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DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de la Mobilité
et des Travaux publics

Administration de la navigation aérienne

ANA ENVIRONMENTAL STATEMENT 2020

WITH 2019 FACTS AND DATA

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AUTHORITY	NAME	DATE	SIGNATURE
ANA	Claudio CLORI Director ANA		

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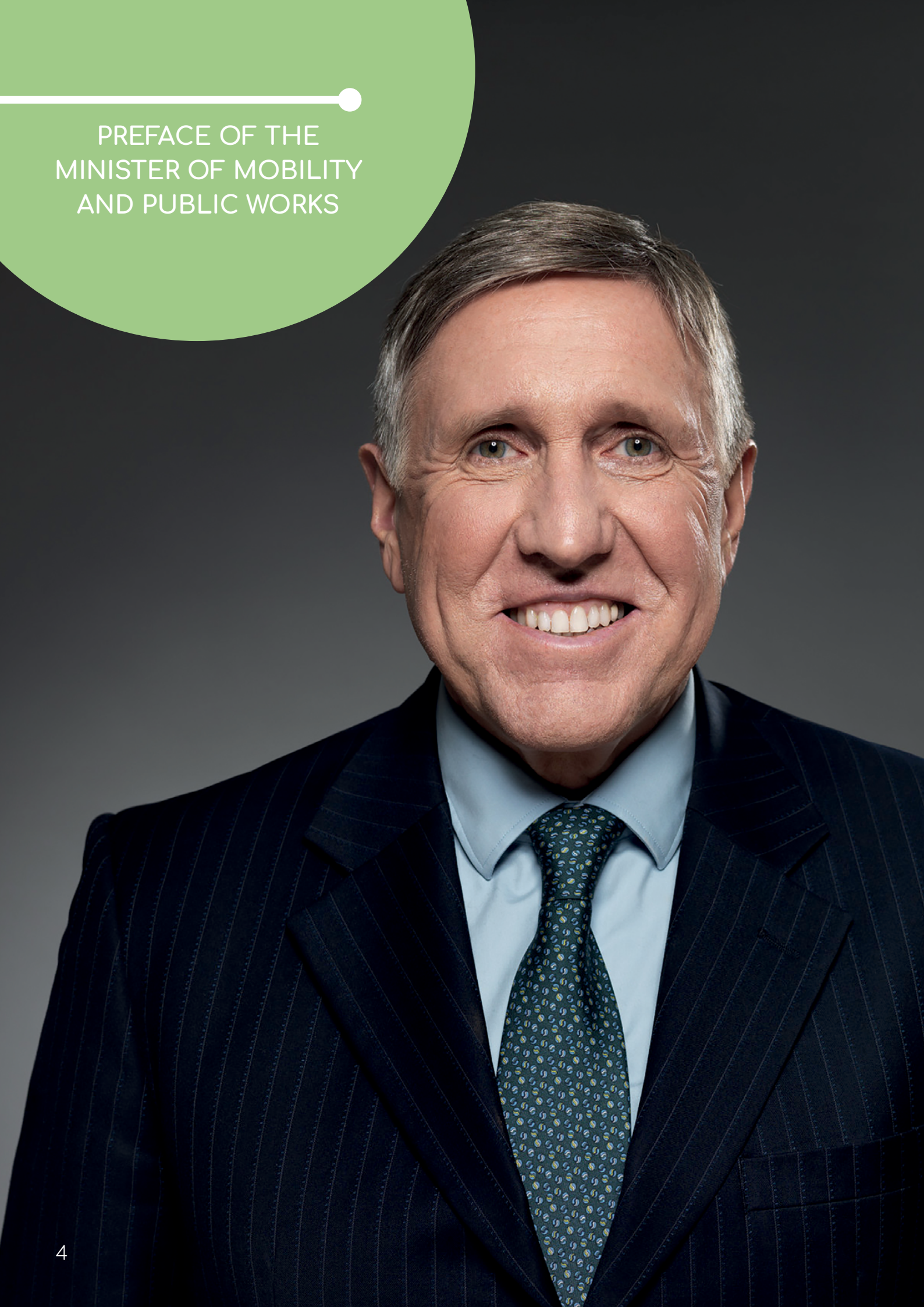
CONTENTS

PREFACE OF THE MINISTER OF MOBILITY AND PUBLIC WORKS



Over the last few years, Luxembourg's airport has witnessed a fast and important growth in traffic, as well for passengers as for airfreight. Luxembourg Airport, Luxembourg's only international airport, handles daily a very diverse and rather unusual mixture of users: large cargo planes with a take-off weight of up to 550 tonnes are followed by small Pipers of amateur pilots, low cost airlines depart just after private planes, the helicopters of air ambulance operate not far from holiday charter flights. The airport represents one of the main exchange platforms for the national economy and guarantees the important connection of people and goods.

However, with the growth of the aviation sector in Luxembourg, there are also new challenges arising. Aviation produces externalities, mainly noise for the residents around the airport and emissions of CO2. Handling these nuisances is a huge challenge for all the stakeholders involved. This is why awareness rising and developing a sense of responsibility is of utmost importance.

Lux-Airport, as member of the Airport Council International, is already implementing their "Airport Carbon Accreditation Program" with the goal to promote carbon neutrality. The program provides a unique common framework and tool for active carbon management at airports with measurable results. But also, airlines are continuously searching for ways to make flying more efficient, for instance by saving fuel and reducing noise.

I am therefor very pleased that the Administration de la Navigation Aérienne (ANA) as ANSP provider of Luxembourg takes also part in these efforts and relies on the EMAS (Eco-Management and Audit Scheme) requirements developed by the European Union. EMAS defines important guidelines to fruitfully manage environmental protection, protect resources, and identify environmental risks at an early stage.

All the different measures ANA is undertaking are listed in this paper. They might be as diverse as installing LED lights, tracking night flights or put in place measures for promoting biodiversity on the aerodrome. The first goal of this paper is to provide an overview of the measures undertaken. This is how it can promote a better understanding and offer more visibility to these, often hidden, aspects of aviation. For those reasons I am very pleased to express my full support to ANA for going forward with their work in this very important area.

François Bausch
Minister of Mobility and Public Works

FOREWORD

The constant growth of passenger and cargo air traffic in Luxembourg airspace and on the airport since 2015 was an important trigger for a number of profound actions and plans for a sustainable approach to managing Air & Ground aircraft movements. ANA, the Air Navigation Service Provider in Luxembourg, sets environment protection and safeguard high on its agenda as an important organizational goal, next to safety.

The need for honest and lasting actions to protect the environment and reducing the environmental ´footprint´ of air traffic at global level is meanwhile unquestioned. The local effects of air and ground traffic are a direct concern for us: Some residential areas are close to Luxembourg airport. The airport is closed for air traffic during the night. However, air traffic can be disturbing to residents during late or early hours and during daytime on weekends. Lasting measures to reduce noise – and emissions – are needed.

This is the situation which required us, ANA (Administration de la Navigation Aérienne), the Luxembourg public service entity responsible for ground and air movements in Luxembourg, to find common solutions involving local airlines, Luxembourg airport and residents as equal partners, with the full support of the Ministry of Mobility and Public Works. The measures aim at reducing aircraft noise and emission to sustainable levels whilst allowing future growth and prosperity of the airport and related industry as important economic contributors in Luxembourg. ANA is strongly involved in the "airport noise action plan" developed by the Environment Agency.

We started in 2014 with an open and transparent approach, as requested by the Ministry of Mobility and Public Works, to address the needs and expectations of citizens in the vicinity of the airport by involving residents through surveys and information sessions, in open discussions, listening in debates to resident complaints and asking for participation in the process of finding solutions for the problems identified. A contact point on our web page is available for resident complaints.

Since 2015, we operate a charging scheme for the airport air navigation services that includes environmental factors honouring the use and implementation of quieter and fuel saving aircraft engines and promoting the use of less disturbing departure times. This helped to reduce the number of late arrival and departing flights after 23:00 whilst traffic overall increased in the same period.

ANA implemented a series of technical and operational initiatives and projects to reduce aircraft noise and fuel burn through modern technology and new air navigation procedures. One prominent example is the development and implementation of continuous descent operation (CDO), which allows aircraft to ´glide down´ for landing from high flight levels to the airport with much reduced engine power. This is in place since 2018 for incoming flights and is used by more than two-third of all flights with substantial, measured reduction in emission and noise. CDO approaches in 2018 show a significant reduction of 15% in noise, 11.6% reduction in NOX emission and 1.5% reduction in fuel burn – and there is more to come with increasing use.

2018 was a key year to design and implement new standard procedures for landing, to abate and decrease noise, and avoid overflights of densely populated areas in the airport vicinity. This was achieved with projects for new navigation procedures and a Charta "Against noise", between ANA and one major airline in Luxembourg, which has reached its goal to limit the number of night flights, engine run-ups, and promotes best practices for protecting the environment.

On other topics, ANA works in close cooperation with other partners on the airport to protect the flora and fauna.

In the area of ground operations, ANA aims to reduce the time of aircraft manoeuvring (for example taxiing out) or waiting with engines running to reduce emissions and noise. Since 2018, ANA is purchasing new cars exclusively with plug-in hybrid respectively full electrical technology and reduced the average emissions of the car fleet from 178 g/km in 2016, to 150 g/km in 2019 with further improvements expected. ANA is also responsible for the airfield ground lighting and is using LED technologies. Today ANA is already using 67 % of the lights with LED technology on the taxiways and reducing power consumption by 100kW/h; the aim is to have 100% LED based lighting technology in future.

These measures ensure that there is no way back to non-sustainable practices or lowering the guard on environmental problems nor ignoring the impacts on our neighbours and the wider public. ANA will develop further measures that aim to maintain and increase these efforts in future.

This innovative approach is part of the ´management of change´ process we adopted and is based on the principles of organizational learning, active involvement of people, transparent sharing of information, participation in decision making and achieving acceptance and support for the decided course of action; both – internally with our personnel and externally with stakeholders and partners.

Over the years, we have systematically and successfully implemented our environment management system and were certified ISO 14001/2015 in 2017.

The next milestone in our commitment towards managing the environment is EMAS, the eco-management and audit scheme application and registration.

This environmental statement describes the environmental situation that we implemented in line with our strategy and with EMAS requirements according to EU Regulation 1221/2009.

Our integrated Environmental Management System (EMS) is based on six activity areas as the ´pillars´ of the system: Noise, Air Quality, Water & Ground Quality, Waste, Biodiversity, and Resources. For each area we developed performance indicators and targets and an environment impact monitoring and assessment scheme for projects and activities that help to develop adjusted counter measures.

We are grateful for your interest in our company and in particular, our environmental management. We hope you will enjoy reading our 2020 Environmental Statement and don't hesitate to contact us in case of further questions.

Claudio Clori
Director ANA

Thierry Hirtz
Head of Certification Department

Yves Becker
Environment Manager[1]

1 The Director of ANA has appointed a management representative for the Environment, function called "Environment Manager".

Competence is the key

Being aware of the environmental impacts of our activities and services is the first step towards competence in mastering them and acting responsibly and competently in performing assigned tasks.

Our core task and obligation is to ensure safe, expeditious, smooth air and ground operations at and around the airport of Luxembourg. Highly qualified teams with managerial, operational, technical and administrative expertise conduct our operations at the airport.

Supported by state-of-the-art technologies, we train our staff, through a comprehensive induction, awareness and training programme to a level of competence commensurate to the level of responsibility of each individual employee.

We maintain the competence of our personnel in air traffic management and develop it on an ongoing basis. We stimulate motivation to learn about and apply innovative solutions to minimize risks and anticipate, mitigate and avoid the occurrence of safety and environmental impacts and problems in our operations.

To ensure air traffic safety, we at ANA go beyond effective allocation of skills, technologies and procedures. Our organizational culture fosters cohesion, serenity, satisfaction, pride, respect, openness, skills and personal development as important ´levers´ for motivation, commitment and performance in all important areas and activities. And this includes the environment in which we live and act as a strategic goal on the side of safety.

Through active participation in the tasks we foster innovation that is needed to respond effectively to current and future challenges in air traffic safety and for a sustainable development of our services.

Tasks

Our tasks with direct impact on environment and within the EMAS registration scope are to:

- manage air traffic in Luxembourg airspace and parts of the adjacent airspace
- provide adequate coverage of radio navigation, radar and aeronautical communication signals
- secure aircraft traffic and aerodrome vehicles movement on the manoeuvring area
- offer aerodrome information services
- offer meteorological services
- manage the environmental management system (EMS) within the ANA integrated management system (IMS)

ANA is a member of FABEC, "Functional Airspace Block Europe Central", an initiative of six air navigation service providers in Belgium, the Netherlands, Luxembourg, Germany, including the 4-States EUROCONTROL Maastricht UAC, plus France and Switzerland and contributes local data on all key business aspects to the FABEC Performance Plan.

Mission and responsibilities

The Air Navigation Administration (ANA), placed under the authority of the Ministry of Mobility and Public Works, is the Air Navigation Service Provider (ANSP) in Luxembourg responsible for flight safety and efficiency.

We, at ANA, are responsible for the management and operation of a key part of the airport surface where we provide Air Traffic Control (ATC) services, operate radio navigation, surveillance and communication equipment, the airport power and lighting infrastructure, offering meteorological and aerodrome information services and ensuring daily inspections, winter operations and work coordination on the manoeuvring area.

ANA's mission is to provide safe, efficient and environmentally friendly flow of traffic in the national and delegated airspaces as well as on the aerodrome.

Services and functions

7 departments with allocated function areas form an integrated management structure.

The organigrams below depict the management structure in an organizational chart.

Figure – ANA organization chart

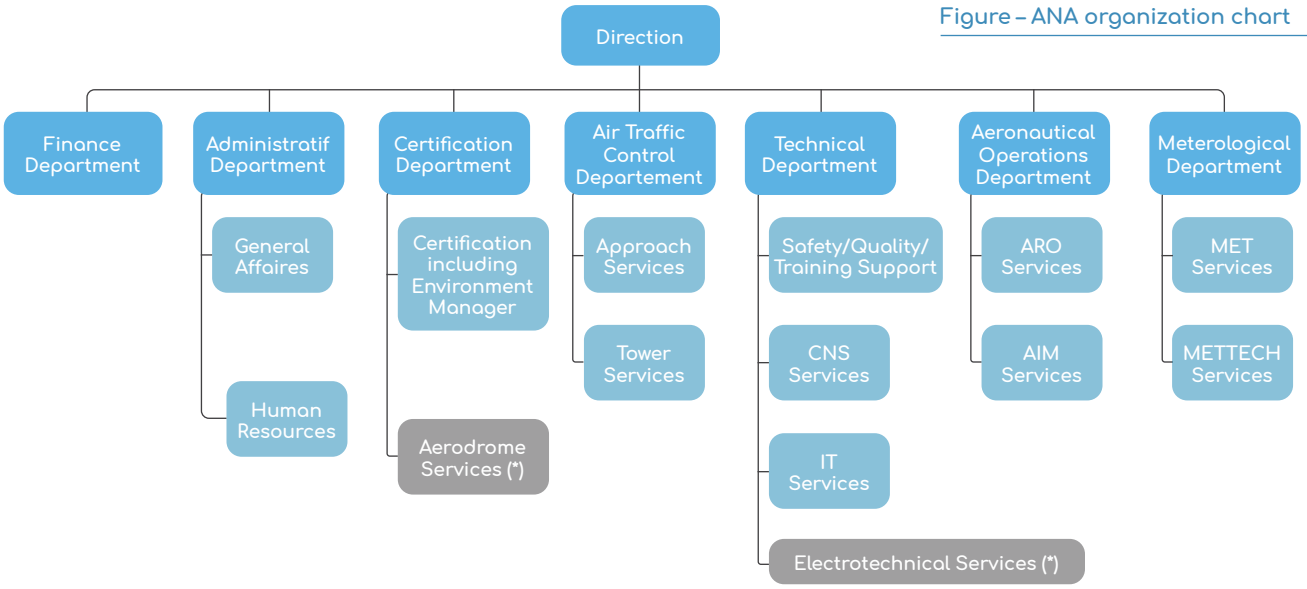
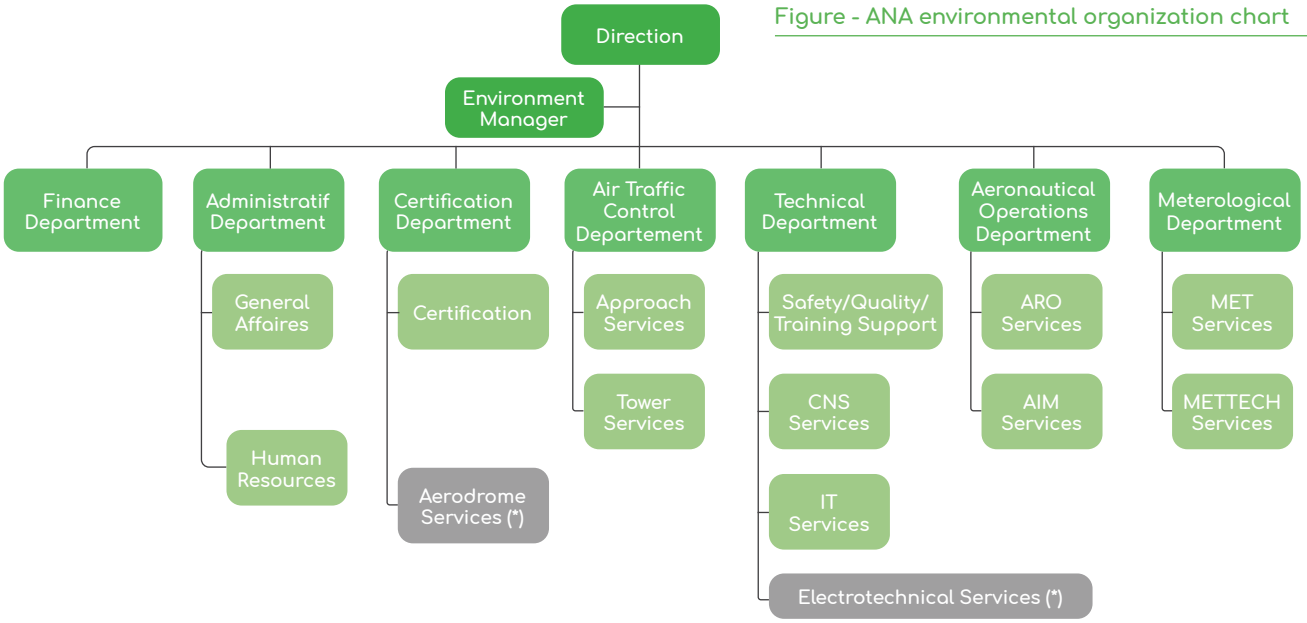


Figure - ANA environmental organization chart



(*) ELE and AER services have been analysed and identified as 'indirect activities' and are therefore out of scope of the current EMAS registration.

Service locations and buildings

ANA services are located on different sites and buildings in the community of Findel, the site of Luxembourg airport, which is close to the city of Luxembourg. The airport, originally known as "Sandweiler Airport", opened in the 1930s as a small grass airfield with a relatively short, 1000 m runway. The current (single) runway is about 4000 m in length in north-east (06) – to – south-west (24) direction. Some residential areas are close to the airport and stretching out from the south-west runway end towards part of the city of Luxembourg. Its nearest neighbours are in the village Sandweiler 500 m south of the runway centerline. The first Luxembourg City buildings in the approach sector for runway 06 (north-east) are at a distance of 1500 m in the community Hamm. Luxembourg airport is surrounded by forests, the closest in the south at 150 m from the runway centerline.

Lux-Airport S.A. was granted building lease on the land northern side of the runway.

The buildings for the 180 employees of ANA are on north side in the four blue marked buildings as showed on the map (Figure 1). The buildings described below in more detail were constructed and are exclusively managed by ANA.

Administration building

Constructed in 1949, the building which then included also the control tower, went operational on 15 February 1950. Most service activities (tower and terminal air navigation services, technical services..., etc.) were located in this single site. The construction of the Airport Terminal A in 1975, and later the construction of the new tower building (BTO) in 1993 led to a distribution of the services in different locations.

Today the building is mainly used as an office building. The management, CEO and deputy CEO, the administration departments including general affairs, human resources, facilities department, certification department, including the Environment Manager, financial department and one part of meteorological department work here.

In 2018 a container annex was added next to the administration building housing the IT department and the technical meteorological department (METTECH) and facilities department.

For all buildings, ANA uses 100% green electric energy (nova naturstroum label) since several years. The heating in the administration building is still an oil-fired boiler renewed in 2015. Its fuel tanks contain 6000 l of fuel.

Most offices have air conditioning, which is maintained as defined. The same maintenance interval is respected for the heating system. The container annex is heated via air the condition system; electrical heating devices are installed for additional heating if required.

Tower building (BTO)

The construction of the new Tower building and related technical facilities started in 1989 inaugurated on 17 Aril 1993. The Luxembourg Airport Administration was from then on distributed over three buildings: the new Tower building (BTO), the Terminal A building, constructed in 1975 and the "old Terminal building" (now Administration building).

The Tower building (BTO) is the main operational location of ANA. Approach services and Tower services are operating from here. In addition to the air traffic services departments, the CNS (communication, navigation, surveillance) department is located there.

The entire building is heated with a petroleum gas heating system, which could be switched to an oil-fired heating system with a 3000 l fuel tank. The building has air conditioning which were upgraded with additional units over the

ATC Tower

years. The heating system, as well as the air conditioning systems are maintained on a yearly basis.

Additional rented offices

Additional office spaces are rented from lux-Airport S.A. ANA has a contract for eight offices in total: Two operations offices - one for the meteorological (MET) department and one for the aeronautical operations (AIS/OPS) department, offices for the head of MET and OPS, terminal charges billing, restrooms, kitchen and meeting room.) These offices are in the new Luxembourg Airport Terminal A building inaugurated in May 2008. Finally, ANA rented three offices in the lux-Airport Administration building close to the Administration building.

All environmental aspects (heating, water and energy) are included in the charges ANA pays and are under the responsibility of lux-Airport.

Technical buildings

All technical buildings on and around the airport perimeter (airside) contain high-sensitive technical equipment essential for the provision of air traffic management (ATM) services. These buildings have no regular heating systems installed as the technical installations produce sufficient thermal energy. However, air conditioning is installed in all technical buildings that could be used for heating if necessary. Electrical heating devices are in use if needed during maintenance interventions.

Further technical stations are located at remote places in Diekirch, Roodt-Syre, Berg and Leudelange as showed on the map (Figure 2).

A planning process is ongoing for a new, more centralised building complex on the airport for ANA and all services. The older buildings and annexes put limits to savings of energy, or using modern, energy and resource saving technology. This is the aim with the new building concept currently under development: Bringing the services closer together, gain synergies, save resources and protect the environment.

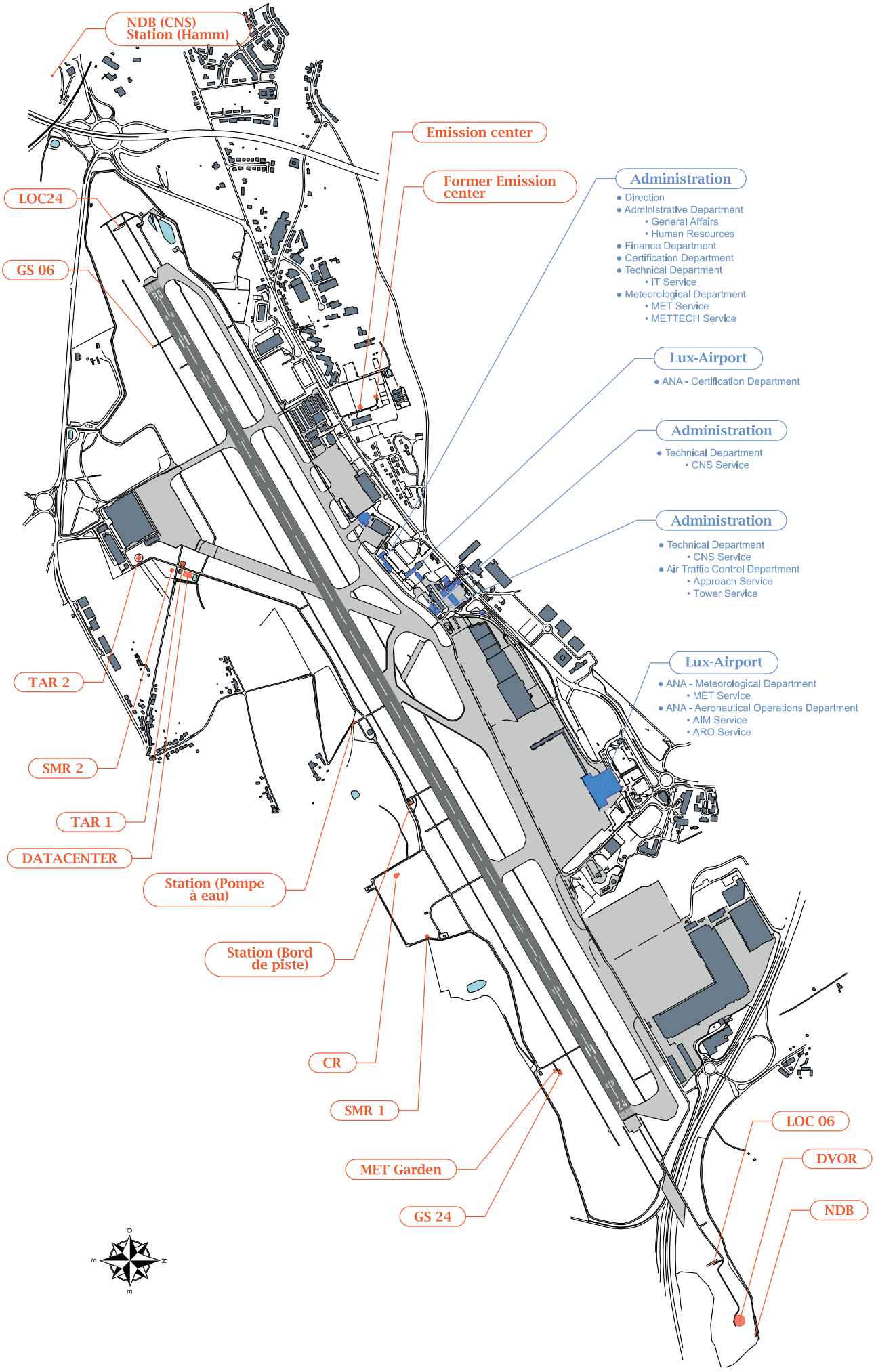


Figure 1 – Map of the airport with buildings & stations, offices are shown in blue, technical stations in orange

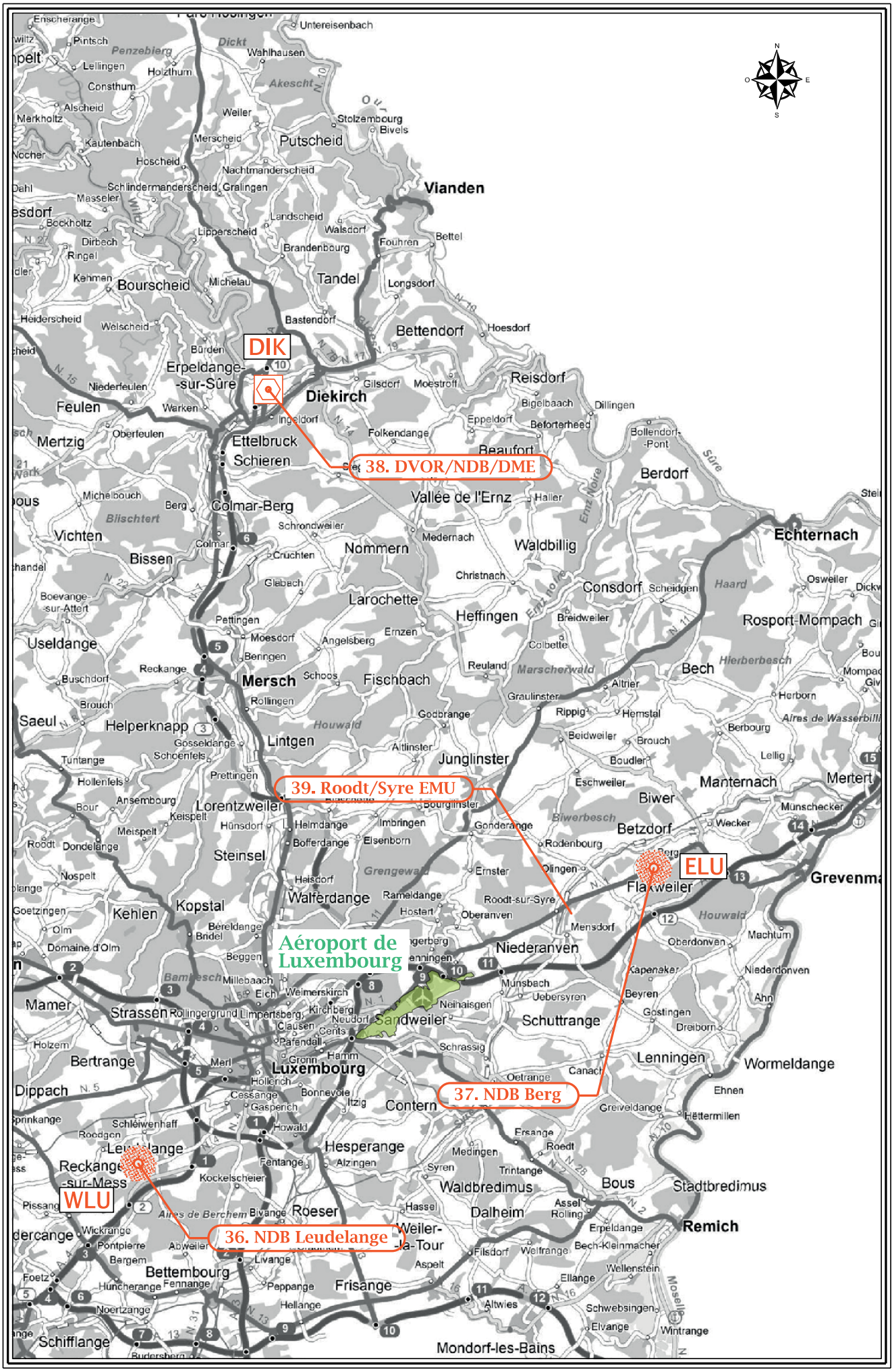


Figure 2 – Map of remote technical stations

ENVIRONMENTAL MANAGEMENT SYSTEM

Our ´environmental journey´

The main goals to developing and implementing environmental measures (in the meantime grown into a full program) were twofold:

- Our **first** goal was to conform to legal requirements and creating awareness internally of environmental issues in general, saving costly resources and energy..
- The **second** and more lasting ´boost´ came in 2014 – 2015 when air traffic started to increase beyond forecast, with raising night flight exemptions, and increasing density of movements on the airport requiring us to set goals that address these ´external´ environmental issues.

The Environment (ENV) is one of the five Key Performance Areas (KPA) of the Single European Sky (SES) implementation program. The implementation of environmental measures and the monitoring of achievements is also part of the EU SES performance and charging regulation[2] for Air Navigation Servicers (ANS) in EU countries. We at ANA apply the mandatory performance management scheme since 2015.

It is important to know that ANA has in the meantime set specific local environmental key performance indicators, and targets much beyond the EU performance scheme and covers the organization-wide activities of ANA air navigation and aerodrome services.

Noise of aircraft and other operations (runway repair during nights; vehicle operations etc.) is the most important issue for the neighbouring communities and their residents raising their concern. The Ministry of Mobility and Public Works and ANA took these concerns very seriously. The lessons we have learned were:

- We are part of the environment and the issues around it and must take action.
- We cannot do it alone – the issue is complex and requires the involvement of all parties.
- Acceptance of solutions is the outcome of fair, open, and transparent communication and negotiation, and understanding the needs and expectations of the other parties.
- Ad hoc measures are insufficient – sustainable environmental developments require a structured management approach with commitment, clear goals and guidance.

A new approach to management started in 2014 with the implementation of ANA´s Quality Management System and the certification according to ISO 9001 standards. This also laid a first strong basis for setting up a formal Environmental Management System (EMS).

Embedded in our Integrated Management System (IMS) our Environmental Management System received certification under the ISO 14001: 2015 (Environment Management) standards in 2017.

Many initiatives with a focus on the Environment have since been undertaken and the ISO 14001 certification allowed to further enhance and anchor the EMS in a sustainable way in ANA.

In 2018 the Ministry of Mobility and Public Works encouraged ANA to also participate in the Community Eco-Management and Audit Scheme, EMAS.

The scheme's main objective, to which we in ANA subscribe, is:

´...to promote continuous improvements in the environmental performance of organisations by the establishment and implementation of an environmental management system, the evaluation of the performance of such a system, the provision of information on environmental performance, an open dialogue with the public and other interested parties and the active involvement of employees.´

2 The SES Regulation on performance and charging applies to all ANSPs in EU countries. One goal of the regulation is to define performance indicators in five key performance areas: Safety, Capacity, Environment, Cost-Efficiency and Security for air navigation services, regulates the cost accounting and charging of users (i.e. airlines). (See also Glossary of Terms in Appendix)

The registration for and the adoption of the EMAS scheme requirements as part of performance management system is a substantial step beyond the mandatory SES performance requirements on environment. With EMAS we are adding further stringent and meaningful performance targets and measures on a voluntary basis. It is a commitment that we at ANA are able and willing to make with the support of our stakeholders and the means needed to keep our promises.

Our Stakeholders

The participation, approval, support and sponsorship from many stakeholders – from the political level to the operational and legislative / regulatory level, are key for achieving our environmental objectives.

A wide audience of stakeholders is involved in the process of designing and devising measures and agreeing on a balanced, best practice way forward in environmental terms:

The Public

The most important stakeholders are the residents and the public at large. Their power to influence and having a say are more than often the starting point for a change of a current way of undertaking and process. We at ANA expect, and accept, that public opinion and sensitivity towards aviation impacts on the environment will rightly increase in the future.

The Ministry

We have the support and get the resources and means required from the Ministry of Mobility and Public Works for all environmental projects and activities.

The Airport and Airlines

We coordinate and work closely together on an ongoing basis with Lux-Airport, the Aerodrome Operator in Luxembourg, and with the airlines operating at the airport on all operational and procedural issues.

The EU Commission

We receive encouraging support from the EU Commission on promoting the EMAS scheme implementation and administration.

Eurocontrol

The agency provides us with data, expertise advice and feedback on local traffic and on the estimated environmental impacts.

Awareness raising

Raising staff awareness on environmental issues is an integral part of the ANA's environmental management system EMS and is included in the environmental action plan.

We foster a better knowledge, understanding and a high degree of motivation through specific internal communication activities on environmental issues.

The campaign "Green Practices at ANA" was one of our first environmental campaigns to raise awareness of the various environmental aspects at work and sensitivity on environmental issues encountered daily. Supporting info sessions and implementation of practical measures accompanied the initiative.

In 2018 ANA management renewed the focus on organisation internal communication by adopting an elaborated communication plan.

The communication department together with the Environment Manager now publishes the "Environmental Bulletin" on a regular basis.

Environmental surveys are performed in a 'bottom – up' approach, to collect feedback on the environmental management system and trigger ideas on environmental improvements from employees.

Our Environment Commitment

In all areas of activity, we at ANA strive to implement best practices to avoid and reduce the environmental impact of flying, of airport operations and to improve environmental efficiency in operations. We do this by considering important economic objectives and environmental sustainability, both with a long-term perspective in management and operations, whilst maintaining compliance with legal and regulatory obligations and with our environmental, safety and quality strategies and policies in focus.

The main scope of our environmental approach are the commercial activities, services and sites directly under our control. However, we pursue also activities outside this framework through collaboration with all stakeholders whenever this is possible.

We are committed to:

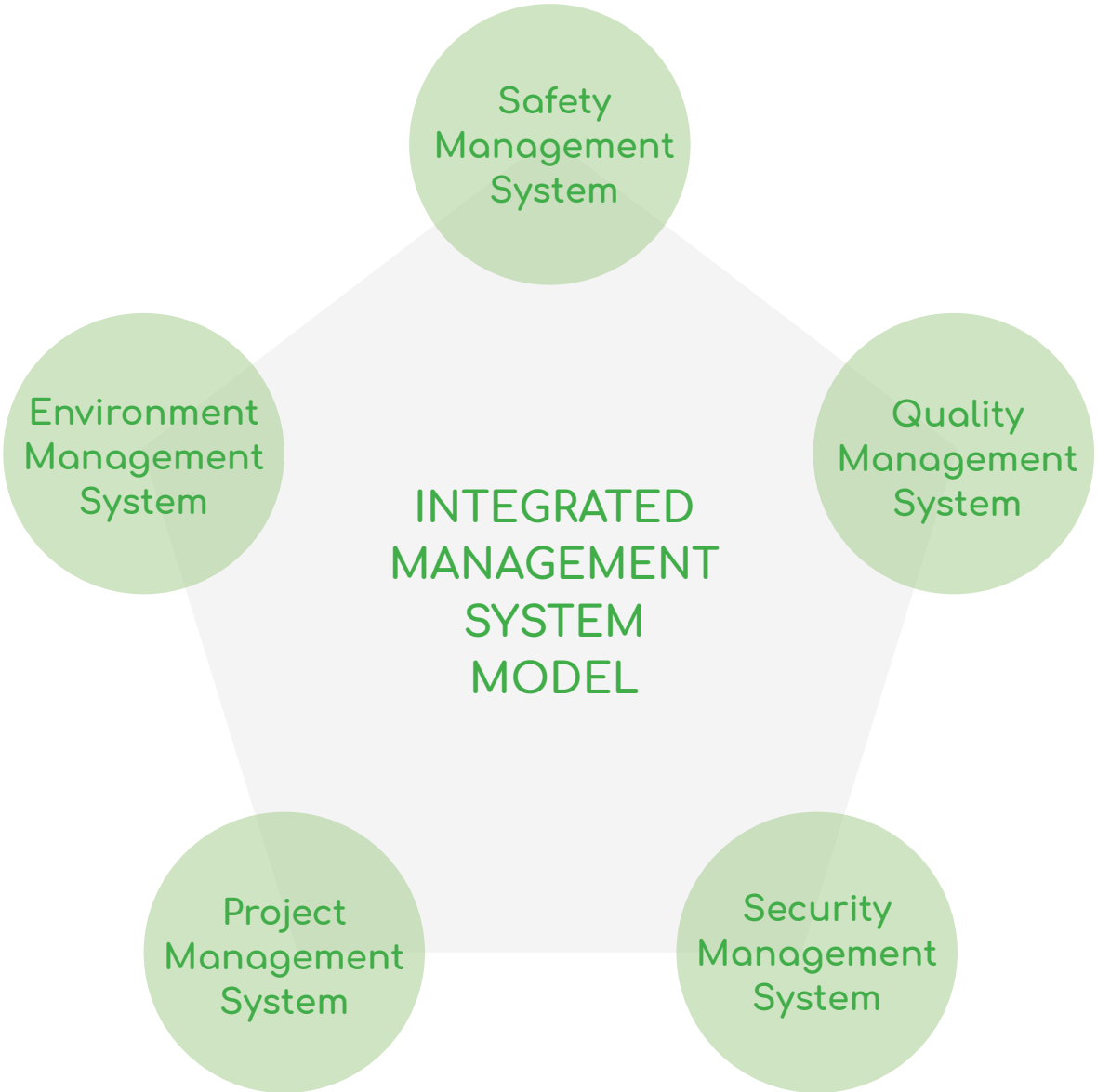
- Constantly educate and advise employees on the importance and on measures to protect the environment when performing their duties;
- In line with government authorities, cooperate with the community and our other stakeholders to improve environmental protection practices, encourage the use of sustainable resources, protect the biodiversity and ecosystems and adapt to climate change;
- Prevent pollution and minimize the impact on the environment caused by our operations under our control, as well as in our administrative and purchasing activities;
- Monitor the environmental impact of operations at Luxembourg airport through established key environmental performance indicators and continuous improvement measures;
- Reduce noise impact and save fuel by adopting efficient operating procedures in ATM, on the airport and in ATC;
- Ensure compliance with applicable environmental laws and regulations and with all other requirements that we subscribe to.

The EMS Framework

The EMS is embedded in our Integrated Management System (IMS), which documents the common management processes and structures embracing safety management, quality management, project portfolio management, environment management, and security management systems.

The objective of the IMS is to coordinate the design, development, implementation, monitoring, and continuous improvement of these sub-systems to ensure that stakeholders' expectations and requirements in these areas can be met and are met and that the set performance targets are achieved.

The goals, targets and activities of our EMS form part of the overarching performance management system and gets the same full commitment from ANA management as the other performance areas. Our management, our personnel and the Ministry of Mobility and Public Works as the main stakeholder strongly support the goals and initiatives, as do the major Luxembourg airlines, the airport operator lux-Airport and the local resident associations with which we are in regular contact. An increasing number of set up and agreed statements and policies on environment demonstrates the effective working of this stakeholder management structure.



Sustainable change

´Environmental Sustainability´ is not only a phrase ... it means to think and act in a sustainable way when it comes to use resources.

The core statement in ANA´s Environmental Policy underlines this clearly:

"ANA [...] will seek to implement all measures and best practices to reduce its environmental impacts and improve its environmental efficiency while considering economic and sustainability aspects".

It means that we strive for sustainability through actions with a long-term view. New procedures (e.g. Continuous Descent Operations (CDO), Performance Based Navigation (PBN)) will have significant long-term impact on noise and emissions and reduce fuel consumption. New equipment (LED lights on runway and taxiways, electric cars ...) and all products that we use in performing our duties are purchased based on environmental criteria, i.e. to be in operation for a long period, are biodegradable, and / or reduce the use of natural resources for example.

The measures we take shall ensure that there is no way back to non-sustainable practices, lowering the guard on environmental problems, or ignoring the impacts on our neighbours and the wider public.

We will develop further measures that aim to maintain and increase these efforts in the future.

Managing the change of the organisational culture and working practices in this respect was and still is key in shifting the attitudes, thinking and - most important – the behaviour with a view to the environment. This is a long and ongoing process. To overcome internal resistance and achieve acceptance of new practices and way of working required strong commitment of the top management and the Ministry of Mobility and Public Works. Continuous feedback efforts and ´learning´ have led to a change of mind in a sustainable and lasting way. We observe new behaviours in all environmental aspects and in our encounters with stakeholders at all levels of the Ministry and inside our administration.

In addition, as per ISO 14001 standards, a process of continuous improvement is in place to maintain the good results achieved. Our sustainable approach is demonstrated in external but especially internal audits.

Indeed the internal audit as a cornerstone of the EMS is defined with the goal to determine:

- if the environmental management system meets the requirements of ISO 14001 and the EMAS Regulation
- if it has been properly implemented and maintained
- to guarantee that the organisation's management gets the information it needs to review the organisation's environmental performance
- the effectiveness of the environmental management system

We carry out audits on an annual basis, as this helps to demonstrate control of our significant environmental aspects, with all activities being audited within a three-year cycle on the:

- environmental performance of the organisation, as per requirements of ISO 14001 and EMAS Annex III
- organisation's compliance with applicable legal requirements and other requirements relating to the environment as per EMAS Annex III. Our approach is communicated in our annual plans and reports and in the internal reporting system.

Responsibilities of the EMS

The Director of ANA has appointed a management representative for the Environment, function called "Environment Manager". Together with the support of the Management Team, the Environment Manager, is responsible for the continuous progression of the system. Each head of department has specific objectives linked to the environmental aspects of their activities.

The Environment Manager ensures the improvement, maintenance and revision of the internal Environmental Management structures, procedures and processes in all services and at all levels of ANA.

This includes:

- Report to the Director about the system efficiency and the improvement needs
- Establish, implement, monitor and improve an environmental management system at all applicable levels of the organization
- Ensure that the necessary processes for the EMS are defined, implemented and reviewed
- Determine risks and opportunities that need to be addressed to ensure the environmental management system
- Ensure implementation of and compliance with new rules and regulations
- Analyse and act upon the results of environmental performance and the organization's compliance obligations
- Promote environmental obligations in the suppliers' assessment and monitoring process
- Take into account the user requirements and stakeholders' expectations in relation to the environment
- External auditors' coordination linked to EMS
- Follow-up and development of corrective action plan related to environmental audits
- Organize and/or perform internal audits in the frame of the EMS
- Collect data, approve and follow-up of environmental indicators
- Promote continuous improvement linked to the environment
- Manage resources for the environmental management system
- Individual safety responsibilities as per Departmental Internal Register and/or Safety Management Manual, in the frame of his/her tasks
- Draft and yearly update of the environmental statement pursuant to Regulation (EC) no 1221/2009 of the European Parliament and of the council of 25 November 2009
- Report directly to ANA director regarding any major fact that could have impact on the environment

Based on the inputs from the Environment Manager, the Management conducts annual management reviews, tabling issues that need revision or adaptation and agree on new initiatives, targets and actions. To improve the environmental system, they will together determine the priority and use of financial and human resources required for this purpose.
We designed the EMS as a dynamic system. Every employee can and should participate in the development process of the EMS and should contribute in the achievement of environmental goals.

Environmental Risk Management

Dedicated workshops with representatives of each department identify environment Risks and Opportunities (R&O). Benefiting from the safety culture and the existing safety assessment methodology in use in our organisation, the environment R&O method lists the activities concerned by each environmental theme, identifies the environmental direct and indirect aspects, assess the impact and evaluate the available control measures in normal or abnormal operations.

The use of this qualitative methodology of open discussions focuses on the existing control measures for identified R&O. After the calculation of the residual risk, a consensus in the team is required to identify future actions or opportunities and assess whether to add the R&Os identified to the environmental action plan. The main priorities of the environmental programme then become clear.

The content of the R&O analysis is reviewed on an annual basis, first internally between the risk manager and the Environment Manager in a dedicated workshop and later during the annual Management Review.

Direct and Indirect Environmental Aspects and Impacts

The Risks & Opportunities exercise is the foundation of the environmental management review as it consists of identifying and evaluating the direct and indirect environmental aspects with defined environmental impacts. Environmental aspects are an element of the activities, products or services of an organisation that interact or could potentially interact with the environment.

Direct aspects are associated with the ANA's activities where ANA has the responsibility and direct management control. Indirect aspects, resulting from interaction with third parties, including other stakeholders and subcontractors, are those that can be influenced by ANA.

Possible mitigations of those impacts are opportunities, which we will try to address through close coordination and concerted actions with other parties. This in particular requires a participative, ´working together` andteamwork approach to get the ´buy-in´ of all parties.

Environmental aspects that are subject to environmental legislation or those where the residual risk exceeds a set threshold are considered as significant. In these cases, a mitigation plan must be developed and put in place. The effectiveness of mitigating actions is assessed against the targets in meaningful Performance Indicator(s) (PI) and reflected in the EMS action plan.

This analysis allows to categorize the environmental aspects in six themes that later became the six ´pillars´ of our environmental approach. For each aspect, all risks have been identified and assessed (as indicated in the Table below).

The EMAS approach focuses on the direct significant aspects that ANA has responsibility and control of. The set of KPIs has been developed in that way. All other environmental aspects that are indirect or less significant still use a large amount of focus and resource as ANA has an influential role to play at the airport of Luxembourg when it comes to environment protection and systemic environmental approach.

Table of direct and indirect aspects and their environmental impacts:

Environmental Aspect	Impact	Responsibility	Decision (control)	Influence	Aspect type	Stakeholders impact	Means of Influence or Control
Aircraft approach, take off, FR traffic	Noise	N	N	Y	Indirect	High	• ATC, airlines procedures, Charging fee per aircraft type, Night curfew quota, CDO/PBN procedures
	Air Quality	N	N	Y	Indirect	Medium	
Aircraft on ground (taxiing, reverse thrust, engine test, Auxiliary Power Unit)	Noise	N	N	Y	Indirect	High	• ATC, airlines, aerodrome procedures
	Air Quality	Y	N	Y	Indirect	Low	
Maintenance of airport infrastruc-ture/surface	Noise	N	N	N	Indirect	Medium	• Coordination meetings, Project management procedure
	Air Quality	N	N	N	Indirect	Low	
	Waste	N	N	N	Indirect	Low	
Supply of water to whole airport	Resources	N	N	N	Indirect	Low	• Measure consumption
Purchasing of ANA ANSP equipment	Noise	Y	Y	Y	Direct	Low	• Purchasing procedures, Project management
	Air Quality	Y	Y	Y	Direct	Medium	
	Resources	Y	Y	Y	Direct	Medium	
	Waste	Y	Y	Y	Direct	Medium	
Purchasing of AER equipment	Noise	Y	N	Y	Indirect	Low	• Purchasing procedures, Project management
	Air Quality	Y	N	Y	Indirect	Medium	
	Resources	Y	N	Y	Indirect	Medium	
	Waste	Y	N	Y	Indirect	Medium	

Environmental Aspect	Impact	Responsibility	Decision (control)	Influence	Aspect type	Stakeholders impact	Means of Influence or Control
Implementation, Use & Maintenance of AER equipment	Noise	Y	N	Y	Indirect	Low	• Purchasing procedures, Project management, Maintenance procedures, equipment follow up
	Air Quality	Y	N	Y	Indirect	Low	
	Resources	Y	N	Y	Indirect	Medium	
	Waste	Y	N	Y	Indirect	Medium	
Purchasing of ANA office materials	Noise	Y	Y	Y	Direct	Low	• Purchasing procedures, Project management
	Air Quality	Y	Y	Y	Direct	Medium	
	Resources	Y	Y	Y	Direct	Medium	
	Waste	Y	Y	Y	Direct	Medium	
Implementation, Use & Maintenance of ANA ANSP equipment	Noise	Y	Y	Y	Direct	Low	• Purchasing procedures, Project management, Maintenance procedures, equipment follow up • Measure consumtions
	Resources	Y	Y	Y	Direct	Medium	
	Emissons	Y	Y	Y	Direct	Medium	
De-icing of manoeuvring area Note: Waste water produced due to de-icing is not under responsibility of ANA.	Resources	Y	N	Y	Indirect	Medium	• Friction test info, Winter operations procedure, rain water treatment, potassium purchase lowered the impact
	Water & Ground Quality	Y	N	Y	Indirect	Medium	
Fleet management	Resources	Y	Y	Y	Direct	Medium	• Water for cleaning recycled (if possible) or filtered • Measure consumption
	Air Quality	Y	Y	Y	Direct	Medium	
Use of hazardous products Note: Only used in small household quantities	Resources	Y	Y	Y	Direct	High	• Measure consumption, chemicals procedure, waste procedure
	Waste	Y	Y	Y	Direct	High	
	Water & Ground Quality	Y	Y	Y	Direct	High	
Use of Office	Resources	Y	Y	Y	Direct	Medium	• Measure consumptions, Waste procedure, resources procedure, Training & Communication
	Waste	Y	Y	Y	Direct	Medium	
	Emissons	Y	Y	Y	Direct	Medium	
Facility management & maintenance	Resources	Y	Y	Y	Direct	Medium	• Measure consumptions, Waste procedure, resources procedure, maintenance procedure
	Waste	Y	Y	Y	Direct	Medium	
	Water & Ground Quality	Y	Y	Y	Direct	Medium	
Biodiversity (wildlife, flora and fauna management)	Biodiversity	N	N	Y	Indirect	Medium	• Airside and surroundings inspections, Honey production, biodiversity surveys
Commuting to work	Resources	N	N	Y	Indirect	Medium	• free public transport as of march 2020, charging station for e-cars, communication
Internal transport (on airport / between ANA facilities)	Resources	Y	Y	Y	Direct	Medium	• E-bikes for employees, purchasing policy for vehicles (e- or plug-in hybrid), communication

THE SIX ENVIRONMENTAL PILLARS

Figure– EMS Pillars

The analysis of the environmental aspects and impacts of activities in which we are involved allowes to identify the direct significant environmental management aspects – aspects for which ANA is solely responsible and decision making power - and the indirect management aspects – those, where ANA shares responsibility and power with other partners, i.e. airlines or airport.

The impacts are assigned also to environmental themes as the ´6 pillars´ of our environmental approach.

Necessary actions identified were grouped into the Environmental Action Plan, EAP. This action plan is subject to a review during the regular (monthly) Strategic Management Team (SMT) meetings.

The ´6 Environmental Pillars´ and direct & indirect environmental management aspects

	Pillars	Significant Environmental Management Impact	impact	Direct significant Environmental Management Aspect	Indirect Environmental Management Aspect
1	Noise	Noise pollution	Disturbance	Purchasing of ANA ANSP equipment Maintenance and operations of ANA ANSP equipment	• Aircraft operations • Ground operations
2	Resources	Reduction in resources	Energy consumption	Air Navigation Services equipment & services HVAC, lighting & electricity supply of premises Movement of staff	• Transport of goods (suppliers)
			Paper consumption	Office activities	
			Water consumption	Lavatories Cleaning vehicles and premises	• All airport activities
3	Air	Global warming	Emissions of CO_2 and other greenhouse gases	Use and purchasing of ANA ANSP equipment & office	• Aircraft emissions • Emissions from services to Airlines
		Air pollution	Emissions of pollutants and particulates	Fleet management Building emissons	• Aircraft types
4	Water & Ground	Water and Ground Pollution	Fuel and oil leaks Deicing fluids	Use of hazardous products Facility management Maintenance activities	• Aircraft activities • Ground handling activities
5	Waste	Air, water and ground pollution	Waste production, storage and treatment	Office activities Maintenance of premises & equipment Renovation and replacement of equipment Purchasing policy	• Maintenance of airport infrastructure/ surface
6	Biodiversity	Fauna & Flora reduction	Disturbance to wildlife	-	• Aircraft traffic • Ground traffic • Infrastructure extension

The following chapter describes recent or ongoing projects and activities of the Environment Action Plan (EAP), in the 6 Environmental Pillars.

1 Noise reduction

ANA is actively contributing to the implementation of the Luxembourg Airport Noise Action Plan drawn up under the amended Luxembourg law of 21st June 1976 on noise abatement as well as the Grand-Ducal Regulation of 2nd August 2006 implementing Directive 2002/49/EC on the assessment and management of environmental noise.

This action plan is part of a national strategy for the prevention and mitigation of noise pollution in relation with the different sources of noise in the environment. The action plan serves also to coordinate common actions of various stakeholders against noise exposure.

ANA is taking concrete action to reduce noise pollution at the airport (Luxembourg Airport Noise Action Plan) through:

- collaborative development of scenarios for the long-term evolution of airport operations and according implementation actions
- optimization of operational procedures

Background

Despite night traffic ban, the increasing traffic density, late incoming flights after airport closure, normal operations on the parking areas, runway maintenance works – mostly during nights, and aircraft engine tests are a disturbance to residents.

The first and most important step in ANA was to get a better understanding of the objective and subjective impacts of noise on humans and identifying the specific major stressors that air and ground aircraft and airport operations can create for residents.

A ´360-degree situation awareness´ approach was key to understand the need to change and develop a different attitude towards other parties involved, especially residents in the vicinity before developing and implementing effective and lasting measures. It is important to understand that different views and interests exist, must be respected and accepted as legitimate and relevant. This approach is part of the management of change that ANA adopted.

Figure – Stakeholder interfaces related to noise management

ANA fosters and maintains the dialogue between airspace users, the airport and residents on behalf of the Ministry of Mobility and Public Works by creating a framework for involvement, participation and exchange for all parties but also looks for technical and operational solutions with ´customized-to-needs' solutions through complex actions and projects as described in the following paragraphs.

Implementation of CDO for ´smooth landing ´

CDO (Continuous Descent Operations) are descents from flights at cruising level down to final approach without intermediate ´levelling-off´ of aircraft. This saves fuel, reduces gaseous emissions and noise.

The CDO concept developed in Luxembourg (ELLX) airspace, new procedures based on satellite navigation with the possibility for effective noise abatement procedures, the planning of a new run-up area for aircraft engine tests, the adaptation of the south circuit to avoid noise stemming from VFR (air traffic flying according to Visual Flight Rules) are prominent examples.

The basic principle of CDO is that pilots know the distance from the starting point of descent down to the position for the final approach to the Runway. This enables crews (assisted by the on-board computer Flight Management System) to use the correct power setting to proceed with a minimum of fuel consumption and engine noise. It enables controllers to approve CDO's, whenever the traffic situation allows, in a flexible way and helps to avoid superfluous fuel consumption and noise pollution – selling points for all three parties: Controllers, residents and airlines at the same time.

What is new?

The CDO concept is in use at several airports. However, at other airports CDOs are flown without any pre-defined flight procedure. The air traffic controller estimates the distance to fly and advises this distance to the pilot. The disadvantage of these «vectored CDO» are imprecise distance indication, risk of human error and additional workload for controllers in busy situations. The CDO concept developed in Luxembourg by ANA controllers is based on four ´fixed´ geographical points close to the final approach segment, which are determined together with airlines.

This customized concept fits perfectly in the complex national airspace structure of Luxembourg, which is linked to nine surrounding ATC providers.

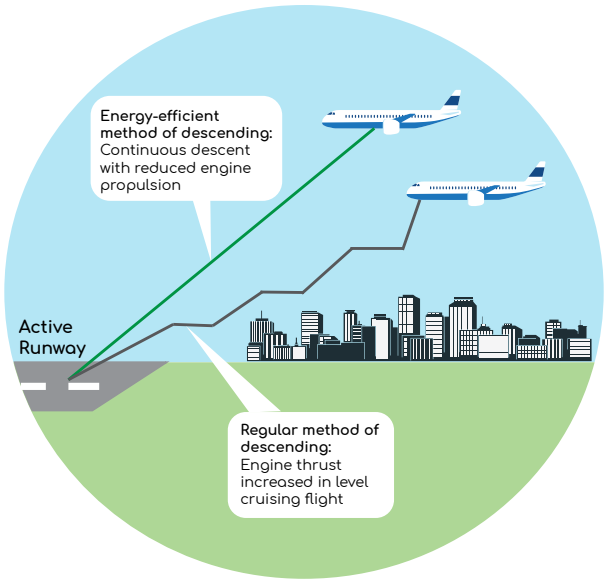


Figure – CDO procedures compared to conventional approach

Satellite-based navigation

So-called ´Surface navigation´ is an instrument flight method that allows an aircraft to use any trajectory within a point network (´waypoints´) rather than navigating between ground-based navigation stations (the conventional method) by using, if possible, satellite-based Global Navigation System. This helps to smooth traffic flow and allows pilots to fly optimized routes during the approach to Luxembourg airport.

Procedures for satellite-based navigation are currently under development and implementation at Luxembourg airport. They offer operational benefits to airlines and reduce environmental impacts.

Note: These procedures are in addition to the conventional navigation procedures that need to remain as a fallback (contingency) and for the use of landing aircraft not yet technically equipped.

PBN - Performance Based Navigation

Luxembourg airport currently allows standard instrument guided landing of aircraft, using the ILS (Instrument Landing System) for three visibility conditions (CAT I – CAT III).

With PBN an additional method is available (and as a backup for the ILS) for landing aircraft offering additional Standard Arrival Routes (STAR) to aircrews. The published routes enable CDO approaches (described above) without air traffic controller guidance (via radar vectoring) and bringing a flight to the ILS or PBN Approach – depending on the decision made by the air traffic controller.

PBN allows implementing advanced noise abatement procedures to avoid noise pollution for example in areas with a higher density of residents.

This again offers benefits for airlines, for ATC and residents in the approach area of the airport. It:

- improves operational efficiency and capacity in the airspace
- reduces air traffic congestion
- saves aircraft fuel and enables noise attenuation
- guarantees interoperability with major aircraft types
- is reliable in all-weather operations
- increases operator flexibility...

to mention the most important benefits.

ANA developed the PBN concept and implementation plan in 2018 including the Area Navigation (RNAV) project involving and using the expertise of a neighbouring ANSP.

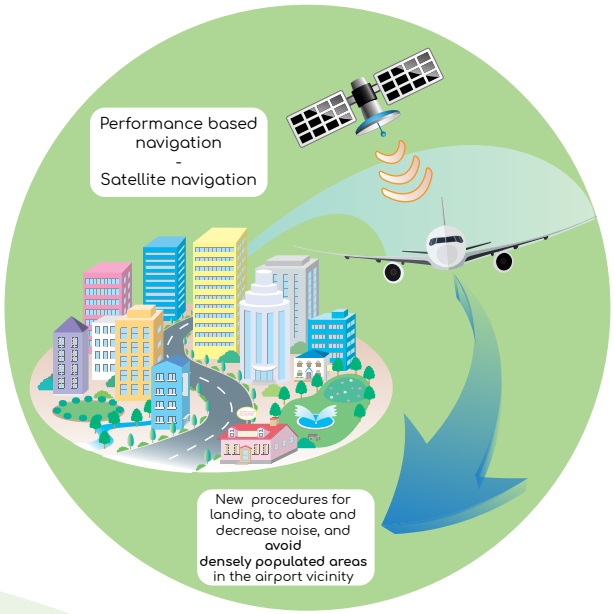


Figure - PBN procedures compared to conventional routing

Aircraft engine Run-up area

ANA launched, supported by the Ministry, a study aiming to find a new location on the aerodrome for aircraft engine tests using specific designed devices for noise attenuation.

Currently engine tests are allowed from Monday to Friday between 7 am and 9 pm and Saturdays between 8 AM and 8 PM in accordance with 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.

Without prejudice to a specific authorization issued by the administration for emergency reasons, any motor test is forbidden outside these periods as well as on Sundays and public holidays.

The goal of the study is to find a best practice solution to reduce noise exposure of the neighbouring communities during high-power

test´ that create maximum noise. Again, finding a proper balance between resident´ wishes and the operational and technical needs of all airport partners is an important enabler for the project.

Environmental modulation of terminal charges

Since 2015 ANA operates a charging scheme for its airport air navigation services that includes environmental factors based on noise emission certificate of aircraft and promoting the use of less disturbing departure times in terms of noise. Aircraft that use less ´noisy´ engines pay less for the service as do airlines that depart during normal operating time of the airport i.e. after 0600 and before 2300 hrs in the night.

The modulation formula is applied to all aircraft departures; our Regulator (DAC) supervises the formula as part of the EU Performance and Charging Regulation and the local performance plan. The monitoring of application and reporting of the effects to our stakeholders is ANAs obligation.

The scheme has shown its effectiveness, is respected by airlines and has the expected effect to reduce noise.

Figure - Charging scheme for ANS services including environmental factors

Night flights

Luxembourg airport applies a night traffic ban between (23:00 – 06:00), with the exception of medical flights, search and rescue flights, and late arrivals of scheduled flights.

The airlines may request the authorization for special take-off and landing operations to ANA. ANA will analyse the justification provided and grant curfew when necessary only.

Night flights are a serious disturbance to residents and are a major issue. Reducing night flights to a minimum necessary is an important goal in Luxembourg.

ANA, in partnership with Cargolux, developed a charter of good practices in the fight against noise pollution. One of the purposes of this Charta is to set a maximum ceiling for exceptions for night flights, taking into account the time and type of aircraft. This good practice may be offered to other major companies.

Figure – Charta "Against the noise" with Cargolux

Noise measurement

Luxembourg Airport has a network of five noise measuring stations which regularly and automatically measure the noise emission on the airport and prepare daily and monthly summary reports. ANA adapted the system to publish the summary sheets for noise measurements on our website.

The use of European indices for noise that we apply enables a better, transparent and consistent communication of noise measurements to the public. We are now able to put the results of the noise measurements in

relation with the calculated airport noise maps to identify areas that are more exposed to noise.

The data collected by the airport's systems are published on a monthly basis and indicate in particular the number of movements at the airport according to predefined time slots. The data is also used to store the actual flight information of the movements in order to integrate them into the noise maps indicators for noise distribution and an input for developing noise abatement procedures.

Managing Derogations and exemptions

Article 13 of the Grand-Ducal Regulation of 2nd November 2012 amending the amended Grand-Ducal Regulation of 24 May 1998 lays down the conditions for the technical and operational services of Luxembourg airport and regulates exemptions. Beneficiaries (airlines) of derogations from the regulation are required to submit to the Ministry of Transport quarterly summary statements of exemptions actually used and justifying reasons.

ANA, in support of the Department of Transport of the Ministry of Mobility and Public Works analyses in detail the reasons for derogations in consultation with the airlines involved.

2 Resources (Material)

We monitor the consumption of resources such as fuel, gas, electricity, water and paper and inform ANA employees about the indicators we apply and run specific awareness campaigns internally.

Several of our internal programs and management processes in fact aim to reduce energy consumption by optimising processes, acquire products that use less resources and energy, limit water consumption and use less non-renewable raw materials.

Using LED technology

We opted for low-energy lighting for the ground lighting on the aerodrome. Today, most of our beacons and panels are already equipped with LED technology. As part of the Runway and Taxiway Renovation Project, the lighting systems for the entire manoeuvring area managed by ANA will be 100% replaced by LED lighting by 2022.

Eco-responsible project management

A recent initiative of the Project Management Office and the Environmental Department is the environmental impact assessment or effects of projects and main activities on a common scale.

Before launching any project, we identify the conditions necessary for the implementation and the possibility and likely success of an eco-friendly approach. In this context, the environmental impact of our projects is evaluated locally and globally.

Green electric energy use

We favour green electricity produced in Luxembourg. ANA Several years ago ANA committed , itself to support renewable energy in Luxembourg by buying regional ´green´ electricity i.e. 100% produced from solar, wind, hydro and biomass sources (nova naturstroum label).

Digital documentation

Digitization is becoming more and more common in our structures to streamline the processes and reduce the volume of paper used. Today 100% of paper used is from recycled paper.

Staff awareness

The implementation and the success of an environmental management approach within our administration implies the mobilization and the adhesion of all staff to our management procedures and practices. To change behaviour and encourage adopting new practices in daily work, we established a charter of good practices, regarding the use of resources. As part of our day-to-day work, we monitor the consumption of natural resource, develop procedures that optimally manage paper, electricity, water and office heating and communicate the outcome to staff.

3 Air quality

As part of our business, we are actively engaged in preserving local air quality and fighting climate change by reducing our carbon footprint.

The Air Quality at and around the airport is monitored by the Luxembourg Environment Agency, who shares the results at the Airport Consultation Committees (CCA). In case of issues detected, ANA would be informed, and adequate actions put in place.

We currently focus our efforts internally: Besides measuring and monitoring our heating emissions produced in our buildings, we are successively reducing the number of service cars in use and are purchasing plug-in hybrid or electric cars. This is supported by an according State initiative for public administrations.

We encourage the reduction of carbon emissions by making e-cars and e-bikes available to staff during their daily work. Charging stations for service or private electric cars have also been set up.

The average CO_2 emission of the car fleet is monitored. Through the use of plug-in hybrid and e-cars we could re duce emissions of our operational and service cars from 178 g / km in 2015 to 150 g / km of CO_2 in 2019.

4 Water and ground quality

Reducing the impact of airport activities on water, waste water and ground quality is part of our environmental strategy. We strive to apply safe and sustainable practices to preserve water and ground quality within the scope of our responsibilities.

´Early Ice Detection Project´

During the winter period, de-icing / anti-icing of aircraft and de-icing of runways are at times required.

Solutions envisaged include the early detection of ice on the runway surface through clever use of meteorological and surface condition data. Sensors installed close to the runway recording surface data, correlating this with the freezing point of the contaminated (water, snow...) runway and transmitting the results to the de-icing trucks will assist the de-icing teams. This key information, provided in real time, makes it possible to optimize the use of fluxing agents and considerably reduce the impact of winter operations on the environment.

Biodegradability of de-icing products

Whilst airlines are in charge to de-ice aircraft, ANA closely monitors and seeks to improve the level of biodegradability of runway and taxiway de-icing products and optimizing the consumption of deicing products.

> **Note:** Waste water produced due to deicing is not under responsibility of ANA.

Environmental emergency procedure

The design of our services ensures proper communication and exchange between airport stakeholders in avoiding and managing incidents that impact water and ground quality.

We continuously monitor and investigate these incidents (e.g. spills of fuels, oil or others), help to avoid future incidents and participate, in collaboration with other stakeholders, in the implementation of an environmental emergency procedure on manoeuvring areas.

5 Waste Management

For more than twenty years, ANA has the ´SuperDrecksKëscht® fir Betriber´ label, an initiative of the Ministry of the Environment, Climate and Sustainable Development, the Chambre des Métiers and the Chambre de Commerce created in 1993, which rewards the establishment of an accurate waste management plan. This relates to the appropriate collection, sorting and storage of waste, the search for adequate means for re-use and recycling, the prevention of waste production as well as compliance with legal regulations (in particular the waste disposal and waste prevention law of 21 March 2012).

Sorting and recycling of waste

In an office environment, the amount of waste produced can be substantial. For the environment, we perform a good initial selective sorting in office bins specific to each of the waste streams. Instructions regarding the sorting of waste are enforced within our organization. The waste collected is entrusted to a collection and recycling service provider "Superdreckskëscht" authorized by contract, which gives us an annual certificate of recovery. The amount of recycled and not recycled waste is monitored.

Supplier evaluation

In terms of projects, the impact of our suppliers is evaluated through eco-responsible project management. For other purchases, we have estimated that their biggest impact lies on their recycling policy.

Therefore, through a responsible purchasing policy, we set ourselves the objective of evaluating the environmental performance of our suppliers. To ensure the eco-friendly nature of our suppliers, we contacted more than 1300 suppliers to assess their ecological footprint. By signing the ANA supplier commitment form, the supplier commits itself to provide upon request information about its environment/recycling policies, schemes and certifications.

In addition, our tender documents include a well-defined environmental performance clause.

6 Biodiversity

ANA is aware of its environmental responsibility and role as the manager of ground and air movements, as the mediating agent between residents, airlines and the airport operator and as the protector of flora and fauna as an everyday task.

Luxembourg airport area consists of 57,6% of green surface (grass). As the responsible coordinator of the management of the more than 200 hectare- large green aerodrome areas ANA tries to perform this task in the most sustainable and practicable way to protect plants and animals.

ANA takes its role of mediating agent at heart and is actively committed to airport biodiversity.

Biodiversity surveys

One objective is to maintain or even increase the number of species on the aerodrome by creating shelters for endangered species.

We are conducting studies and identifying the airports biodiversity to ensure that the number of species remains at least stable. We also conduct the dialogue with the airport community for this purpose.

ANA together with their stakeholder "Natur & Emwelt Asbl" detected 32 butterfly species of which 6 are endangered, and 224 plant species of which 3 are endangered.

Airport greens management

Green spaces and meadows are important to conservation of nature. Therefore, we reduced the frequency of mowing in order to support the appearance of a wide variety of vegetation forms.

The extensive management and late mowing practiced on the airport, in collaboration with the road and bridge administration (Ponts & Chaussées), contributes to the preservation of the existing biodiversity on the airport platform. Contrary to the preconceived idea, several endemic species are present on the airport like butterflies.

Beehives - production of honey

The development of bees on the airport platform is part of our environmental initiatives, together with lux-Airport. In order to preserve biodiversity, beehives were installed at the airport in 2018. Production of honey in the airport compound commenced in summer 2019.

Our first successful harvests in 2019 were 196 honeyjars or 23 kg of spring honey and 525 honey jars or 65 kg of summer honey. Furthermore our so called "Good-Bei-Honey" received the "Made in Luxembourg" Label in 2019.

Another initiative is the biomonitoring of the emission of heavy metal on the aerodrome via the airport bees and their honey.

Pictures - ANA breeds honey bees and honey jars in cooperation with lux-Airport

ANA's core environmental performance indicators (core indicators)

General Note:

To comply with the requirement of EMAS COMMISSION REGULATION (EU) 2018/2026 of 19 December 2018 amending Annex IV to Regulation (EC) No 1221/2009 of the European Parliament and of the Council on the voluntary participation by organisations in a Community eco-management and audit scheme and their Key Areas (Energy, Material, Water, Waste, Use of land and Emissions) ANA will explain in its existent environmental (ENV) PI's, and within this document which Key Areas are affected.

All PI's and measurements will therefore be evaluated on their ENV aspect and impact (direct or indirect) and aligned with an EMAS Key Area if evaluated as having a direct impact.

This has to be done as ANA's EMS existed before EMAS and was already ISO14001 certified.

Table – EMAS core indicators vs. ANA core indicators

EMAS core indicators	PI name	Measurement name	Measurement detail
Energy	Consumption of resources	Electricity	• ANA MT electricity Consumption kwh • ANA MT electricity Consumption kwh / 10 000 aircraft mvt • ANA LT electricity Consumption kwh • ANA LT electricity Consumption kwh / 10 000 aircraft mvt
	Consumption of resources	Project Management	• Environmental impact of internal ANA projects, Index 5/+5
Material	Consumption of resources	Fossil resources (heating)	• Fuel consumption ANA (without emergency generators) incl. CGDIS • Fuel consumption ANA (without emergency generators) • Fuel consumption ANA (without emergency generators) per FTE • Gas consumption (without emergency generators, m^3) • Gas consumption (without emergency generators, m^3) per FTE
		Fossil resources (emergency generator)	• Emergency generator fuel consumption • Emergency generator fuel consumption / 10 000 aircraft mvt
		Paper	• Paper Consumption block • Paper Consumption block / FTE
Water	Consumption of resources	Water (ANA)	• ANA facilities drinking water consumption in m^3 in ANA • ANA facilities drinking water consumption in m^3 in ANA / FTE • Total annual waste water produced, expressed in m^3 in ANA facilities / FTE • Total annual waste water produced, expressed in m^3 in ANA facilities / FTE

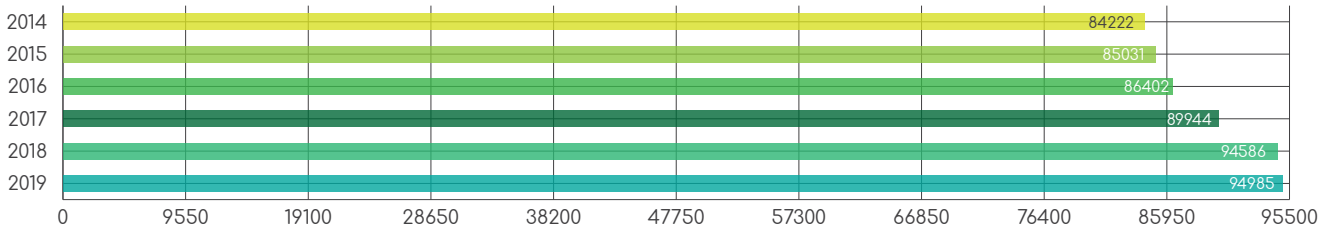
EMAS core indicators	PI name	Measurement name	Measurement detail
Waste	Waste Management	Domestic waste	• Annual generation of waste in tons • Annual generation of waste in tons / FTE
	Consumption of resources	Special waste	• Annual total generation of special waste in kg - electrical devices (commercial) • Annual total generation of special waste in kg per FTE - electrical devices (commercial) • Annual total generation of special waste in kg - electrical devices (domestic) • Annual total generation of special waste in kg per FTE - electrical devices (domestic) • Annual total generation of special waste in kg - incandescent and halogen lamps • Annual total generation of special waste in kg per FTE - incandescent and halogen lamps • Annual total generation of special waste in kg - cabel (copper) • Annual total generation of special waste in kg per FTE - cabel (copper) • Annual total generation of special waste in kg - carton/ paper • Annual total generation of special waste in kg per FTE - carton/paper • Annual total generation of special waste in kg - plastic film • Annual total generation of special waste in kg per FTE - plastic film • Annual total generation of special waste in kg - plastic products • Annual total generation of special waste in kg per FTE - plastic products • Annual total generation of special waste in kg - fluorescent light bulb • Annual total generation of special waste in kg per FTE - fluorescent light bulb • Annual total generation of special waste in kg - spray cans • Annual total generation of special waste in kg per FTE spray cans • Annual total generation of special waste in kg - styrofoam • Annual total generation of special waste in kg per FTE - styrofoam • Annual total generation of special waste in kg - toner cartridge • Annual total generation of special waste in kg per FTE - toner cartridge • Annual total generation of special waste in kg - dry batteries • Annual total generation of special waste in kg per FTE - dry batteries
Emissions	ANAs Carbon Footprint	Fleet management	• Establish number of vehicles in use • Establish number of vehicles in use / FTE • Number of existing / new acquired plug in / hybrid / electric cars of fleet • Average emission / car (gr/km) - Total emission of car fleet
		Use of buildings	• Fuel emission ANA (without emergency generators) incl. CGDIS • Fuel emission ANA (without emergency generators) • Fuel emissionn ANA (without emergency generators) per FTE • Gas emission (without emergency generators, m^3) • Gas emission (without emergency generators, m^3) per FTE • Emergency generator fuel emission • Emergency generator fuel emission / 10 000 aircraft mvt
		Use of ANSP equipment	
Land use with regard to biodiversity	N/A * (indirect)		

* ANA is not involved / included in the master plan of the airport and has therefore no direct influence on this action and measurement.

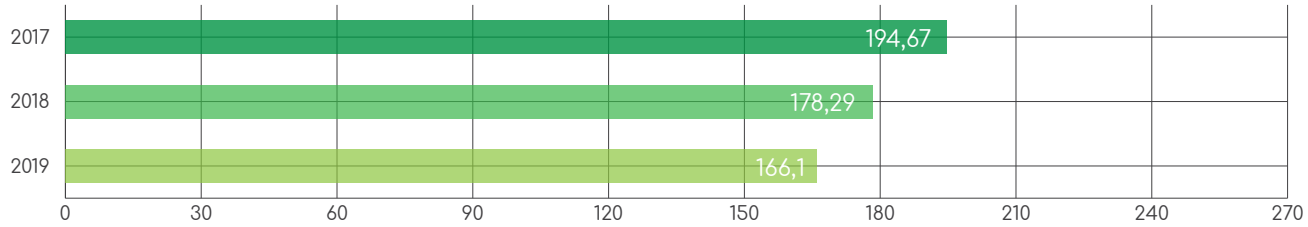
Reference values

ANA is using following values as reference values for their KPI's:

Number of aircraft movements on ELLX



Number of FTE (Full time equivalent)



Airport Noise & Emissions Footprint

Note:

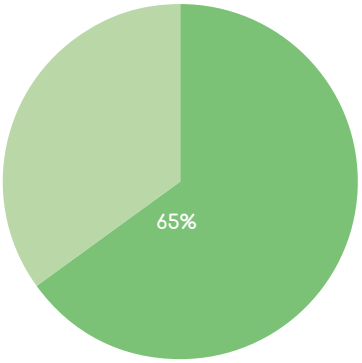
Airport noise and gaseous emissions are important ENV aspects for ANA and its stakeholders. The impact of this PI is indirect as the combined activities of ANA and other parties are required to reduce noise/emissions. ANA contributes substantially and directly to reduce noise/emissions through the following actions under their operational control.

Foster the application and use of the available CDO (continuous descent operations) procedures: CDO - Number of CDO approaches established / flown into ELLX / total # of approaches.

This procedure, which reduces fuel consumption and noise emissions of aircraft, was implemented in 2017. In 2018 a total of 39.553 inbound (approaching) flights were counted.

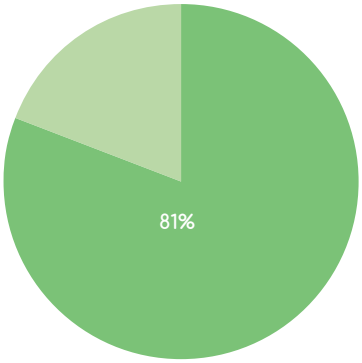
The pie chart below shows that 25.766 flights followed the CDO procedures (65%). In 2019 we've had a total of 40296 inbound flights were 32810 flights followed the CDO procedures (81%).

CDO application for 2018



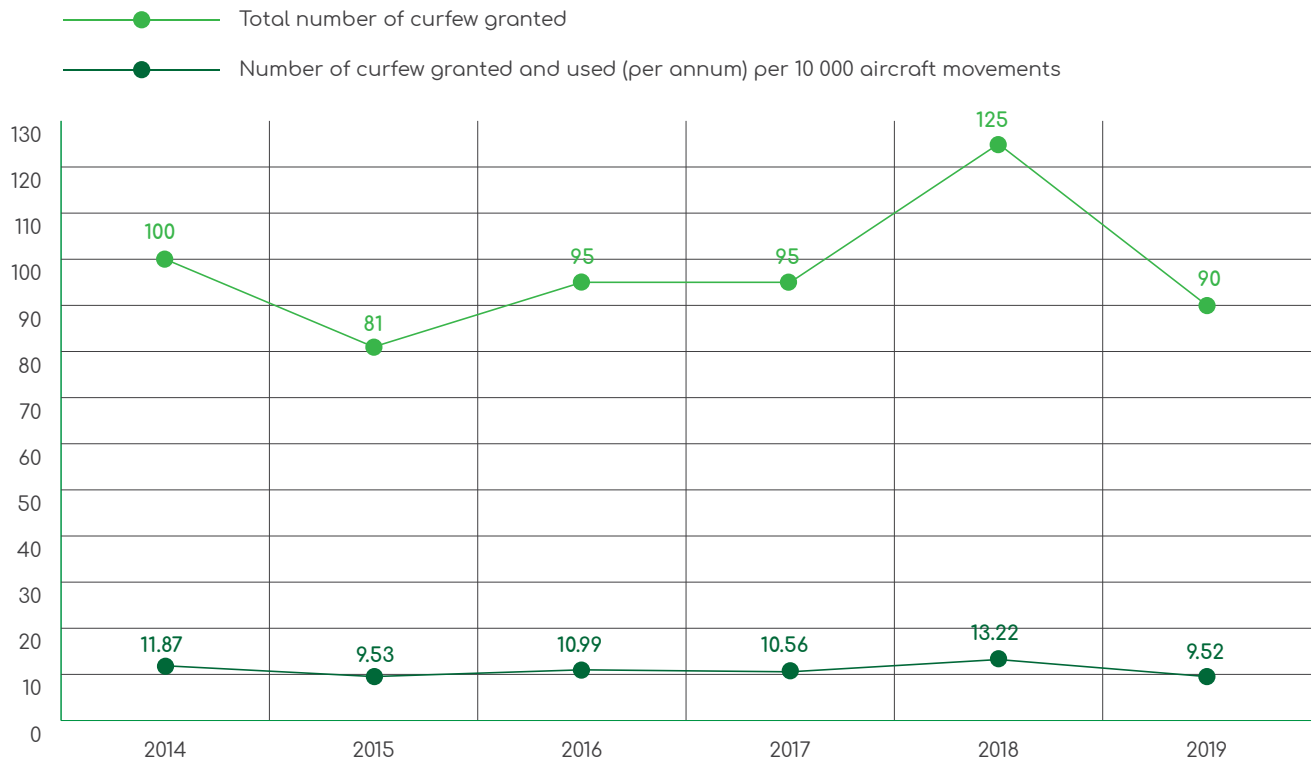
25766 of 39553 inbound traffic

CDO application for 2019

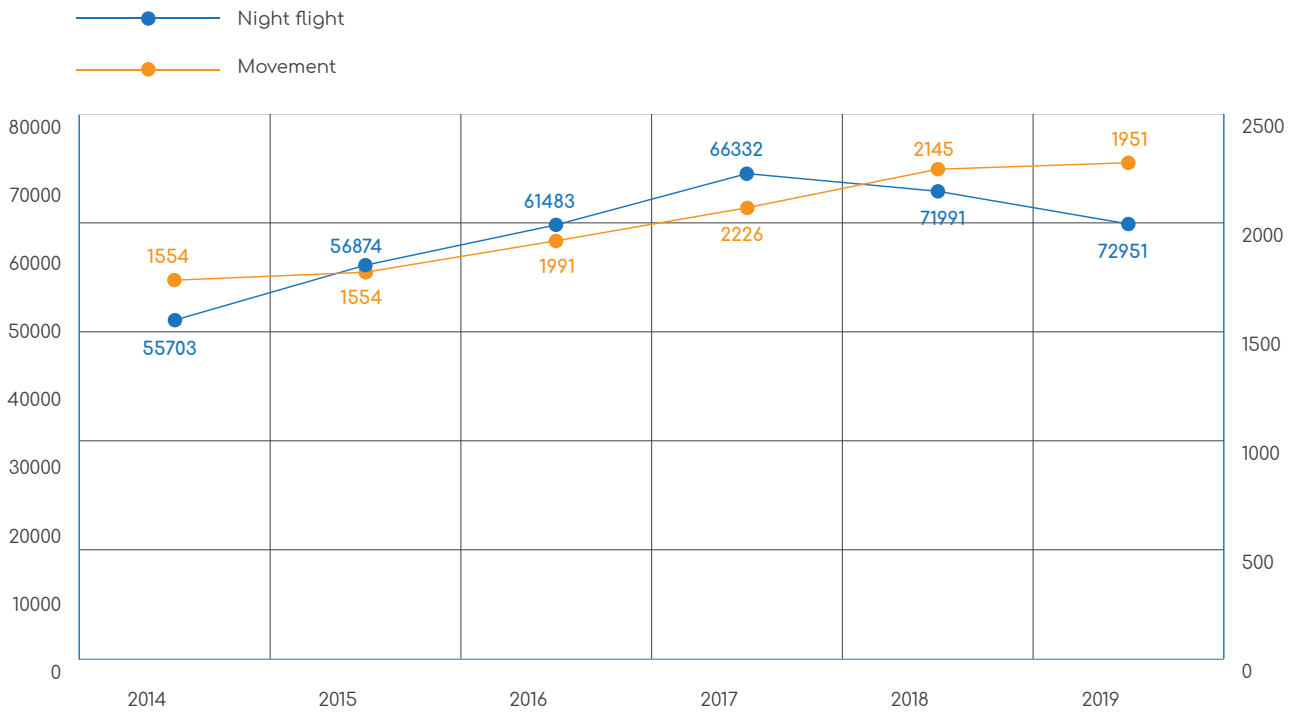


32810 of 40296 inbound traffic

Source of noise



Nightflights vs. gloval movements

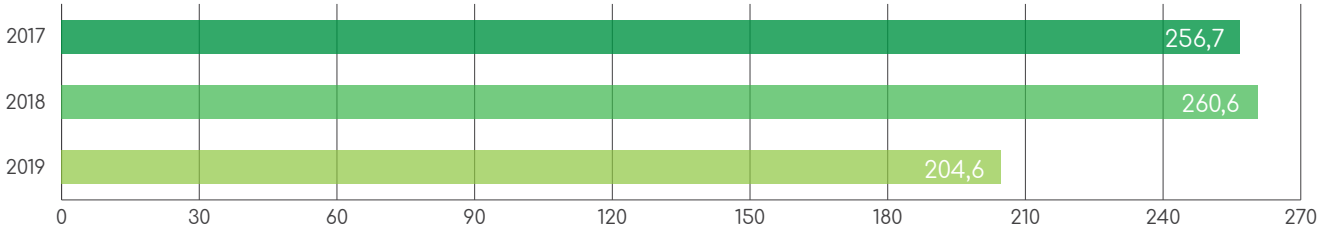


Consumption of resources (material)

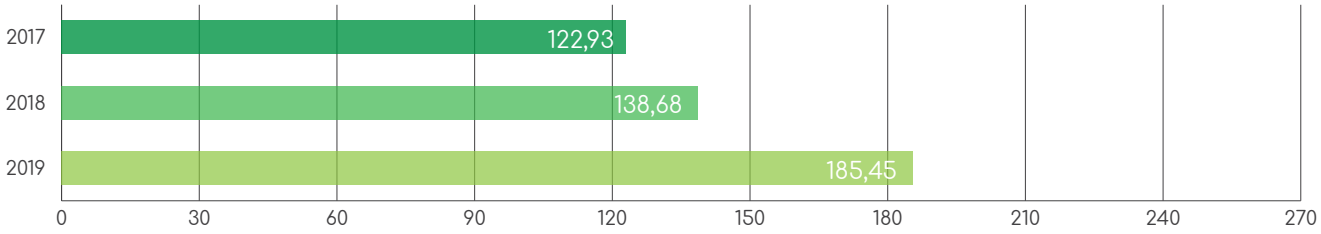
Note:

The following measurements have a direct impact as they are under ANA direct operational control and are classified in EMAS Key Area `Energy, Material and Water`.

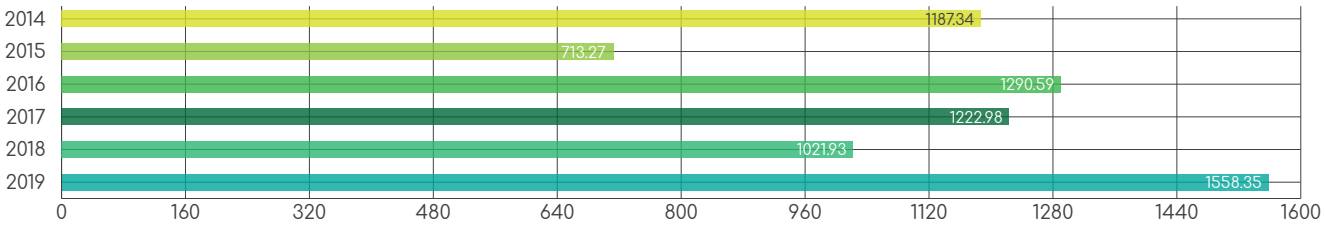
Fossil resources - Fuel consumption in liters (heating ANA buildings) per FTE (EMAS Key Area Material)



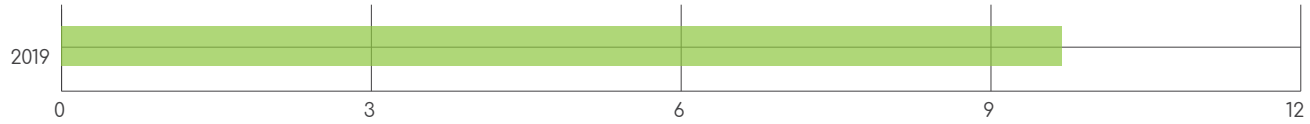
Fossil resources - Gas consumption in m³ (heating ANA buildings) per FTE (EMAS Key Area Material)



Fossil resources - Gas consumption in m³ (heating ANA buildings) per FTE (EMAS Key Area Material)



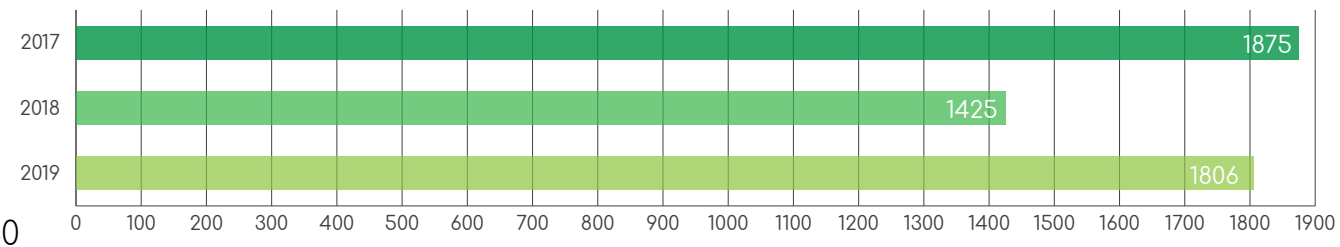
Total annual water consumption - expressed in m³ in ANA facilities / FTE (EMAS Key Area Water)



Note:

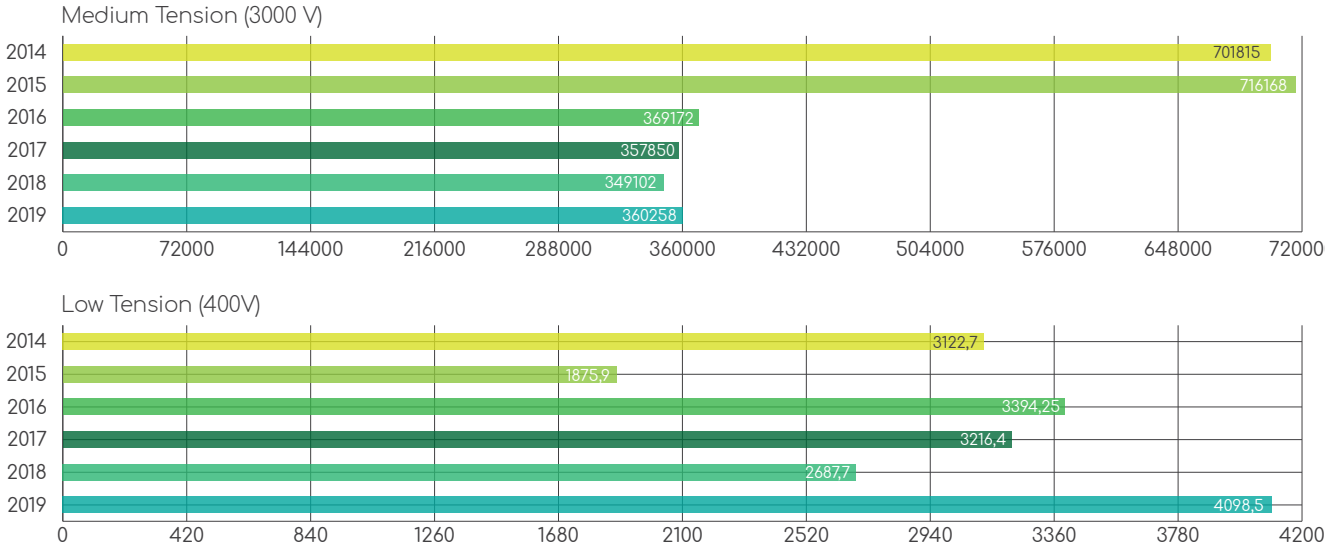
The amount of waste water is assumed to be equal to the amount of water consumed and charged accordingly.

Paper - Paper consumption in sheets / FTE (EMAS Key Area Material)



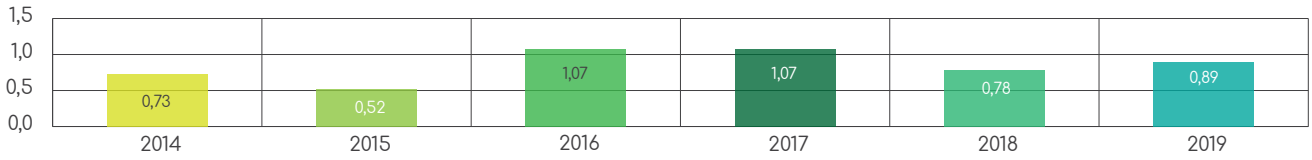
Electricity -

Electricity Consumption kwh / 10 000 aircraft movement for ANSP equipment (EMAS Key Area Energy)



Project Management -

Environmental impact of internal ANA projects, Index -5/+5 (EMAS Key Area Energy, Material)



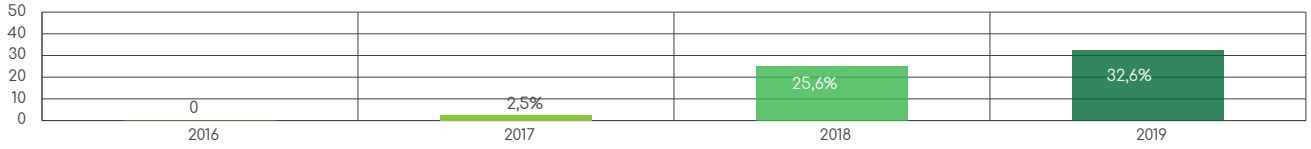
ANA's Carbon Footprint

Note:

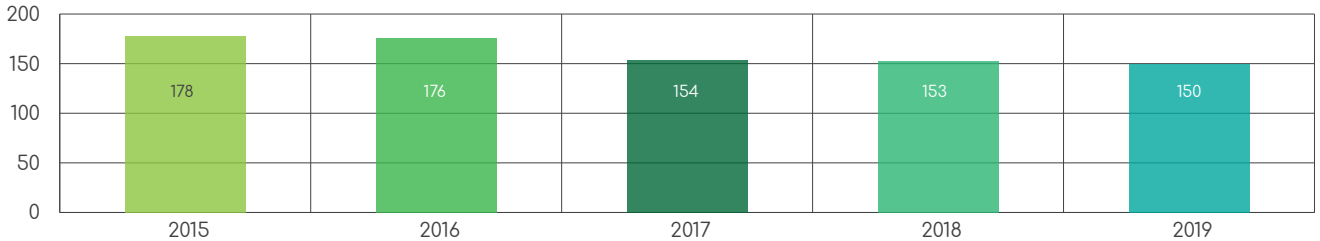
Those measurements have a direct impact, are under ANA direct operational control and are classified in EMAS Key Area ´Emissions´.

Only cars and heating emissions (buildings) within the scope of ANA's direct control are included; other activities as winter operations by third parties, etc. are out of the scope of this indicator. Fuel and gas emissions are calculated with 2,63 kg CO_2 / l fuel and 2 kg CO_2 / m^3 gas and are directly linked with the values measured in "Consumption of resources (material)" here above.

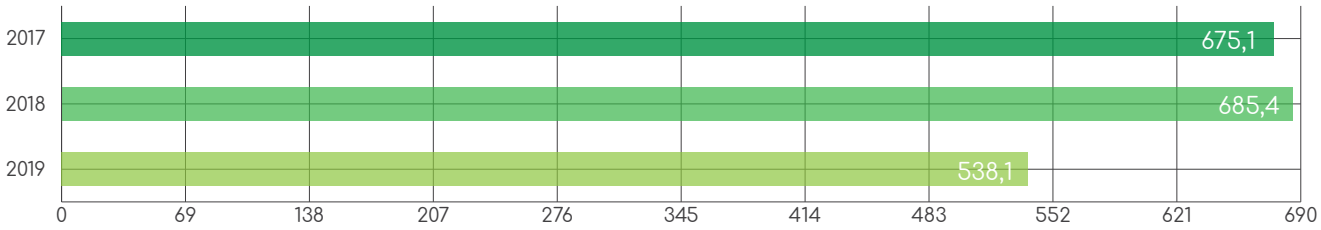
Fleet management - Percentage of plug in / hybrid / electric vehicles of total fleet



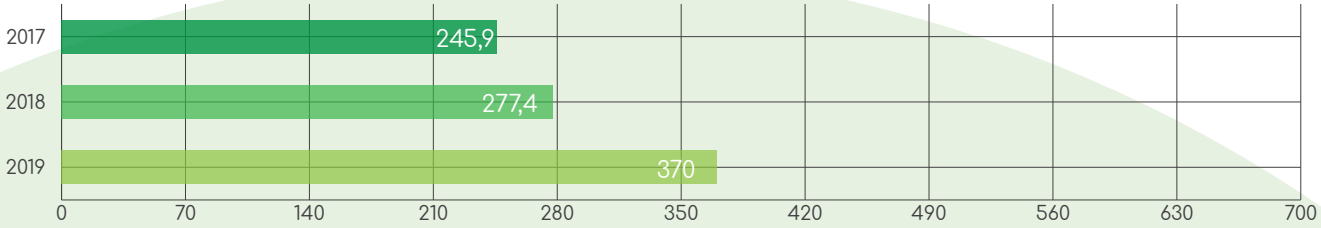
Fleet management - Average of emission per car (gr/km)



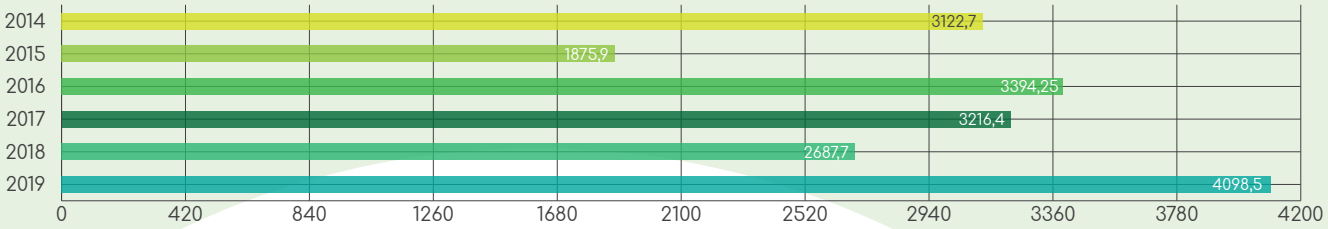
Use of buildings - Fuel emissions in kg CO2 (heating ANA buildings) per FTE (EMAS Key Area Emissions)



Use of buildings - Gas emissions in kg CO2 (heating ANA buildings) per FTE (EMAS Key Area Emissions)



Use of ANSP equipment - Emergency generator fuel emissions in kg CO2 per 10 000 aircraft (EMAS Key Area Emissions)



Protection of Water, Groundwater & Ground

Note:

ANA has the operational responsibility on the manoeuvring area of the aerodrome but has no direct impact on this aspect in the EMAS Key Area. The impact of these activities are indirect as the combined activities of ANA and other parties are required to protect water, groundwater and ground.

ANA contributes substantially and directly through the following actions under their operational control. This includes inter alias the acquisition, ways and means of use and distribution of de-icing and other products used by (external) services and management of the contracts and Service Level Agreements (SLAs). Those activities are measured and evaluated but are not shown in this document as they are classified as indirect.

Waste Management

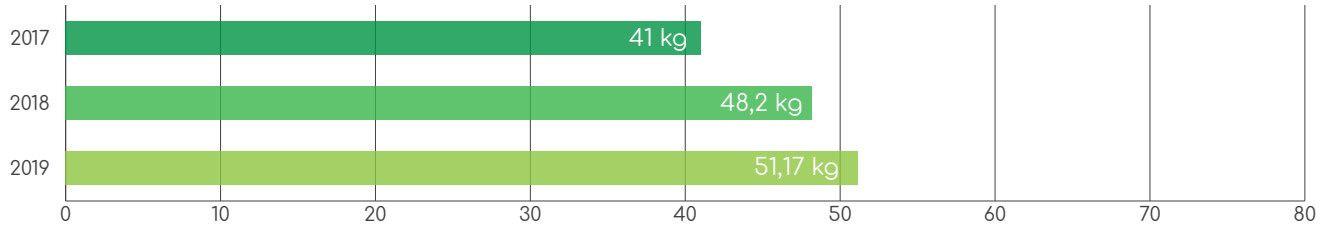
Note:

Those measurements have a direct impact, are under ANA direct operational control and are classified in EMAS Key Area 'Waste'

Measurements are done with P&CH[3] and CGDIS[4] waste included, and are not yet separable from ANA waste. Ways and means to manage this better in future will be investigated.

3 Ponts et Chaussées
4 Corps grand ducal d'incendie et de secours

Annual total generation of special waste in kg



Data on volume of special waste per type (electrical devices (commercial), electrical devices (domestic), incandescent and halogen lamps, cable (copper), carton/paper, plastic film, plastic products, fluorescent light bulb, spray cans, Styrofoam, toner cartridge, dry batteries, etc.) is also collected and evaluated.

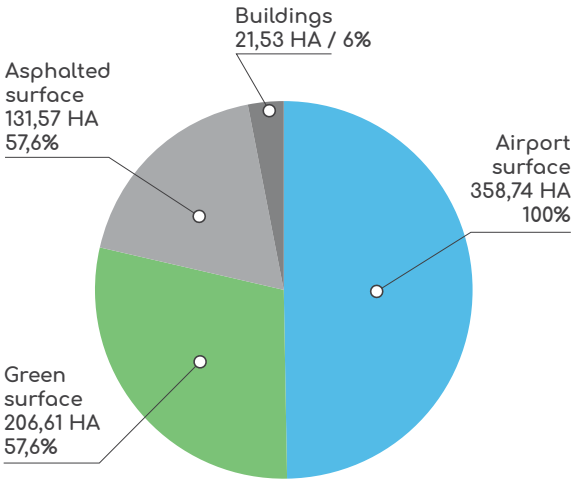
Maintain Airport Biodiversity

Use of land - Expressed in m ^{2} of built-up-area

Note:

ANA has the operational responsibility on the manoeuvring area of the aerodrome but has no direct impact on this aspect in the EMAS Key Area. The impact of this PI is indirect as the combined activities of ANA and other parties are required to protect the natural environment and habitat of specifies.

ANA contributes substantially and directly through the following actions under their operational control.



Note:

ANA is not involved / included yet in the master plan of the airport and has therefore no direct influence on this action and measurement. Efforts are planned to improve this situation.

Lux-Airport S.A. was granted building lease on the land northern side of the runway. The buildings for the 180 employees of ANA are on this side. Those buildings, as described in this document more in detail in the chapter Service locations and buildings, are managed by ANA.

NEXT STEPS - ENVIRONMENTAL GOALS 2020 ONWARDS

In 2019 ANA gained an even better understanding of its role as an actor in environmental terms and of the potential for direct and indirect environmental managerial measures that could and should be implemented.

The COVID19 – crisis has hit aviation particularly hard and the effects will be lasting for a long period. The devastating impacts are visible, downbeat and serious. However, this shall and will not lead to lowering our efforts in all strategic areas of our business and building a new vision of the future in air traffic and managing especially the environmental side of it. The current crisis teaches a lesson in many asp ects – the societal and environmental sustainability of the industry are certainly at the forefront of the restart. ANA will take this challenge on as an obligation and a chance in its general business strategy and in its strategic goals and objectives.

The environmental program for the coming years aims to reflect our deepened understanding and commitment to improve our operations and help to re-build this important business sector in Luxembourg to new levels.

The aims and objectives of the program are detailed in the 2020 EMS Action Plan on the coming pages.

Initiative Area 1 – Investigation & Implementation of advanced flight procedures

Goal: Investigation of approach flight procedures and development of advanced, ´custom tailored´ procedures with local airlines and airport (indirect environmental management aspect)

Expected impacts:

Reduce noise and resource (fuel) consumption of aircraft during approach to Luxembourg airport

- Change of procedures in ATC in line with aircraft / airline specific operation characteristics during CDO (and CCO[5])
- Change of procedures in ATC for advanced approach (new STAR procedures); noise abatement procedures

Planned measures:

- Gather inputs and available data from airlines / airport operations
- Develop a common plan on ´Environmental Collaborative Decision Making´(E-CDM) in accordance with the local ATM Master Plan including CDO / CCO, PBN and related new navigational facilities implemented
- Study the potential for adapting flight and other operational procedures with local partners
- Develop and implement revised procedures; coordinated with other ANSP partners in FABEC

[5] CCO – Continuous Climb Operations

Initiative Area 2 – Increase efforts in fossil fuel consumption reduction

Goal: Investigation and implementation of further measures in domestic and operational areas to save the use of fossil resources (direct environmental management aspect)

Expected impacts:

Reduce resource (fossil fuel / gas) consumption in heating of ANA facilities, car fleet etc

- Improved measurement of consumption / use
- Change of procedures / practices

Planned measures:

- Gather further inputs and available data from all ANA operated fossil resource operated installations and vehicles
- Identify the potential for adapting operational procedures
- Derive / develop a plan for improvement

Initiative Area 3 – Implementation of an electricity and water management plan

Water Management

Goal: Reduce total consumption of drink water

Expected impacts:

Decreased consumption of water of potable quality reduces the pressure of the water supply companies to find water in greater depth, tapping new sources and or treating an increasing amount of lower quality water to potable quality levels with likely effects:

- lowering the level of the groundwater basin with detrimental effect on nature, agriculture etc.;
- higher production and distribution costs;
- higher waste water treatment costs.

Planned measures:

- Measure of the entire water consumption on the airport as per user / at source in regular intervals (monthly) (for monitoring and developing specific measures; identify locations / causes of consumption);
- Communicate findings (annually) in all relevant detail to airport partners;
- Propose / develop water reduction measures; set targets.

Electricity management

Goal: Reduce total consumption of electrical energy

Expected impacts:

Decreased consumption of energy also from renewable sources (´green´energy) has a positive environmental effect:

- Reduced use of natural resources for the production, implementation, use and
- de-commissioning of power production installations of all sorts;
- Lesser CO2 emission in the production of installations;
- Reduced costs for the production and distribution of electricity;
- Reduced environmental impacts of installations (wind turbins, water basins, solar panel farms etc).

Planned measures:

- Measure of the electricity consumption on all ANA installations at source (i.e. feeding point; power stations etc) in regular intervals (monthly) (for monitoring and developing specific measures; identify locations / causes of consumption) (only for the time being for ANA activities);
- Communicate findings (annually) in all relevant detail (as per facility, activity);
- Propose / develop electricity reduction measures and targets; changes in the management of energy in ANA;
- Communicate findings (annually) in all relevant detail to airport partners;
- Propose / develop water reduction measures; set targets.

Environmental Program for 2020

The targets and objectives of the environmental program are directly observable or measurable. The transposition and resulting measure (in case of quantitative objectives) or observations (qualitative events) of the targets are demonstrated in the table below.

The targets are directly linked to ANA's core environmental performance indicators (core indicators) (the ´6 pillars´) and to related chapter in this document.

Those core indicators and target achievement are evaluated and revised once per year and linked to the environmental goals and the environmental program. The main goal of these efforts is a continuous improvement of our environmental impacts that are directly in line with ANA's environmental policy and assured trough future projects and environmental actions.

Table – Environmental targets – 2019 achievements and 2020 targets / plans summary

Environmental target	EMS pillars	Measure	Results achieved in 2019 / Target reached	Target for 2020
Application and use of available CDO (continuous descent operations) procedures and other ATC/airline procedures	Noise Resources	Current: # / percentage use of CDO Future: Custom-tailored operational procedures	YES high increase in flown CDO with noise and resource savings	• Deepen contact to national airlines & airport • Analyze availability of aircraft & airport operations data Investigate potential of operational improvements ground/air • Decide on local actions for further improvements • Implement innovative flight OPS and ANS solutions

Environmental target	EMS pillars	Measure	Results achieved in 2019 / Target reached	Target for 2020
Reduce number of curfew (night flights) granted and used (per annum) per 10 000 aircraft movements	Noise	Current: # of flights outside normal operation time	YES Limited by ministry Participation in working groups and committees with airport residents and airlines	• Limit of 95 curfew granted needs to be maintained • Continue and intensify collaboration with local airlines
Reduce fuel consumption in liters (heating ANA buildings) per FTE	Resources	Quantity of fuel (liters)	YES Heating equipment in administration building verified and updated after external audit Poster campaign and best practices for sensitization of employees implemented	• Yearly training for a sensitization of employees
Reduce fossil resources - Gas consumption in m^3 (heating ANA buildings) per FTE	Resources	Quantity (in m^3)	NO Poster campaign and best practices for sensitization of employees implemented	• Monitoring • Yearly training for a sensitization of employees • Investigation of further improvement methods to reduce Renovation of Tower building foreseen.
Reduce total annual water consumption and waste water consumption, expressed in m^3 in ANA facilities per FTE	Resources	Quantity (in m^3)	First year monitored Poster campaign and best practices for sensitization of employees implemented	• Yearly training for a sensitization of employees • Investigation of further improvement to reduce • Implementation of a water management plan
Reduce paper consumption in sheets / kg FTE	Resources	Quantity (in sheets / kg)	NO First year monitored Poster campaign and best practices for sensitization of employees implemented Centralized printer concept is used	• Yearly training for a sensitization of employees • Investigation of further improvements to reduce
Reduce Electricity Consumption kwh / 10 000 aircraft movement for ANSP equipment	Resources	KWh	NO	• Monitoring • Further installation of LED lights on the manoeuvring area. 100% replaced by LED lighting by 2022. • Each change of equipment will be evaluated on the power consumption due to project management (view here under) • Implementation of an electricity management plan
Environmental impact of internal ANA projects	Resources	evaluated index -5/+5	NO	• Monitoring
Fleet management - average of emission per car (gr/km)	Air quality	gr/km CO_2	YES New cars purchased with plug in / hybrid / electric technology	• Yearly training for a sensitization of employee
Annual generation of waste in tonnes /FTE	Waste	Quantity (tonnes) Quality / type of waste	NO	• Audit on waste management to be initiated • Investigate further improvements to reduce • Reduce hazardous waste

In the scope of EMAS, the involvement and participation of our employees, our partners and suppliers related to environmental topics is a must and a strategic goal.

- All employees have the possibility to participate in the development of ANA's environmental program during their yearly environmental training and during environmental surveys.
- The continuation of these activities is a core enabler to progress in our efforts beyond current levels.

We are in regular contact and communicate to our partners on the airport, exchange with our partners in FABEC and with our neighbouring ANSPs (i.e. skeyes, EUROCONTROL Maastricht, ...).

This exchange is of similar high importance for us to advance. The exchange reaches from finding common solutions, gaining a better insight into the needs and demands of our partners and identifying common areas for improvement.

With our ANSP partners we exchange on best practices, finding synergies and getting direct support in our service areas and in regard to our environmental activities.

Ecological sector engagement with improved communication

In 2018, ANA started to improve the environmental communication plan. A regular publication of ANA's environmental bulletin was established before the summer months and in October 2018 a first environmental survey was initiated on a voluntary participation basis.

Almost 65% of all ANA employees participated showing a high interest on environmental topics. The feedback received and suggestions made are now under consideration; they will help in the future development of the EMS. Following this survey, and based on the results, a poster campaign was initiated.

One important communication 'trigger' activity is the production of honey.

ANA is putting more weight on projects demonstrating its engagement in the ecological sector. It enables us to establish a positive basis ('open the door' activity) for the wider exchange with the public on other, not so visible / tangible efforts that we expend in the environment. The honey production will therefore be further developed. More beehives will be added and will hopefully increase honey production.

Further steps to improve on internal and external communication are under development. As described above projects proposed by the employees during the last survey will be considered and help us in our development.

The next project will be a contest for the best environmental ideas of our employees. Examples from ANA employees ideas for projects demonstrating engagement in the ecological sector could be planting trees or eliminating single-use plastic.

Supplier involvment

A further improvement of our supplier evaluation scheme related to the environmental fingerprint will be initiated. Currently, ANA evaluates the environmental fingerprint of their suppliers in the related "supplier commitment form". One additional paragraph linked to the environment was added in the document form for ANA's call for tenders. In 2020 we will improve also in this enabling area:

The employees of suppliers contracted with works will be receiving detailed information on ANA´s environmental aims, targets and requirements before they commence work. This will be recorded in the "supplier intervention form".

ANA will put more weight on this and evaluate wherever possible, working materials used, recycling practices and demonstration of the environmental lifecycle.

LEGAL FRAMEWORK

- Regulation (EC) 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS), repealing Regulation (EC) No 761/2001 and Commission Decisions 2001/681/EC and 2006/193/EC
- Commission Regulation (EU) 2017/1505 of 28 August 2017 amending Annexes I, II and III to Regulation (EC) No 1221/2009 of the European Parliament and of the Council on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS)
- ISO 14001: 2015 (Environment Management)
- European Standard EN ISO 14031:2013 adopted as Luxembourgish Standard ILNAS-EN ISO 14031:2013 in August 2013: Environmental management - Environmental performance evaluation – Guidelines
- Regulation (EC) No 549/2004 of the European Parliament and of the Council of 10 March 2004 laying down the framework for the creation of the single European sky (the framework Regulation)
- Regulation (EU) No 139/2014 of 12 February 2014 laying down requirements and administrative procedures related to aerodromes pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council
- Agreement from 10 September 2017 for airside operations at Luxembourg Airport between Lux Airport and ANA, and the coordination agreement Aerodrome Operator – Air Navigation Service Provider from 10 September 2017Arrêté ministériel 1/02/0130/C pour l'exploitation de l'aéroport
- Amended Luxembourg law of 21st June 1976 on noise abatement as well as the Grand-Ducal Regulation of 2nd August 2006 implementing Directive 2002/49 / EC on the assessment and management of environmental noise
- 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
- Law of 18 july 2018, concerning the protection of nature and natural resources; Code of Environment, Mémorial A - 529 from 5 August 2019
- Charte des usagers et des riverains
- Plan d'action bruit aéroportuaire (MDDI, December 2016)
- Commodo/ Incommodo ; Liste établissements classés
- ANA & Cargolux (2018), Charte de lutte contre les nuisances sonores

ENVIRONMENTAL VERIFIER'S DECLARATION ON VERIFICATION AND VALIDATION ACTIVITIES

Environmental verifier's declaration on verification and validation activitiesTÜV Rheinland Cert GmbH, Am Grauen Stein, D- 51105 Köln

with EMAS environmental verifier Erich Grünes, registration number DE-V-0017

accredited or licensed for the scope 84 (NACE Code)

declares to have verified whether the site or the whole organisation as indicated in the environmental statement 2020 of

Administration de la Navigation Aérienne (ANA), 4, rte de Trèves , 2632 Findel / Luxemburg

with registration number LU-000008

meet all requirements of Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS).

By signing this declaration, I declare that:

- the verification and validation has been carried out in full compliance with the requirements of Regulation (EC) No 1221/2009,
- the outcome of the verification and validation confirms that there is no evidence of non-compliance with applicable legal requirements relating to the environment,
- the data and information of the environmental statement 2020 reflect a reliable, credible and correct image of all the organisations activities, within the scope mentioned in the environmental statement.

This document is not equivalent to EMAS registration. EMAS registration can only be granted by a Competent Body under Regulation (EC) No 1221/2009. This document shall not be used as a stand-alone piece of public communication.

Done at Luxembourg / Cologne on 30/06/2020

Signature

Erich Grünes
TÜV Rheinland Cert GmbH
Am Grauen Stein
D-51105 Köln

GLOSSARY OF TERMS

Airport charges:

Charges levied for airport infrastructure and ground-services paid by airlines to the airport company.

ANS charges:

Charges levied by the ANSP (or EUROCONTROL on behalf of the ANSP) for ANS provision in terminal airspace (Terminal Charges, TNC) and En-route.

Aircraft movement:

A take-off or a landing operation.

Air Navigation Service Provider (ANSP):

An ANSP is a public or a private legal entity providing Air Navigation Services. It manages air traffic on behalf of a company, region or country.

The Air Navigation Administration (ANA), placed under the authority of the Ministry of Mobility and Public Works, is the air navigation service provider of Luxembourg.

Air Traffic Management (ATM):

Communication navigation and surveillance systems (CNS)

Meteorological service for air navigation (MET)

Search and rescue (SAR)

Aeronautical information services/aeronautical information management (AIS/AIM).

Auxiliary Power Unit (APU):

The power supply unit on board an aircraft that is used to provide electricity for the power supply and air-conditioning on the ground.

Continuous Descent Operations (CDO):

These are descents from flight cruising level down to the final approach without intermediate ´levelling-off´, to save fuel (and emission) and to reduce noise.

Emissions:

All (solid, gaseous, or odorous) substances, wave radiation or particle radiation emitted from systems and plants, vehicles, products, materials, or other sources (for example aircraft) which exert an impact on the surrounding environment.

Environmental impact:

Direct Impacts are negative or positive effects on the environment, resulting from the various environmentally relevant ANSP activities carried out by ANA where management has direct control. Indirect environmental impacts consist of those effects on the environment over which ANA doesn't have direct influence.

Environmental Management System (EMS):

System for the coordinated processing of operational environmental protection, geared towards concrete local environmental impact. The core aspects of an EMS are a company's environmental policy and environmental programme.

Environmental performance:

The quantifiable results derived from the management of the environmental aspects of an organization by this organization.

Environmental policy:

Component of an environmental management system, establishing guidelines for environmental protection at the highest level within a company.

Environmental programme:

Within the framework of an environmental management system, a plan of measures to be applied for a specified period of time in order to minimise environmental impacts.

EU Eco-Management and Audit Scheme (EMAS III):

EMAS is a premium management instrument developed by the European Commission for companies and other organisations to evaluate, report, and improve their environmental performance. More on https://ec.europa.eu/environment/emas/

EUROCONTROL:

EUROCONTROL is a Pan-European civil-military organisation for the safety of air navigation established in 1960. The organisation is dedicated to supporting European aviation. EUROCONTROL is the Network Manager for the optimisation of operational air traffic flow and performance, recovers the costs of En-route ANS provision, supports civil-military cooperation, provides En-route service through its Maastricht Upper Area Control (MUAC) center, delivers research, innovation and development by the EUROCONTROL Experimental Center and training and skills programmes at the Institute for ANS in Luxembourg. EUROCONTROL currently has 41 European member states (plus agreements with Israel and Morocco). The European Commission is working closely together with EUROCONTROL to achieve the objectives of the Single European Sky (SES) initiative and aims to become a full member.

FABEC:

"Functional Airspace Block Europe Central", an initiative by the European commission to create airspace blocks. The air navigation service providers of six countries (Luxembourg, Belgium, France, Germany, the Netherlands, Switzerland) and Eurocontrol Maastricht UAC are gathered in the former.

ISO:

International Organization for Standardization.

ISO 14001:

This international environmental management standard defines globally recognized standards for environmental management.

Single European Sky (SES):

SES is a broad legislative and operational initiative and programme of the European Commission as the executive body of the EU. Its goal is the harmonisation, development / enhancement and integration of the European Air Traffic Management system and airspace. The programme includes the SESAR, SES Aviation Research programme, the air traffic Network Manager (EUROCONTROL) and a Performance Management Board and support functions. The performance and charging scheme and FABs are part of the SES programme.

SuperDrecksKëscht (SDK):

The SuperDrecksKëscht® is a trademark which was developed in the frame of the waste management obligations of Luxembourg by the Ministry of the Environment, Climate and Sustainable Development, the Chambre des Métiers (Chamber of Trade) and Chambre de Commerce (Chamber of Commerce). The activities of the SuperDrecksKëscht® are also recognized by the EU Commission through the award of the label 'best practice' in the field of protection of resources and climate.

The orientation is based on the strategy provided by the EU with the hierarchy prevention before preparation for re-use, before recycling, before any other use (as for instance energetic use), before disposal of waste.

The task of the SuperDrecksKëscht® consists in using and implementing the most recent information in order to achieve a sustainable high-quality material management in the ecological and economic sense. Carrying out these tasks allows showing the lead in the ecological restructuring of our society.

Stakeholder:

Groups or individuals that are affected by the activities of a company and can exert influence on attainment of their aims. Accordingly, the stakeholders of a company are the employees, shareholders and lenders, customers, suppliers, neighbours, non-government organizations, government agencies, and politicians.

Surface noise:

Noise emanating from aircraft when they are on the ground, arising from engine tests, taxiing, and / or APU operation. Noise generated by take-off and landing is not considered as surface noise, not even for the phases when the aircraft is on the ground.

Next ANA environmental statement will be published in June 2021

LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de la Mobilité
et des Travaux publics

Administration de la navigation aérienne

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

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