

# ENVIRONMENTAL REPORT 2017



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# INTRODUCTION



ANA – Aeroportos de Portugal, SA (ANA) aims to consolidate its responsibility for environment preservation, improving its environmental performance and contributing, to the fullest extent of its possibilities, towards building a more sustainable future.

The presentation of a positive overall performance, the awareness of the different economic agents for a more responsible performance, as well as the valorisation of the company's role among its stakeholders, are of significant importance and imply a continuous and dedicated effort.

In this sense, this document is intended to demonstrate the main results of ANA's environmental management in 2017, providing a privileged means of dissemination, available to ANA's main stakeholders and the general public.



# 2

## **NOISE AND AIR QUALITY**

Associated with the principle of continuous improvement, the minimization of negative impacts related to noise emissions is a permanent challenge, thus control and monitoring are fundamental tools for achieving this objective. Likewise, atmospheric emissions are an environmental aspect with relevance for air quality impacts in the areas surrounding the airports infrastructures and, therefore, object of management and control.

A continuous noise monitoring system is implemented at the airports where this environmental descriptor is particularly relevant (Lisbon, Porto, Faro, Madeira and Porto Santo), allowing to evaluate the real impact of noise associated with airport activity in the surrounding community.

Simulations and forecasts are also carried out through the regular production of Noise Maps for these airports, characterizing the acoustic environment in airports surroundings where greater impact is expected due to aircraft noise.

In the specific case of João Paulo II airport, noise monitoring reports are prepared by an external laboratory, based on monitoring campaigns conducted during the IATA period.

In addition, and because they are considered to be Large Air Transport Infrastructures, Strategic Noise Maps were carried out for the Lisbon and Porto airports in 2017, which are being analysed by the APA.

In 2017, 6 noise complaints were received at Lisbon airport.

As far as the Faro airport is concerned, 4 complaints of noise pollution associated with the flight of aircrafts over the historic centre of Albufeira were received.

ANA takes into account all complaints received by the available means, using all the available data to clarify the citizens and the intervening entities for their specific issues. ANA controls the gaseous emissions at airports according to its legal obligations, namely regarding particular sources.



At the same time, air quality monitoring is carried out at Lisbon, Porto and Madeira airports. This control through monitoring campaigns, takes place during the summer and winter periods, supported in two sampling points. At Ponta Delgada airport, air quality monitoring campaigns are also held every three years in the summer.



# 3

## VOLUNTARY CARBON MANAGEMENT

ANA has determined its carbon footprint for the ninth consecutive year. In 2017, the footprint for 2016 was calculated and an external entity verified scopes 1 and 2 (direct emissions and controlled emissions).

**Table 1** ANA's emissions (Ton CO<sub>2</sub> eq)

Emisions (Ton Co <sub>2</sub> eq)	2016	2015	2014	Var. 15/16
Scope 1 (direct emissions)	7.976	8.354	8.774	-5%
Scope 2 (indirect emissions of electricity)	37.352	50.472	39.027	-26%
Scope 3 (other indirect emissions)	718.855	699.237	617.703	3%
<b>Total</b>	<b>764.182</b>	<b>758.063</b>	<b>665.504</b>	<b>1%</b>

Humberto Delgado Airport, Francisco Sá Carneiro Airport and Faro Airport are the ones with the highest activity and, consequently, with the greatest impact on ANA's carbon footprint, accounting for 50%, 25% and 16% of total Green House Gas emissions in 2016, respectively.

In 2016, global emissions have risen by about 1% compared to 2015, due to an increase in emissions of scope 3. Indirect emissions from airports continue to be the ones with the greatest impact, accounting for about 94% to ANA's total emissions. The main activities responsible for this impact are the LTO - landing operations, taxi and take-off of airplanes (62% of scope 3 emissions), passenger transport (34%) and electricity consumption by third parties (1%).

Thus, the increase in emissions registered in this scope is largely associated with the increase in airports activity - passengers and

movements - which in relation to 2015 were 14% and 12%, respectively.

In general, emissions of scope 1 decreased by 5% in 2016, due to the decrease in the consumption of propane gas in equipment and the decrease in the leakage of refrigerant gases.

In scope 2, there was a 26% decrease in GHG emissions, mainly due to the emission factors of electricity suppliers, but also to a decrease in electricity consumption (0.3%). The suppliers' energy mix is intrinsically related to the year's climatic conditions, which influence the way electricity is produced.

Regarding the Airport Carbon Accreditation, Airports Council International's independent accreditation programme, ANA's ten airports were accredited in 2017 at Level 2 "Reduction", thus evidencing the reduction of their direct emissions and those associated with electricity consumption.

# Emissions 2016



Scope 1  
**-5%**



Scope 2  
**-26%**



Scope 3  
**3%**

# 4

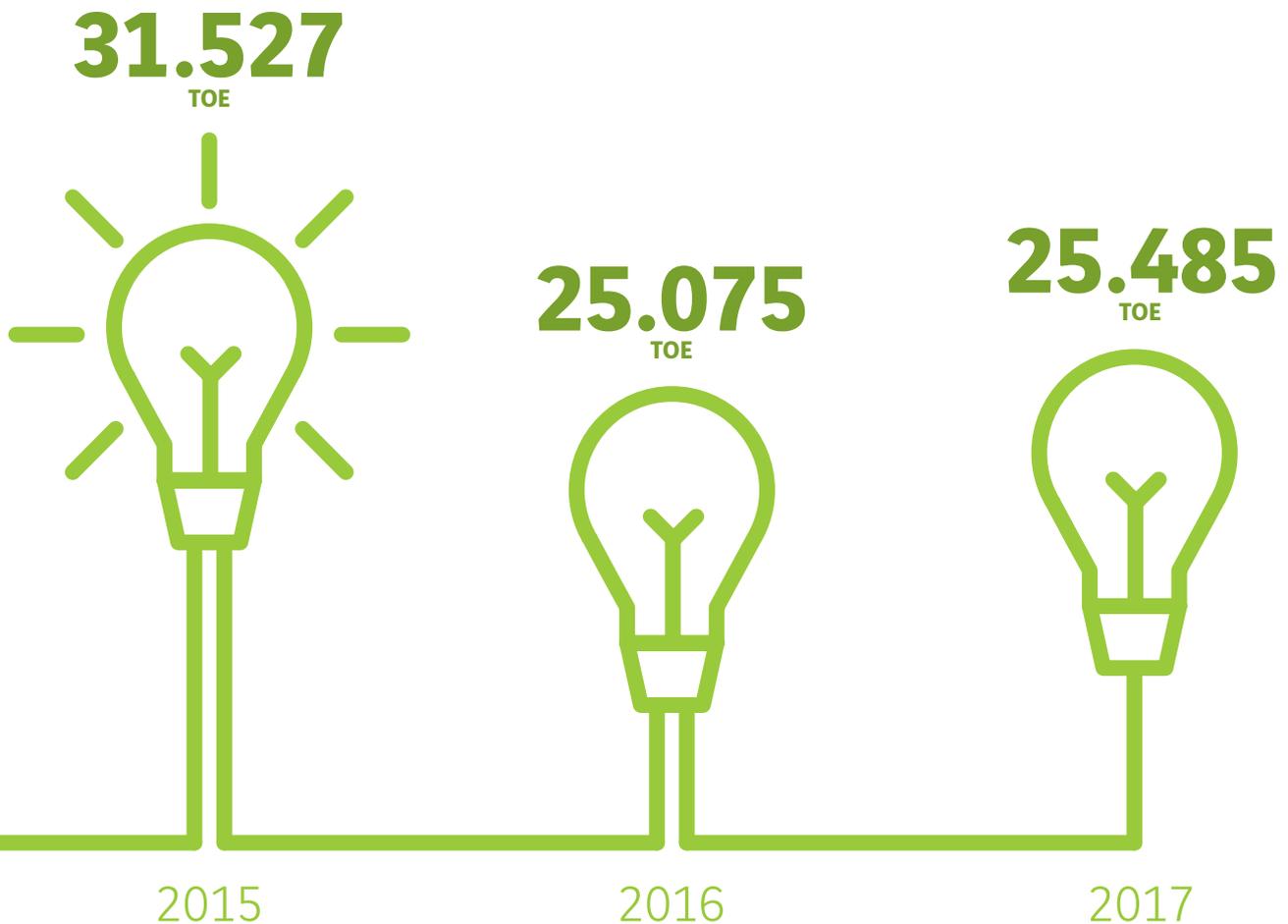
## ENERGY

Energy efficiency is particularly important in airport activity, both in terms of economic and environmental repercussions resulting from atmospheric emissions and greenhouse gases, representing a fundamental aspect in acting towards sustainability.



At ANA, direct energy (gasoline, diesel, natural gas, butane gas and propane gas) and indirect energy (electricity) are consumed. In 2017, a total of 25 485 TOE have been consumed, which meant a 1.6% increase in global consumption. This performance is due to the significant increase in airports traffic.

**Figure 1** Total energy consumption at ANA (TOE)

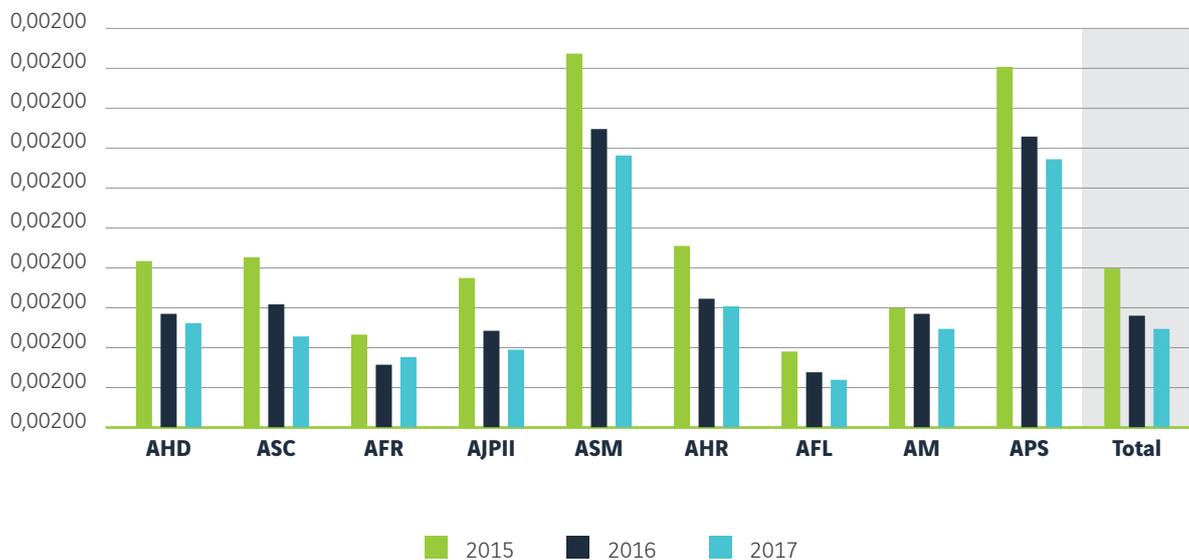


Thus, the correct assessment of developments in airports behaviour in terms of energy needs to be weighted by Traffic Unit (TOE/TU) <sup>1</sup>, characterized by specific energy, which is presented in the following figure.

In 2017 ANA carried out an energy audit, in accordance with the provisions of Decree-Law no. 68-A / 2015 of April 30, which included a proposal for energy efficiency action plans for our airports.

In this case, there was a reduction of the specific energy consumption in all ANA's airports <sup>2</sup>, resulting from actions to reduce consumption and increase energy efficiency, as well as the significant increase in the volume of traffic processed..

**Figure 2** Energy consumed TOE/TU



<sup>1</sup> TU calculated according to Sectoral DL No. 254/2012 of November 28

<sup>2</sup> The analysis of consumption by TU at the Beja Civil Terminal is not done, since the evolution of traffic at this airport is of a very particular nature, so this relative indicator is not adequate to measure the environmental performance of this unit.

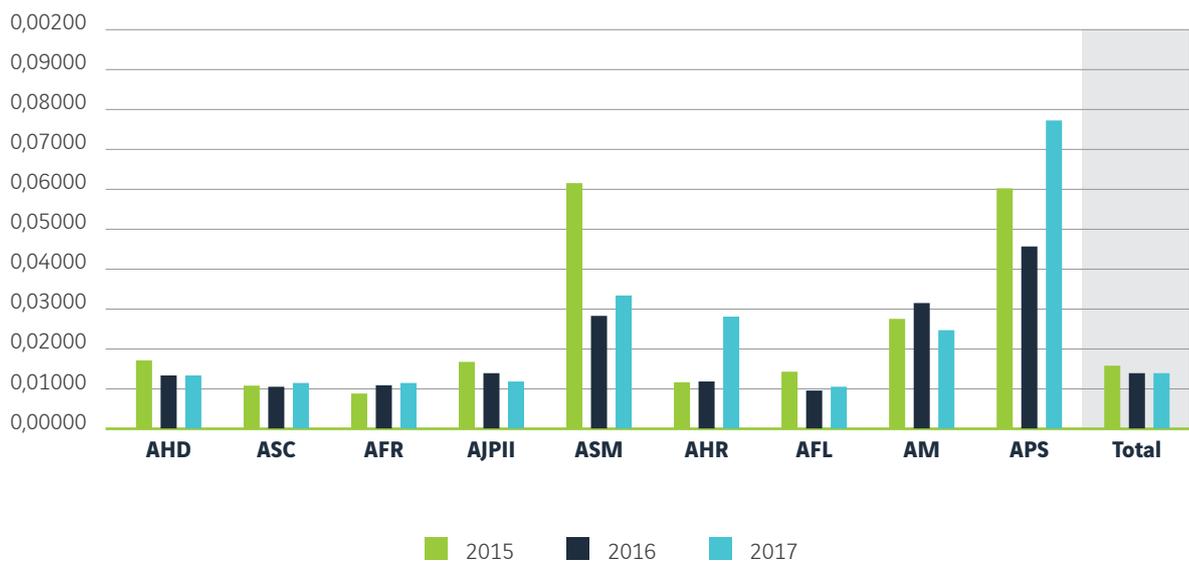
# 5

## WATER

During the year 2017, ANA consumed 744 566 m<sup>3</sup> of water, which represented an increase of 16.4% compared to 2016. This behaviour was mainly due to the increase in passengers processed and to the fact that 2017 was a particularly hot and dry year, which was reflected in all airports of the group.

Nevertheless, regarding the specific consumption, a total value of 0.01396 m<sup>3</sup>/TU was verified in 2017, which meant a reduction of 0.2% compared to 2016 values.

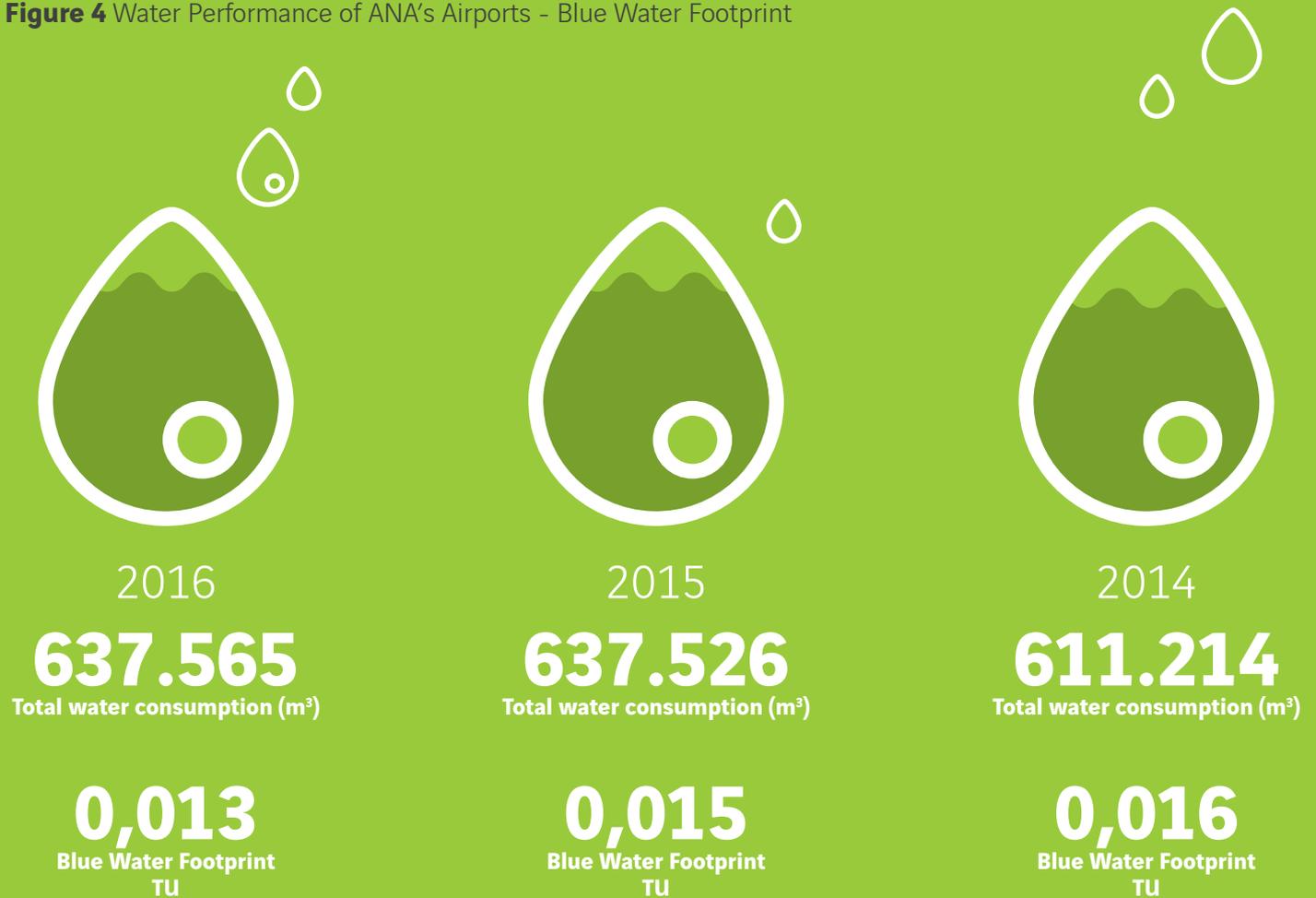
**Figure 3** Water consumed m<sup>3</sup>/TU



Regarding the production of liquid effluents and contaminated rainwater or runoff, ANA has been investing in the improvement of drainage systems at its airports, in some cases redesigning existing networks and introducing or improving programmes to monitor the quality of wastewater, rainfall and runoff produced.

In 2017, ANA's water footprint of 2016 was calculated, with a view to establishing targets for reducing it and increasing the company's water efficiency. In the triennium 2014/2016, as far as the blue water footprint is concerned, the airports with more favourable water performance are Lisbon, Porto and Faro.

**Figure 4** Water Performance of ANA's Airports - Blue Water Footprint



In order to improve water performance, a system of partial reuse of water used in the trainings of emergency vehicles is being implemented at Lisbon airport, similar to the system that has been operating at Porto airport since 2014.

ANA was responsible for the production of 8776.8 tons of waste, an increase of 8.4% compared to the value of 2016, mainly due to the significant increase in movements and passengers processed in these infrastructures.

Despite the increase in waste production, there was an overall increase in the recovery rate compared to 2016, with an overall recovery rate of 87.8% in 2017 <sup>3</sup>. In effect, the practice of forwarding waste to the most appropriate destination has been continued, with preference for recovery solutions rather than landfill.

In terms of specific waste generation per unit of traffic, ANA recorded a decrease of 7.1%, considering that the overall value of the company was 0.1646 kg/TU in 2017.

Regarding the total weight of hazardous waste, there was a decrease, since 2016 value was 432.3 tons and in 2017 it was 415.4 tons. <sup>4</sup>

**Figure 5** Recovery Rate, ANA, %



<sup>3</sup> For the purpose of calculating the waste recovery rate, only the services of Lisbon, Porto and Faro airports are considered, as at the other airports municipal solid waste is managed by the municipal services and it is not possible to account for the quantity produced.

<sup>4</sup> In the Beja Civil Terminal, only MSW is produced and it is also managed by municipal services, so this indicator is not counted for this infrastructure.



## **BIODIVERSITY**

With a corporate strategy imbued with the valorisation and protection of the natural and human environment, ANA actively contributes to promoting biodiversity. For this reason, the protection and conservation of species and ecosystems, indispensable for the balance of environmental quality, is an integral part of its business plan.

The company believes that the promotion of flagship projects is decisive to develop collective awareness for biodiversity and to achieve the mobilization and commitment of all.

Given that the airport activity is not compatible with the existence of birds at and near the airport, specific measures for bird scaring are implemented, such as the use of bioacoustics, gas cannons or control of plant species. However, ANA also uses falconry as a complementary measure where its application is admittedly more efficient, namely in Lisbon, Faro and, since March of 2010, also in Madeira airports.

In view of the above, the application of measures to protect biodiversity near the

airports is very limited. In this sense, and in a compensatory way, ANA joined the Business & Biodiversity project promoted by the Institute for Nature and Forests Conservation (ICNF), under which it has sponsored two wildlife recovery centres (at the central level, the CERVAS - Ecology Centre for Recovery and Surveillance of Wildlife and, at the level of Faro Airport, the RIAS - Wildlife Recovery and Research Centre), thus contributing to the conservation of biodiversity in Portugal.

At the airport of Faro, the report of the local avifauna monitoring was carried out in 2017, based on the daily censuses registered in 2016, essential to collect information necessary for preserving wildlife and minimizing the risk of bird strike occurrence at this airport.

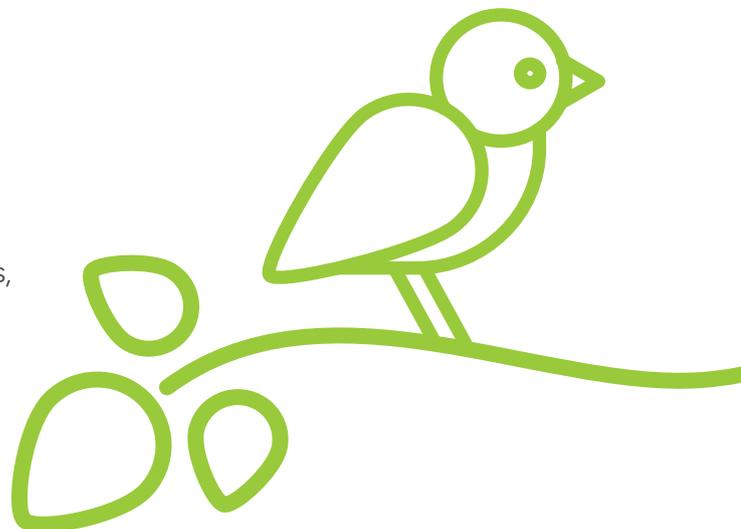
In order to ensure compliance with the compensation measures expressed in the Environmental Impact Statement (DIA) of the Project “Infrastructures for ILS and Runway 10 Approach Line, Expansion of Platforms and Circulation Paths and Expansion and Remodelling of the Airport of Faro “, environmental compensation measures were implemented, through the establishment of partnerships and contracts with third parties, from which were in progress in 2017:

- Sea Institute of the University of Coimbra (IMAR) - Evaluation of the area of influence of Faro Airport (bird censuses within a 13 km radius of the airport) and conservation measures applied to nesting birds, in particular Chilreta (*Sternula Albifrons*). This measure was accomplished with the study developed during 5 consecutive years, completed in 2017 with the issuance of the Conservation and Management Plan of Chilreta “*Sternula albifrons*” in the Ria Formosa Natural Park.
- RIAS - Centre for Wildlife Research and Recovery, already mentioned above..
- Conduril (and subcontractor, Decoverdi) - Eradication of invasive species (especially acacias and willow trees) in areas of the Ria Formosa Natural Park, defined by the PNRF/ICNF.



In the period under review, and still at Faro Airport, the following partnerships were also carried out with other entities, for biodiversity conservation:

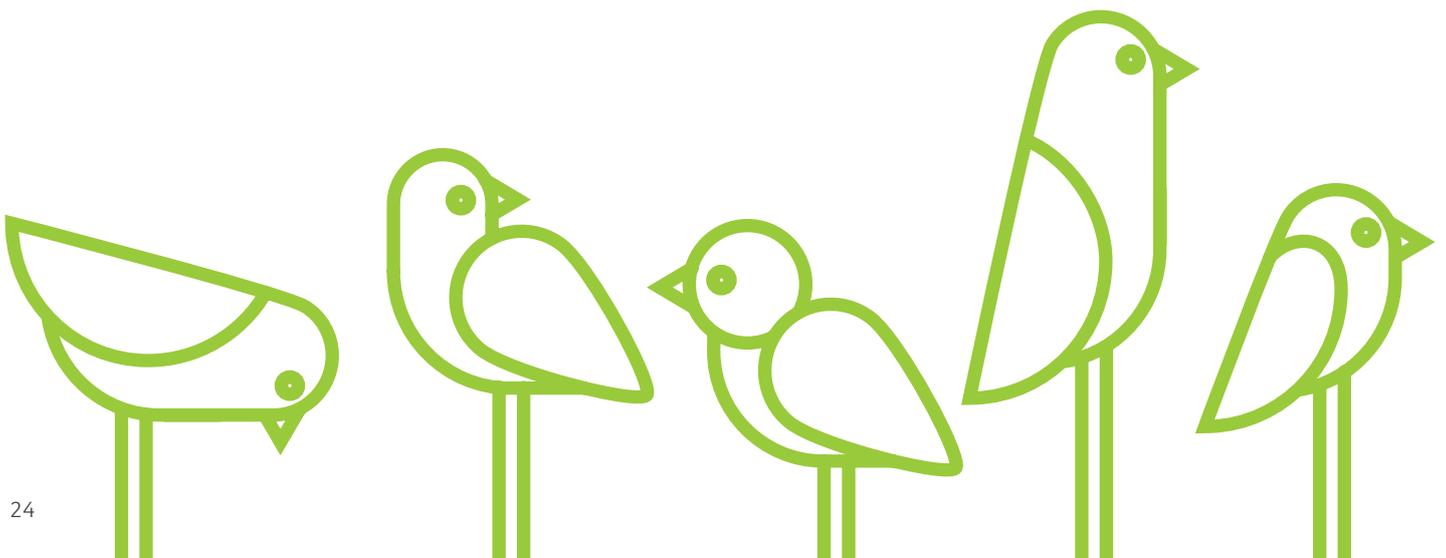
- University of the Algarve:
  - Scientific Research Centres, Centre for Marine Sciences (CCMAR) and Centre for Marine and Environmental Research (CIMA):
    - Monitoring of surface water, aquatic ecology and phytoplankton of the Ria Formosa (constituting minimizing measures resulting from the Environmental Impact Statement of the project referred to above). The study of the quality of surface water and phytoplankton at Faro Airport.
    - Exploration phase (2015-2017) was concluded, demonstrating that the works of the Runway 10 Approach Line Infrastructure did not cause significant negative impacts on the environmental quality of the surroundings - Ria Formosa.
    - Ramalhete Scientific Research Station
      - Use of groundwater from an airport waterwheel, with excellent characteristics, due to the mixture of freshwater and saline intrusion, being excellent for the reproduction and development of cuttlefish in aquaculture - project of pilot scientific research at a global level.
- PRAVI.org – Control of the population of wild cats at the airport, through capture, sterilization and reintegration in the environment, promoting adoption, as a matter of priority, whenever possible. With the development of this project it was possible to control the population of feral cats at the airport, maintaining a minimum number, to avoid colonization by restocking with new individuals.
- Regional Health Administration (ARS) of Algarve / ACES Central Algarve - Control of the spread of disease vectors (different species of mosquitoes), mainly from tropical and subtropical areas.



At the Sá Carneiro Airport, there is currently the provision of services by Bioinsight for the “Study of Avifauna at Porto Airport and surrounding area”.

At the Humberto Delgado Airport, a study to identify areas outside the airport that are points of concentration and dispersion of species which use or cross the airport and surrounding space was carried out in 2017.

The implementation of the action plan included in the study of Evaluation of the Interaction between Avifauna and Airport Operations at the Airports of Madeira and Porto Santo, completed in 2015, has been continued, aiming to fill the existing gap in the knowledge and understanding of the birds’ use of the airports of Madeira and Porto Santo, seeking to ensure the safety of aeronautical operations.



# 7

## ENVIRONMENTAL MANAGEMENT OF WORKS

In 2017, the implementation of the company's Plan for the Environmental Management of works, in force since 2004, was continued in order to ensure the implementation of environmental requirements / measures to minimize environmental impacts through the prompt definition of functions, responsibilities and procedures in the phases of project execution, tender process and execution of construction works.



# ENVIRONMENTAL AWARENESS

ANA is committed to environmental awareness as a key tool to promote behaviour change, developing several actions through the year, either informative, or requesting the active participation of its employees, holders of occupancy and/or operating licenses, clients and/or neighbouring community.



In 2017, at cooperative level, we would like to highlight the celebration of the World Environment Day and the global campaign related to the European Waste Week, besides the connection to the European Mobility Week.

The celebration of the World Environment Day, which took place on June 5, consisted of a transverse activity on the network of ANA airports in the Mainland and in the Autonomous Region of Madeira, aimed at passengers, visitors and the public in general: The work carried out in the field of Conservation and Biodiversity by several environmental organisations supported by our company was promoted, under the motto “We take care of the next generations”, and we counted with the collaboration of CERVAS - Centre for Ecology, Wildlife Recovery and Surveillance at Lisbon and Porto airports, RIAS - Ria Formosa Wildlife Research and Recovery.

Centre, at Faro Airport, and SPEA - Portuguese Society for the Study of Birds, at Madeira Airport. Internally, there was also an environment quiz for all ANA employees.

Also, a waste awareness campaign has been developed, combined with the European Week of Waste, in order to minimize possible impacts and minimize resource consumption, while investing in environmental efficiency and its successive gains.

In the European Mobility Week, the “ANAs Bike to Work day” is held, being the seventh year that the company employees participate in the event.

It is also worth mentioning the ongoing project of making videos based on footage at the airports of Lisbon, Faro and Madeira, for the production of a series on “Birds and Airport Operations: A Balanced Management”, to be disseminated in digital public communication channels (Youtube, among others), and the first episode has already been released.

Locally, airports also foster various initiatives. At the Lisbon airport, the celebration of the World Environment Day was complemented by an exhibition of the environmental activities developed at this airport, with visits by the employees to the technical areas of the environment.

In turn, the Porto Airport participated in the European Waste Week, with an exhibition and videos shown at the airport. Still at the same airport, the results of the water analysis and information on environmental management of the airport were published monthly. This year there was also the exhibition “Environment at the Airport”, in the public areas of the airport (departures and arrivals), as part of the World Environment Day.

At the Faro airport, on March 7, the AFR Director and the Environment team visited RIAS / ALDEIAS in Olhão, for local recognition of the work carried out by this organisation. Faro airport also participated in the event “Next.mov - smart region summit”, held for the first time in this region on May 28 and 29, with an interactive exhibition (awareness materials and the presence of DAFR technical experts) as an example of a sustainable company. The Airport was also at the 1st National Meeting of Transport Authorities of the Algarve.

“  
**WE TAKE CARE  
OF FUTURE  
GENERATIONS”**

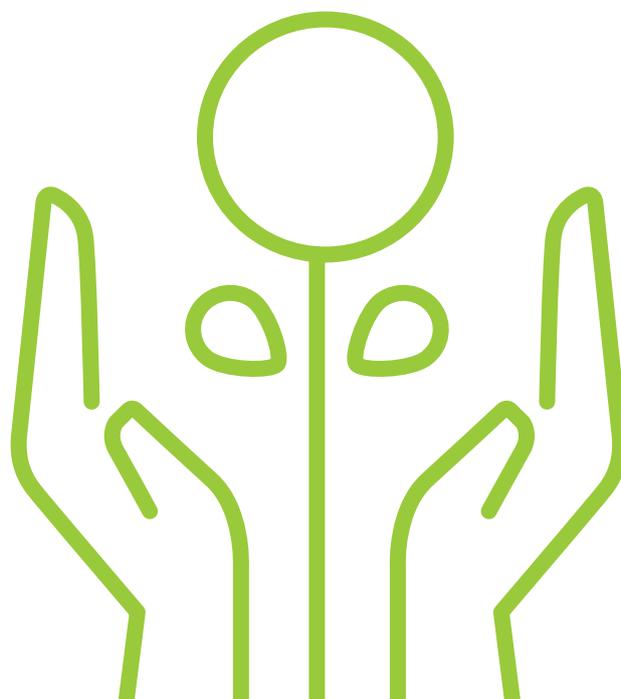
Having the year 2017 been proposed by the UN as the International Year of Sustainable Tourism, the World Tourism Day (September 27) was marked with a communication on Facebook to disseminate some good practices to be adopted by tourists to promote the preservation of the natural environment.

At Beja airport, there were awareness-raising actions aimed at reinforcing the need for waste separation, which coincided with the purchase of a recycling bin for the air side, and the reduction of energy consumption.

In the Azores, an action was developed to communicate the results of the quality of

water for human consumption at Ponta Delgada airport, as well as an internal campaign to replace plastic bottles with jars in training sessions/meetings, in order to significantly reduce waste. It is worth mentioning the collaboration, as in previous years, in the SOS Cagarro campaign. And also, worth noting the participation in local workshops related to the Regional Program for Climate Change in the Azores and the international Urban-Waste project.

At all airports, awareness-raising actions were carried out for service providers, customers and holders of occupancy and/or operating licenses through environmental monitoring visits.



**CONCLUSIONS**



In summary, the environmental performance of the airports in 2017 allows us to infer a positive balance of the company's environmental management system, and this is the result of the various actions that are included in plans structured by the environmental areas, as a way to guarantee the proper monitoring and follow-up by the different stakeholders.

The year 2017 posed increasing environmental challenges as traffic increased exponentially, imposing a rise in the number of occurrences and activities to be developed, in order to minimize possible impacts and consumption, while investing in environmental efficiency and its successive gains. As a result of this effort it was possible to reduce the average consumption of energy, water and even waste by TU, in addition to the significant increase in the waste recovery rate globally achieved by the company.

Also noteworthy are the important constructive changes in progress at

Faro airport, which have introduced greater pressure on the management of environmental matters, in addition to the continuous changes in the area of the Lisbon Airport terminal.

In any case, it is important to emphasize the importance of local and corporate environmental actions to reduce energy consumption, CO<sub>2</sub> emissions, water, waste, noise emissions and gaseous emissions, as well as related compensation actions through the promotion of biodiversity and environmental awareness among stakeholders.

