	2020 DETERMINED (AS PLANNED IN THE DRAFT PP)
14.069	12.645	14.259
40,01	56,00	56,91
351,67	225,69	250,55
	Actuals 14.069 40,01	Actuals         Actuals           14.069         12.645           40,01         56,00

After years of hold out, ANA started in 2018 to overhaul the whole ANSP infrastructure. In 2020 and 2021 the pandemic crisis has put a temporary break on this plan, which resulted in a re-prioritization, cancelling and postponement of parts of the project portfolio. However, ANA is willing to accelerate again next year in order to catch-up the delayed investments and pursue the plan to renew and modernize the ANS and ATM infrastructure in line with SESAR / ATM MP. The list of investment projects for 2020 can be found in chapter 2020 Investments – ATM/ANS & Aerodrome Services, page 63.

In 2020, the total investments (Capital Expenditure - CAPEX) amount for the entire ANA (ANSP, Aerodrome and non-aeronautical services) was very similar than in 2019 (numbers in brackets from 2019):

Total Investments (k€) 2020 (2019) 6.883 (6.771)

Actual costs were 11% higher than in 2019, but 1% lower than the DC for 2020. The actual unit cost in real terms is 56% higher in 2020 than in 2019 and 40% over the Determined Unit Cost mainly due to the COVID-19 crisis.

Table 9 presents the CAPEX in the scope of the performance plan (ANSP part only), meaning that they can, according to the cost allocation principles in place, be allocated either to ER or to TNC.

### Table 9 - Annual and cumulative investment costs in the scope of the performance plan

	2020 Actuals RP3 Year 1 of 5	2019 Actuals RP2 Year 5 of 5
Total ANSP investments (k€) actuals vs blanned (for the year)	2.527 / 7.484	3.788 / 1.171
Total ANSP nvestments (k€) cumulated ac- uals vs planned (for the total 5 years of the RP)	2.527 / 18.712	17.243 / 16.366
% of CAPEX target chievement for the RP	14%	105%

# LEY PERFORMANC ENVIRONMENT

### CDO - A WAY TO REDUCE NOISE & SAVE AIRCRAFT FUFL

Reducing gaseous and noise emissions and saving aircraft fuel are immediate goals to achieve. A comparison with 2019 would be inappropriate as traffic in 2020 dropped drastically due to the crisis. However, in 2020 and according to our calculation based on figures collected with our airline partners and Eurocontrol, about 60% of incoming flights used the available CDO approaches.

Fuel CDO's, are measured from ToD (Top of descent) to 1800ft, with no level-off segment. These CDO's decrease fuel consumption during approach<sup>(4)</sup>. Fuel CDO's are also considered as Noise CDO's, as from FL075 to 1800ft, noise is considerably reduced.

For 2020, 61.1% of flights flew CDO from FL75 (the top of the noise CDO) while only 33.5% flew a CDO from Top of Descent.

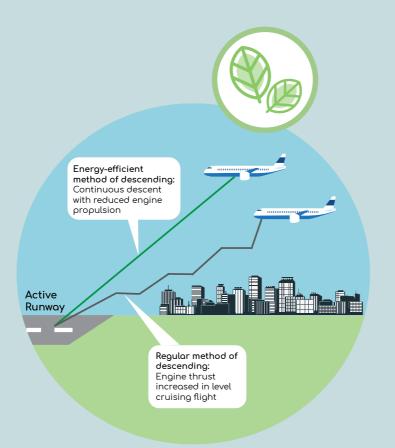
The majority of emissions savings can be (4) gained from optimising the descent profiles from top of descent or from higher levels wherever possible.

### **NIGHT FLIGHTS**

Due to the sanitary pandemic, and with the drop of commercial movements, a decrease is noticeable in number of curfews granted in 2020, but compared to the total amount of movements, an increase. This is mainly related to the sanitary emergency deliveries. (Cargo deliveries)

In fact, in 2020, 83 curfew extensions were granted compared to 90 in 2019.

The overall goal in this KPA is to reduce the environmental footprint of air & ground operations and in the national airspace of Luxembourg as well as limiting noise to a level as low as possible.



As defined in the Grand-ducal Regulation of 2 November 2012 amending the amended Grand-ducal Regulation of 24 May 1998 setting the conditions for technical and operational operation of Luxembourg airport, curfew extensions are defined to a maximum of 95 per year.

The overall goal of the security KPA is to constantly improve security, whether it is physical security or cybersecurity.

In the world of security, the challenge is constant because no one can enact that its security measures are at their best and don't need perpetual innovation and improvement.

ANA security encompasses security management, access control and cybersecurity.

Security management was ensured in 2020 as it successfully passed the numerous audits, tests and inspections (in-house and external). All the observations and new innovative proposed responses to ANA's security field are considered and helped to improve 2020 security management as well as being elements for the continuous improvement of security for the coming years.

Higher checks. constantly increased.

Regarding level met ANA objectives.

34



standards for implemented access control systems on every site of ANA were successfully tested in 2020 during the regular Access control security level is hence

cybersecurity, ANA performed regular vulnerability assessments, penetration tests (internal and external) and the results showed that the cybersecurity





The Risk Key Performance Area monitors and assesses the maturity of ANA's Risk Management System. It measures the level of implementation and its progresses. It is based on several weighted elements like:

- the level of maturity of the Risk Management integration;
- design;
- implementation;
- process,
- evaluation,
- and improvement.



The KPI target for 2020 was set up at 80%, unfortunately other priorities have taken over given the COVID-19 Crisis. Therefore the 80% target level has not been reached yet but should be met by the end of 2021. End of 2020, the current value was approximatively 60%.



# HIGHLIGHTS IN 2020

Despite the crisis, ANA could successfully finish important projects like, implementing Performance Based Navigation (PBN) in Luxembourg airspace, we continued implementing Communication Navigation Surveillance (CNS) technologies and procedures based on the enhanced capabilities of modern aircraft, and achieved big steps forward in safeguarding our environment as an Environmental Management and Audit Scheme (EMAS) certified organization.

# SETTING PRIORITIES IN PROJECTS

The management of ANA developed a detailed scheme for assessing the portfolio of projects and implementation activities with the aim to reduce efforts and financial resources and save costs. We kept a broad, strategic perspective and selected the prime criteria carefully: Key criteria focused on activities that avoid taking in extra and high risks, that help to stay compliant with regulatory requirements and maintain being on track with the SES / SESAR and ATM Master Plan (MP). The mandatory, medium to long-term ATM MP Objectives and SES solutions are a natural priority. However, short-term criteria, like the availability of financial and human resources for getting projects done and contractual obligations to be honoured were used to assess projects and investments on common scales.

### **RISK MANAGEMENT**

The year 2020 was quite challenging for the Risk Management System. Indeed the recent COVID-19 crisis has demonstrated that proactive identification of Organizations' risks was not enough and that it was crucial to demonstrate a great capacity to react quickly, unanimously and in a coordinated manner to any risks that were not initially considered to be on the top of the list. The recent COVID-19 crisis has challenged our certainties and especially those relating to the risks that could impair our objectives achievement.

Therefore, our priorities were revised in 2020. The deployment of an integrated risk management within our organization has been put on hold in favour of a crisis management dedicated to the pandemic. At the very beginning of the crisis, a specific prevention plan devoted to the risk of contagion has been set up and applied within the whole organization.

### SAFETY MANAGEMENT

Safety Management and Risk Management are closely related activities and processes in all ATM/ATS and Aerodrome safety areas. The standards and practices of SAF are well developed and applied and the safety record in ATS/ATM has reached good satisfactory levels.

### JUST CULTURE

The State safety programme adopted in late 2020 includes a 'Just Culture' policy and application rules in conformance with EU regulation and is supported by Luxembourg judicial authorities. A good safety culture is vital for improving safety: No blame for reporting incidents, fostering individual accountability and learning from mistakes are the core items. ANA updated and enhanced their just culture policy in 2020.

# **CERT HIGHLIGHTS**

This plan was in line with the directives of the Luxembourg Council of Government and updated according to the evolution of the situation. It was based on three main axes:

- the establishment of a coordination unit taking daily knowledge of the latest internal and external information and taking decisions for the whole organization;
- the implementation of a set of preventive measures to mitigate, as much as possible, the risk of contagion within the organization;
- the internal and external communication control.

Finally, lessons learned were addressed in relation to the crisis management structure put in place. Nevertheless, during the last quarter of 2020, the deployment of integrated risk management was resumed.

### COMPLIANCE MANAGEMENT

ANA's activities as Air Navigation Service Provider, are highly regulated at an international and national level.

To ensure that ANA complies with all these applicable regulations, Certification (CERT) department had implemented 3 years ago, a compliance monitoring process based on:

- Regulatory follow-up and impact analysis, associated processes/procedures change to comply with new set of regulations;
- Existing quality management system certified against ISO 9001 standard.

Even if aeronautical activity unfortunately slowed down during year 2020, the compliance activities were maintained with 4 external audits from our national competent authority (DAC) and one audit from the European supervisory authority, EASA.

These audits are part of our continuous improvement process and help us to identify any noncompliance to the regulations that govern our activities.

### SECURITY MANAGEMENT

In 2020, changes were made in the Security management system.

The first changes made were in relation with the incident management. Daily verification of station's as well as patrol's is performed by the security team and reported.

An increase of the voluntary incident reporting was noticed and handled. Parallel inspections and tests were set up.

As for the physical security, a Cyber Security Threat watch is developed but on-going some fine tuning, threats and bug fixing are communicated to relevant involved entities.

An Insider Threat program, covering as well the radicalization topic, has been developed and related training will be given via E-learning in 2021.

Regular Security Committee meetings were held to inform and discuss Security related issues with the management.

### 373 RE-CERTIFICATION

The department has worked to ensure that the Air Navigation Administration successfully obtains the EU373 / 2017 certification framing the requirements of Air Traffic Management and Air Navigation Service providers. The year 2020 was the update of the Change Management procedure in close coordination with the NSA in order to improve the quality, assurance and compliance of technical and operational functional changes within the Air Navigation Administration. This certification was issued by the Direction de l'Aviation Civile through a panel of audits that covered the entire Administration based on extensive prior compliance verification work carried out within the department.



# AIR TRAFFIC SERVICES

In 2019 the ministry approved to recruit 17 additional controllers for both units (APP & TWR).

In 2020, a major effort was done by human resources department in collaboration with ATC to recruit new trainees. 4 new trainees were sent to Skyguide in Zürich, 8 new trainees to Entry Point North Belgium (EPNB) in Brussels and 9 new trainees to ANS Finland (Fintraffic) in Helsinki to do AbInitio, ADI and APS basic training. Thanks to a close cooperation with our training partners we were able to accomplish the training despite the difficulties in respect of the pandemic and associated lockdowns. Presently 20 trainees are in their OJTI training phase in both units awaiting final validation in 2022 and 2023.

For APP, simultaneously an "in house" simulator was put in place to allow better training conditions for their trainees. TWR readjusted the trainee shifts to maximize training capabilities while respecting restrictions.

This recruitment will allow both units to offer a third working position which is necessary in case of traffic peaks for better handling and use a second frequency/channel.

In TWR, this position will be used to split frequencies thus decrease frequency congestion while introducing recommended practices and, in APP as director to better handle traffic before transfer to TWR.





The position of the new holding point is by 247m closer to the runway, allowing aircraft to line up and take-off in a more expeditious way in low visibility conditions.

# DISLOCATION OF HOLDING POINTS ON RWY24 FOR CATII/III

Since November 2020 a new CAT II/III holding point has been operational on taxiway A

This shorter distance to the runway reduces the runway and sensitive area occupancy time of departing aircraft hence reduces the risk of a go around considerably for landing aircraft in Low Visibility Procedures (LVP).

# PERFORMANCE BASED NAVIGATION

The Terminal Manoeuvring Area (TMA) of Luxembourg covers the whole country of Luxembourg and some parts of Germany, Belgium and France. The procedures within the TMA of Luxembourg are tributary to the military areas and airspace structure of the surrounding countries. In such complex airspace, strong coordination is required in the form of "Sectorization with different ANSPs" to ensure safety and smooth operations. PBN procedures allow easing the management of the airspace. Making use of modern satellite technology is a major shift from conventional ground-based navigation and procedures to satellite-based navigation and area navigation procedures. Performance Based Navigation (PBN) is available in Luxembourg TMA for accurate navigation since March 2020. The solutions implemented allow direct,

shorter routes and more efficient take-offs and landings at Luxembourg Airport. PBN, in combination with PBN enabled CDOs, improves safety and helps to reduce fuel burn and noise impacts and cutting aircraft emissions. The potential for further environmental and economic benefits is high. Satellite-based navigation is an important step towards reducing ground navigation investment and maintenance costs in future. The first phase of PBN procedures implemented are based on European Geostationary Navigation Overlay Service (EGNOS) and were finalized in 2020.

> New procedures for anding, to abate and decrease noise, and avoid ensely populated areas in the airoart vicinity

Performance based

navigation

Satellite navigation

Despite the COVID-19 sanitary crisis, the CNS service of ANA implemented several important projects. Particular adaptations of working conditions on those projects were set up for both CNS staff and suppliers.

CNS service successfully implemented and commissioned a third Controller Working Position (CWP) in the Approach control room, which will allow more flexibility, performance and safety to ANA's Approach controllers. Taking advantage to the new system recently implemented into the surveillance chain named "Eurocontrol Surveillance Data Distribution System (SDDS)", the CNS service was also implied in 2020 with the interconnection of ANA's surveillance chain with the new pan-European network service (NewPENS) international network as well as the Common Backbone Network - New Generation (CBN-NG). Both networks serve to operational data exchange, are complementary and are used as contingency one over another. The old data communication means were also decommissioned.



# COMMUNICATION, NAVIGATION & SURVEILLANCE

Another major project, which was challenging regarding the several months implementation and validation timing slot that was dependent of the (good) weather, was the replacement of the Instrument Landing System (ILS) DME24 and the renewing of the reflective surface of the Glide Path 24.

The CNS service also initiated several projects in 2020, which will keep on in 2021. For example, the implementation of the Digital Automatic Terminal Information Service (D-ATIS) with SITAONAIR. The CNS service also started the renewal of the Closed-Circuit TeleVision (CCTV), access systems as well as the renewal of alarms in the various CNS and ELE stations. The CNS service also took the opportunity to initiate a project insuring electrical compliance of the CNS stations.

# PRELIMINARY ELECTROTECHNICAL ACTIVITIES FOR RUNWAY REFURBISHMENT

Following the issues with the old cabling of the runway lighting systems in 2019, it was clear for all the parties (ANA, lux-Airport) that the cabling needed urgent replacement. Additionally, all the power transformers had to be exchanged in order to guarantee a reliable functioning of these essential systems for safe operations at Luxembourg airport.

During the runway refurbishment the new cables and power transformers had to be installed in the new ducting systems which was part of the runway refurbishment plan. Besides the electrical works also civil works were required, as no cable ducts were installed between the manholes of the old and the new ducting systems.

Due to the short notice of these unforeseen urgent works, the ELE department had to take in charge for the first time not only the electrical part of the project but also the civil works which increased significantly the complexity of it.

Due to the vicinity of the works to the runway and/or taxiways, a big part of the works could only be done

at night time during airport closure. This meant many additional night shifts for the ELE staff.

Despite all the difficulties, it was possible to realize these important works in the planned time frame and within the fixed budget. All this could only be done thanks to the great effort of all ELE agents and to the good support of all ANA services.

All these efforts were worthwhile and contributed to the safe and reliable operations of the airport.

Below, a few facts of the material used:

- 5.600 m of trenches;
- 83.000 m of primary cables;
- 21.000 m of secondary cables;
- 760 new transformers;
- 170 waterproofing systems.

As the pandemic caused a sudden decrease of flight rotations and airport activities, the aerodrome unit went through numerous reorganizational processes over the year to guarantee their functionality.

In 2020, the aerodrome unit welcomed two newly hired agents to strengthen the inspector unit in order to ensure the smooth running of the inspections formerly carried out by the Grandducal Fire and Rescue Corps (CGDIS) (Friction tests, manoeuvring area inspections, etc.) as well as the technical runway inspection newly implemented in 2020. Furthermore, the Aerodrome service (AER) training unit was reinforced with an additional officer to help the training unit to deliver airside driver's licenses and simulator training as well as to strengthen the inspector cell in case of lack of staff.

The aerodrome service began to restructure the roster to avoid contact between staff from March on. In June 2020, the roster was again adapted to provide full 24/7 service presence at the airport, in order to provide the adequate framing of diverse companies including their escort as well as the supervision of the multiple worksites planned spontaneously in 2020 as they would not impact the flight activities as those were already at their lowest. Accordingly, the aerodrome



# **AERODROME ACTIVITIES**

works coordination cell had numerous meetings concerning planning, coordination, safety assessments and procedure set up for the diverse airside work sites (planned / urgent works).

The complete shutdown of passenger traffic from March until May 2020 was an opportunity to conduct major projects such as the CAT II/III stop bar and Taxiway (TWY) D1 centreline dislocation. All these works have been safety assessed and coordinated by AER. In addition, the AER has launched the Foreign Object Debris (FOD) detection program, which has been delayed due to the COVID-19 crisis. During the first part of the FOD project, a pickup truck was delivered to complete the AER fleet and be the additional support vehicle for the ordered FOD detector scheduled for delivery in 2021. The fleet also expanded in October with the purchase of a new snowblower in collaboration with Ponts et Chaussées (PCH).

Furthermore, the aerodrome simulator was installed airside together with an additional container to merge all aerodrome units in one building.

### **AERONAUTICAL OPERATIONS**

ANA's OPS department, being in charge of delivering H24 Airport Reservation Office (ARO) services succeeded to provide its services without any interruption thanks to a sensible human resource, sanitary and infrastructure management. Even though traffic in Luxembourg tremendously dropped during 2020, ARO services were all the time available. Particularly to give support and facilitating the governmental measures involving air services to handle the crisis.

In parallel to the crisis measures in place impacting the operations, ANA's OPS department implemented several new improvements. The first one being the update of the Data **Provision Agreement** (DPA) with data providers to be in line with changes to the regulatory framework and national the ICAO data catalogue (www.datacat. The DPA lu). Direction with de l'Aviation Civile (DAC) was signed in July 2020. The next step of this achievement will be the signature with lux-Airport.

A stronger coordination process was also set up with ATC (TWR and APP) as well as ANA's aerodrome service regarding Aeronautical Information Publication (AIP). The goal is to improve and decide all matters related to data provision and aeronautical publication. ANA's OPS department manages similar regular meetings with lux-Airport and DAC since 2018. Another importatnt improvement realized in 2020 was the formalisation of Flight Procedure Design Service (FPDS) provision with skeyes, the Belgian ANSP. It has successfully started in 2020 on a dual basis of an operational agreement on service provision and a financial agreement.

ANA's OPS department committed to implement Unmanned Aircraft Systems (UAS) geographical zones according to EU regulation 2019/947 (rules and procedures for the operation of unmanned aircraft). Therefore. unprecedented an cooperation between our administration and the Administration du cadastre et de la topographie (ACT), and the Direction de l'Aviation Civile has taken place in order to visualise these zones. In the Grand-Duchy of Luxemboura. the UAS geographical zones are now dynamically represented on geoportail.lu.

Despite keeping the meteorological department fully operational during COVID-19 pandemic, MeteoLux could reinforce their technical and operational teams. One additional technician was employed in order to maintain the high-quality technical support for MeteoLux. One trainee of the operational service passed successful his final exams at the college of the German Weather Service (DWD), sub-branch of the German Federal University of Applied Administrative Sciences, and the admission exam at ANA and joined the operational team of MeteoLux.

During the year MeteoLux was busy to adapt procedures and internal documentation to the requirements of the updated EU 2017/373 regulation. In this context the technical team elaborated a completely new training and competence assessment procedure in order to comply with the regulation to and maintain a n d justify t h e Air

# METEOROLOGICAL SERVICES

Traffic Safety Electronics Personnel (ATSEP) status of the technicians.

In the frame of the efforts of MeteoLux to continuously improve services, an information service on tornado risks has been set up upon request of the High Commission for National Protection. This information service is only intended for internal use and not for the public.

In addition, several smaller ameliorations had been realized during the year, like offering the available weather widget also in English language, adding German weather forecast texts for Luxembourg on the Belgian Royal Meteorological Institute (IRM) smartphone app, publishing radar pictures on the MeteoLux website and some updates of the technical systems and infrastructure.

# ENHANCED DIGITALIZATION OF FINANCE SERVICES

The year 2020 has been marked by the pandemic crisis and the challenges of home office work. Hence, the unpredictable lockdown forced the finance department to respond very quickly, spontaneous and pragmatic in order to keep the financial and budgetary processes, but above all the purchasing process, running, despite the emergency situation. Thanks to the provision of the all necessary IT equipment and solutions proposed by ANA's IT service, the finance department stayed 100% operational from the first day of the lockdown on. Without delay, ANA's finance team implemented a new, transitional, process for the approval of purchase orders and the e-signature for all financial and accounting documents, enabling by this a maximum of teleworking until the end of 2020.

In collaboration with the IT service, this new process was further developed during the year, with the result that ANA has since October 2020 a suitable digital approval platform in place, which is considered a very good solution by the whole workforce. A return to the paper-based process from the time before the first lockdown is inconceivable.





2020 was a chaotic and challenging year to overcome for many, and IT service was no less impacted, quite the contrary.

IT service was during the sanitary crisis at the core of ANA's users requests. A huge number of requests was coming from ANA's users who had to work from home and therefore needed secure and performant hardware as well as specific software for each activity of the administration.

The crisis impacting the whole ICT supply chains, the delays grew larger and larger. The consequence was that IT service had to adapt itself, rethink and rebuild almost everything from the ground-up to cope with the new needs. Standing still was not acceptable.

In addition to this challenging task, IT service remained an efficient support to all ANA users and IT service had to reinvent its support service and methods to adapt itself to the new

# IT SERVICES

working conditions of the users.

Sideline to those activities, the IT service kept on supporting, improving and securing the diverse technology portfolio as well as the business processes of ANA.

In 2020, IT service was still able to bring significant improvements for ANA. An upgrade of the firewall clusters, the increase of the network bandwidth and redundancy, to name a few. IT service deployed a new hyper converged infrastructure, revamped ANA's backup infrastructure, redeveloped ANA financial tools, and deployed new collaboration tools for all staffs.

IT service is proud of its adaptation and the quality of all the services that all were successfully delivered to all the ANA employees. The success of ANA to cope with the crisis could not be achieved if IT service didn't reinvent itself to excel in its new way of providing secure, adapted and performant service.

# OUR PEOPLE, **OUR COMPETENCE**

As an ANSP, ANA requires well skilled personnel and management in all areas. The demands on professional, technical, operational, personal and teamwork competences are high and the complexity of the job and work environment is steadily increasing including new, integrated and broad technologies that require high knowledge, skills as well as attitude, flexibility and a teamwork-oriented management.

Therefore, ANA remains a workplace that offers good professional and personal development opportunities, good personnel management leadership and skills to retain and attract competent and motivated employees. In 2020, the Human Resources service succeeded once again its mission, through more agile an efficient means.

Our agents are indeed at the core of our ability to be a successful ANSP that can support our internal and external customers in fulfilling their missions and ambitions. Despite the current COVID-19 crisis and the severe impacts on the entire industry, ANA

continued providing safe, secure and efficient air navigation services and air traffic management technical services. Personnel marketing, selecting, retaining competent and skilled employees along

with the maintenance of the increasing high level of knowledge, expertise and skills at a technical and personal level are of importance for ANA in which Human Resources (HR) plays a major, strategically oriented role.

In the future, ANA will advance to a more targeted development of the HR management functions and culture with a focus on supplementary training, workplace safety, health and wellbeing,

effective

and

communication. involvement in the strategic development and management of ANA in order to actively support the strategy of ANA through its personnel. The upcoming HR development activities will also include building and maintaining an effective employee rewards and recognition system, integrating human performance, teamwork and Social Corporate Responsibility (CSR) ANA's initiatives into strategy.

In 2020, the HR service implemented the promotion of the portal "MYRH" and development of our agents' qualifications.

Table 10 - ANA staff	2015	2016	2017	2018	2019	2020
Total Staff ANS and Admin <sup>(5)</sup>	136	135	140	148	166	176
ATCOs in OPS <sup>(6)</sup>	50	48	48	50	62	70
Staff in OPS, CNS & MET	53	51	53	55	54	57

(5) Excluding staff in AER (aerodrome support), ELE (electro-technical) and SIS (fire brigade & rescue service now integrated into CGDIS)

Including 24 ATCO students at training institutions or on position (6)

# CORPORATE COMMUNICATIONS DURING THE PANDEMIC

The sanitary crisis was one of those extraordinary events that test every company resilience and capacity to maintain its mission.

ANA's major internal challenges were to ensure staff is fed with the right information regarding its safety, to make sure that resilience oriented internal adaptations put in place are well understood and executed. On another hand, the second focus was set on communicating to stakeholders about ANA's ability to maintain its mission and its will to give support to the airport community.

Instead of undergoing the crisis, ANA's communication cell put in place a highly agile and straight to the point communication process to support ANA's crisis cell. The communication cell brought its experience and innovation mind-set to propose the most suitable strategy as well as tools and innovative means of communication. Its aoal was to ensure the right messages reach each member of our staff, as well

as for the external stakeholders' individual or global communication.

The extreme reactivity of the communication cell, combined to its capacity to compile, analyze and cling to ministerial communication was one of the most valuable assets of the crisis cell. Many means of communication were directly set up. Dedicated sanitary instructions were displayed on every screen located in every passage way of the administration. Regular dedicated newsletters were sent to all the staff. Those newsletters were designed with a layout that helps the reader to access right away to the concise and visual information. The communication means that were implemented also helped to efficiently gather and structure all the other information that had to be broadcasted. NA This crisis emphasized dministration de la the major role avigation gérienne communication cell ensured within ANA and its need **19 NEWS** to keep on developing it. SHARE

ENVIRONMENTAL MANAGEMENT

# REDUCING OUR ENVIRONMENTAL FOOTPRINT

Environmental sustainability of ANS / ATM and aerodrome operations is a domain of high importance for ANA. Communities near Luxembourg airport and the public at large are sensitive to the environmental impacts of aviation. The demand for comprehensive and lasting measures to reduce stressors, like noise and emissions, is imminent and has long been a core issue of concern. However, ANA, supported by our Ministry, started an environmental programme of much larger scale including the entire ANA organisation from Admin, ANS / ATM projects and procedures to de-icing products used on the manoeuvring area to address all environmental topics of concern in the range of responsibility of ANA.

ANA's Environmental Management System is founded on six environmental pillars: Noise, Air Quality, Water & Ground Quality, Waste, Biodiversity and Resources and applies to the entire ANA organisation. ANA's ambitious environmental statement issued in 2020 gives a detailed action plan and tangible measures and measurements that apply, and are monitored and managed by a dedicated EMS team and in fact by all people in ANA.



The overall goal is to reduce the environmental footprint of air and ground operations, in the entire ANA organisation and in the national airspace of Luxembourg.

ANA is certified ISO14001 already since 2017 and since autumn 2020 ANA is officially registered as a certified service in accordance with the Community Eco-Management and Audit Scheme (Regulation EMAS (EC) 1221/2009).

The following paragraphs highlight some 2020 activities and achievements in the six Environment pillars 'Noise, Air Quality, Water & Ground Quality, Waste, Biodiversity and Resources'.

# NOISE

Noise complaints of citizens in the vicinity of 1700 ft to 2200 ft it is expected that the noise the airport increased, which is unusual and complaints will further rise in 2021. Actions, like was mainly due to the high increase of local the update of the citizen complaints process -Visual Flight Rules (VFR) traffic (especially facilitated by a noise declaration template on touch-and-go operations) from May to our website<sup>(7)</sup>, meetings and working groups November during the time of much reduced organized together with the ministry, DAC Instrument Flight Rules (IFR) traffic. Moreover, and the associations, and the update of the a change of a departure route (SID GTQ1T) at national airport noise plan (Plan d'action the eastern side of the Runway (RWY) caused contre le bruit aéroportuaire) are still ongoing. also a higher number of noise complaints.

The procedure has been revised beginning 2021 to reduce the noise impact (SID GTQ2T).

Although the altitude level was increased from

(7) https://ana.gouvernement.lu/fr/support/contact.html







The determination of ANA's carbon footprint was 2020 in the focus of the air quality pillar. New metrics were introduced, such as building emissions, emissions caused by business travels via car, respectively via plane, waste emissions and the fuel consumptions of ANA's car fleet.





## WATER AND GROUND QUALITY

A project started in 2020 to install new water counters for all airport stakeholders (internal and external) in cooperation with LuxAirport. An external company will do a survey of the existing infrastructure and update the existing building plans. Phase 2 of the project is the renewal of the existing water counters with water meters with remote reading.



the Date

# **USE OF RESOURCES**

After an internal audit, ANA reviewed the contracts for the air conditioning and heating system maintenances. In that scope, an evaluation of the listings was done and the maintenance process in the facilities department will be updated.

ANA signed the Zero Single-Use Plastic Manifesto. By signing the IMS Luxembourg

# WASTE

As for the resources pillar, waste management is also in the scope of an internal audit. A review of procedures, stakeholders and contracts was launched to find new impacts on reducing produced waste.

In the scope for the evaluation of ANA's carbon footprint, ANA contacted the environmental agency, SuperDrecksKëscht (SDK) and Valorlux to get their carbon footprint for produced waste per type to include their carbon footprint calculation.

# BIODIVERSITY

In cooperation with LuxAirport, ANA's Honeybees produced, out of 4 beehives, a total of 120kg of Honey in 2020.

Setting up beehives is just a small intervention in making a positive impact on the environment, but hopefully, this little effort will thrive.

Zero single-use plastic manifesto, ANA decided to eliminate all single-use plastic. Since a few years, ANA introduced water glasses and metal cutlery to replace plastic. Beverages in glass bottles and water fountains are at the Staff's disposal as well as centralized coffee machines.

# STAFF INVOLVEMENT AND TRAINING ON ENVIRONMENTAL ISSUES

In the scope of the Environmental Management and Audit Scheme EMAS registration ANA organized annual training / instruction on the subject of environmental protection and the environmental management system for all employees, including top management.



# EXTERNAL COLLABORATION AND STAKEHOLDERS

With respect to the Green Deal and the Paris Agreement, ANA is participating in external environmental working groups like the EASA EUROCONTROL environmental transparency working group, the FABEC SC ENV and national working groups as the Sustainability Managers Club organized by IMS Luxembourg.

During 2020, the Environmental Management System (EMS) continued pursuing the obligation to address the shared responsibilities of ANA with lux-Airport and their home carriers Cargolux and Luxair on their environmental aspects and in particular air, water, soil, flora and fauna, noise and energy. The aim is to develop measures and agree on mutual environmental performance indicators in the frame of the ATM MP and Airport Collaborative Decision Making (CDM) and to work together on a common chart.

The detailed 2020 outcome and the list of environmental targets in the six pillars of the EMS, an overview of the new and revised action items, data and facts appear in the 'Environmental Statement 2021'.





In 2020, ANA continued to maintain close coordination with all stakeholders. Unfortunately, and due to the crisis meetings in person had to be reduced to a minimum and were replaced as far as possible by virtual ones. We coordinated and consulted the Ministry in charge on plans, changes and respective financial implications. The multiannual investment plan agreed in 2018/2019 received further support. Of specific concern for ANA as customers and stakeholders are the airlines and the Luxembourg Airport. The annual Airport User Committee (AUC) meeting could not be held as usual in 2020 replaced by written documentation and explanation. The financial outturn and terminal ANS charges levied in 2020 was explained and 2021 Terminal Navigation Charges (TNC) determined cost and the final unit calculated and explained. In 2020, stakeholder consultations were conducted virtually and over mail due to the pandemic restrictions. ANA expressed its full support to the airline companies which have to face a major and unprecedented crisis in the aviation sector and especially for

# STAKEHOLDERS CONSULTATION

passengers' airline companies. In the same time, our business was a key player for the transportation all the COVID-19 logistic for medical, electronic and essential products. During all this period, ANA is very proud to be able to maintain its activities with the same level of services and flexibility without any disturbance despite all the difficulties. We will continue to support the airlines in order to be able to restart quickly and strongly the passenger activities in the months to come. During the last period, we took the opportunities to reduce some investments and to realign our priorities to be ready in order to provide our best services for the aviation recovery and for the future challenges. The users had a positive opinion on the charges presented to them in 2020. They have asked ANA to revise their hiring and investment plan to limit cost increases and depreciation to a minimum. ANA held virtual meetings for noise complaint related issues.

# INTERNATIONAL ACTIVITIES

ANA as an organization and staff representing certain activities take an active role in Functional Airspace Block Europe Central (FABEC), EUROCONTROL and Civil Air Navigation Services Organisation (CANSO).

ANA continued to participate in the various FABEC Committees, CANSO, Maastricht

Lux-Airport

Airport Works

Coordination

(AWoC)

# PARTICIPATION IN FABEC, EUROCONTROL AND CANSO ACTIVITIES

Upper Area Control Center (MUAC) and EUROCONTROL groups and provided support to the State regulator on Air Navigation Service Provider (ANSP) and Single European Sky (SES) related subjects. Their virtual nature enabled ANA to have more representatives in the different meetings and workshops. System Wide Information Managemen (SESAR core project)

AIM/ SWIM Teom

Safety Team

receiving support for ANA activities.

Representing the

FAREC Stop



EUROCONTROL

CESAF

CANSO European Safet Directors Group

canso

Groupe de

travail - Infrastructure

Luxembourgeoise de

Géodonnées (GT-ILDG)

A N A

Administration de la navigation aérienne



AIM Steering Group

TTF

FABEC Social Dialogue Committee

SDC

FABEC Safety Performance Monitorin Group

SPM

AIRI SG

ATT

Aeronautical Information Regulations Implementation Sub-group



ATM Training Team Forum for exchanges between training experts at EU level.

ABEC Performance Janagement Group

PMG

FABEC Communication Cell

### COM CELL

Customer Relation Management group

### CRM

# FABEC

Human Resources and Training Standing Committee

ASB

ANSP Strategic Board

HRT SC

# **DEVELOPMENT OF** FINANCE PROCESSES

Luxembourg State continued carrying the costs for ATM investments and capital cost. The depreciation costs for investments were not charged to airspace users saving them an amount of more than 2M€ in 2020 in terminal costs and about 1M€ for En-Route ANS provision.

The impacts of the current COVID-19 crisis on ANA's strategy, planning of resources and investments, and the dramatic reduction of revenues from route and terminal charges are severe. ANA's Finance department identified the financial and cost risks and areas for improvement on cost efficiency and reduce expenses to good effect. Nevertheless, the need for additional State funds remains to cover the gap in cost-to-revenues in the budget to ensure sufficient liquidity and the roll-out of essential investments and projects.

Luxembourg Airport.

### Table 11 – ATM/ANS and Aerodrome Infrastructure Investments in 2020

Department / Service – Project Title	Expense 2020 (EUR)
ATC – Performance Based Navigation	121.042
ATC – New ANA Tower - Planning	70.973
CNS - A-SMGCS Phase 1	88.817
CNS - Back-up Server for CNS Data centre	10.636
CNS – Replacement Instrument Landing System (ILS06)	96.108
CNS – Replacement Instrument Landing System (ILS24)	471.917
CNS - Surveillance chain upgrade	172.458
OPS - System for Terrain / Obstacle data handling - eTOD	17.926
MET - AWOS/ATIS software update Phase 1	2.621
MET - Replacement of RVR sensors	Postponed
MET - Big screens forecast office	11.262
CERT – ANSP compliance management system	29.094
ADMIN-HR - Data & personal information protection system (according GDPR)	2.843
AER - Renovation of runway - preparation	131.768
AER – Relocation of holding point 24 Cat II/III	287.828
AER - Simulator for airside driving training (B-Permit)	29.250
ELE - Electrical Station for Gate 18 and stations 06 &24	62.179
ELE - Ducts for cabling – Preparation of RWY refurbishment	252.436
ELE – Airfield Lighting Control & Mgmt System ALCMS update	57.116
Grand Total	1.916.274

# 2020 INVESTMENTS -ATM/ANS & AERODROME SERVICES

Table 11 below gives the details on investment in 2020 for projects related to the provision of ANS including CNS, Aeronautical Information and MET Services and for Aerodrome Infrastructure services that ANA provides to

# FINANCIAL SITUATION 2020



### 2020 Results

The official 2020 Financial statements are available upon request.

The decrease in Traffic Service Units (TSUs) has led to a substantial loss of revenues from ANS charges. Despite this, a small reduction of the Unit rate for terminal services, down from 186,63 € in 2019 to 185,83 € in 2020 was calculated due to the carry-overs from the financial year 2018 in favour of users. The modulation of the terminal charges again demonstrated the financial benefit of the modulation scheme for users.

ANA delivered in the Functional Airspace Block Europe Central (FABEC) Performance Plan (PP) in 2019 a new investment plan for Reference Period 3 (RP3). However, due to the crisis and the interim measures and (still ongoing) discussion regarding the revision of the PP, this plan is currently under revision.





# GLOSSARY

Abbreviation	Meaning
A-SMGCS	Advanced Surface Movement Guidance and Control System (ground radar)
ACAS RA	Airborne Collision Avoidance System - Resolution advisory
ACT	Administration du Cadastre et de la Topographie
ADI	Aerodrome Control Instrument (ATCO Licensing)
ADMIN	ANA department 'Administration'
AER	ANA Aerodrome Department
AIM	Aeronautical Information Management
AIP	Aeronautical Information Publication
AIRI SG	Aeronautical Information Regulations Implementation - Sub-group
ALCMS	Airport Lighting, Controlling, and Monitoring System
ANS	Air Navigation Service
ANSP	Air Navigation Service Provider
APP	Approach Service
APS	Approach Control Surveillance (ATCO Licensing)
ARO	ANA division aerodrome reporting office
ASB	ANSP Strategic Board
ATC	Air Traffic Control
ATCC	Air Traffic Control Center
ATCO	Air Iraffic Controller
ATEM	
	Air Traffic Flow Management
ATIS	Automatic Terminal Information Service
ATM	Air Traffic Management
	ATM Master Plan
ATM SE	ATM System/Equipment
ATN	Aeronautical Telecommunication Network
ATSEP	Air Traffic Safety Electronics Personnel
ATT	ATM Training Team
AUC	Airport Users Committee
AWoC	Lux-Airport Airport Works Coordination
AWOS	Automatic Weather Observation System
CANAC2	Computer Assisted National Air Traffic Control Center 2 - Belgian ATCC
CANSO	Civil Air Navigation Services Organisation
CAPEX	Capital Expenditure
CAT II/III	Category of Operation (I, II, III etc.); ILS approach
CBN-NG	Common Backbone Network - New Generation
CCTV	Closed Circuit TeleVision
CDM	Collaborative Decision Making
CDO	Continuous Descent Operation
CERT	ANA department 'Certification'
CESAF	CANSO European Safety Directors Group
CGDIS	Airport firefighting department
CNS	Communication Navigation Surveillance service
COM CELL	FABEC Communication Cell
COVID-19	Coronavirus Disease 2019
CRM	Customer Resource Management
CRSTMP	ATFM delay causes (Capacity, Routing, Staffing, Equipment, Airspace Mgmt, and Special events)
CSR	Corporate Social Responsibility
CWP	Controller Working Position
D-ATIS	Digital ATIS
DAC	Direction de l'Aviation Civile
DC	Determined Costs
DCL	Digital Clearance
DF	Direction Finder
DIR	ANA Directorate
DME	Distance Measuring Equipment

Abbreviation		
DPA	Data Provision Agreement	
DUC	Determined unit costs	
DVOR	Doppler VHF Omni Directional Range	
DWD	Deutscher Wetterdienst	
EASA	European Agency for the Safety of Av	
EC	European Commission	
EC3	European CANSO CEO Committee	
EGNOS	European Geostationary Navigation Ov	
ELE	ANA Electrotechnical Department	
EMAS	Eco-Management and Audit Scheme,	
EMS	Environment Management System	
ENV	Environment (one of the five core KPA	
EOSM	Effectiveness of Safety Management	
EPNB	Entry Point North Belgium	
ER	En-Route	
eTOD	electronic Terrain & Obstacle Data re	
EU	European Union	
FABEC	Functional Airspace Block Europe Cent France, Belgium, Luxembourg, Switzerla	
FIR	Flight Information Region	
FL	Flight Level	
FOD	Foreign Object Debris	
FPDS	Flight Procedure Design Service	
GDPR	General Data Protection Regulation (E	
GPS	Global Positionning System	
GT-ILDG	Groupe de travail - Infrastructure Luxen	
HR	Human Resources	
HRT SC	Human Resources and Training Stan	
ICAO	International civil aviation organization	
ICT	Information and Communications Tec	
IFR	Instrument flight rules	
ILS	Instrument Landing System	
IMS	Integrated Management System	
IRM	Institut Royal Météorologique de Belg	
ISO	The International Organization for St	
IT	Information Technology	
KPA	Key Performance Area	
KPI	Key Performance Indicator	
LAP	LuxAirport	
LVP	Low Visibility Procedures	
MET	MeteoLux (Luxembourg aeronautical	
METTECH	MeteoLux technical engineers	
MMTP	Ministère de la Mobilité et des Travau	
MTOW	Maximum Take-Off Weight	
MUAC	Maastricht Upper Area Control (EURC	
NDB	Non Directional Beacon	
NewPENS	New Pan-European Network Service	
NSA OJTI	National Supervisory Authority	
	On the Job Training - Initial	
OPS	ANA Operations Departement (AIM-A	
PBN	Performance based navigation (a sate	
PCH	Ponts & Chaussées	
PI	Performance Indicator	
PMG	FABEC Performance Management Gro	
PP	Performance Plan	
PRU	Performance Review Unit	



### Meaning

viation

verlay Service

, an environmental certification ANA holds

As in European performance planning)

epository

nter (a cooperation of ANSPs from Germany, the Netherlands, land and including MUAC)

EU Reg 2016/679)

mbourgeoise de Géodonnées

nding Committee

n, a UN agency

chnology

gique

tandardization is an international standard-setting

l and general meteorological service provider)

ux Public

OCONTROL)

RO)

ellite based navigation system for aircraft)

oup

# GLOSSARY

Abbreviation	Meaning
RP	SES Performance Scheme Reference Period
RP2	SES Performance Scheme Reference Period 2 (2015-2019)
RP3	SES Performance Scheme Reference Period 3 (2020-2024)
RVR	Runway Visual Range
RWY	Runway
SAF	Safety (one of the five core KPAs for European performance planning)
SC	Standing Committee
SC IRL	FABEC Standing Committee Institutional - Regulatory - Legal
SC SAF	FABEC Standing Committee Safety
SC-OPS	FABEC Standing Committee Operations
SDC	FABEC Social Dialogue Committee
SDDS	Surveillance Data Distribution System
SDK	SuperDreckskëscht
SES	Single European Sky
SESAR	Single European Sky ATM Research (a technical collaborative programme for the complete overhaul of the European ATM network and infrastructure)
SID	Standard Instrument Departure
SIS	Service d'Incendie et de Secours
SPM	FABEC Safety Performance Monitoring Group
STATFOR	Statistics and Forecasts on air traffic in Europe (Eurocontrol)
SU	Service unit (measurement unit based on MTOW of aircraft for the calculation of user charges)
SWIM	System Wide Information Management (SESAR core project)
ТМА	Terminal Area
TNC	Terminal Navigation Charges
TOD	Top of Descent
TSU	Traffic Service Unit
TTF	FABEC Training Task force
TWR	Tower service
TWY	Тахімау
UAS	Unmanned Aircraft Systems
UHF	Ultra High Frequency
UR	Unit Rate
VFR	Visual Flight Rules
VHF	Very High Frequency
VPN	Virtual Private Network





# CONTACTS

Administration de la navigation aérienne ANA 4, route de Trèves L-2632 Findel

Post : Administration de la navigation aérienne B.P. 273 L-2012 Luxembourg

(+352) 4798-22000 info@airport.etat.lu ana.gouvernement.lu

112

**T.** 7



E

ALCONDUCT STATES



