

ENVIRONMENTAL PERFORMANCE
REPORT

2015





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1. INTRODUCTION

As an organisation, ANA - Aeroportos de Portugal, SA is responsibly engaged in the way its activity might influence the environment. As environmental issues become increasingly central to the company, we have implemented measures to significantly improve our environmental performance. The environmental issues in the airport industry have served to continuously challenge the way we work, ensuring that our business is always oriented toward sustainability.

This is why ANA has been certified under the ISO 14001:2004 standard since 2008. We are currently analysing our Integrated Management Model, which incorporates our Environmental Management System, to see how to adapt it to the new ISO 14001:2015.

This report shows ANA's environmental performance in 2015 and is part of our environmental engagement.



2. NOISE AND AIR QUALITY

Our noise monitoring system is designed to assess the real impact of airport-generated noise on the neighbouring

communities. Airport compliance with legal requirements on noise generation is documented through noise monitoring reports.

Simulations/forecasts are also carried out through regularly drawing noise maps which describe the acoustic environment surrounding our larger airports.

Thus, noise maps are prepared for Lisbon, Porto, Faro, Madeira and Porto Santo. These maps are part of the noise monitoring reports for each airport.

As Lisbon and Porto are both large air transport infrastructures, we are legally obliged to prepare strategic noise maps for both. These maps use 2011 as their base reference date. Noise reduction action plans have also been drawn up for both airports and the plans and maps have all been approved by the Portuguese Environmental Agency.

In 2015 we carried out noise abatement procedures study for Ponta Delgada Airport. This study aimed to identify procedures within the aircraft operating envelope, to reduce potential noise impact in the area surrounding the airport.

ANA also took part in the JTI-CS-2013-2-SGO-04-009- Airline Trials of Environmental Green flight management functions (ATAEGINA) project. These trials were designed to verify the new Clean Sky Programme functions for reducing the environmental impact of airport operations (particularly landing and take-off), as regards both noise and gas emissions (CO₂ and NO_x).

Operating in full compliance with our legal obligations, ANA tightly controls all gaseous emissions at the airports, particularly those associated with boiler chimneys. In 2015, air quality was closely monitored at Lisbon, Porto and Madeira airports. This control mostly takes the form of surveys that are carried out in the summer and winter.

In terms of air quality index classifications, air quality at our airports was broadly favourable in 2015. All air pollution levels came in below the legal limits and all airports were rated "Good" or "Very Good". There were one or two lower quality results, but, by and large, these can be attributed to local limitations linked to the various activities taking place in the surroundings of the airports in question.

Although airport operations do affect air quality inside the airport, monitoring campaigns show that such operations are significantly less important in this respect than anthropogenic sources.



3. VOLUNTARY CARBON MANAGEMENT

As part of the Voluntary Carbon Management group, ANA has calculated its 2015 carbon footprint, with respect to its business activities in 2014. The scope 1 (direct emissions) and scope 2 (controllable emissions) results have been checked by independent experts.

TABLE 1 – EMISSIONS (Tonnes CO2 eq.) FOR ANA

	2014	2013	2012	Change13/14
Scope 1 (direct emissions)	8.774	9.206	9.125	-5%
Scope 2 (indirect electrical emissions)	41.681	38.635	39.883	8%
Scope 3 (other indirect emissions)	616.099	574.899	571.874	7%
Total	666.554	622.740	620.882	7%

The total emissions for the 10 airports managed by ANA and for our head office went up by 7% year-on-year. This increase can be attributed to scope 3 changes (third-party emissions that ANA can merely influence or issue guidance on).

We managed to reduce our direct emissions by 5%. The emissions associated with electricity consumption did go up by 7%. However, it should be pointed out that this was to be expected, given the increase in traffic and growth in airport infrastructures, both of which resulted in higher energy needs.

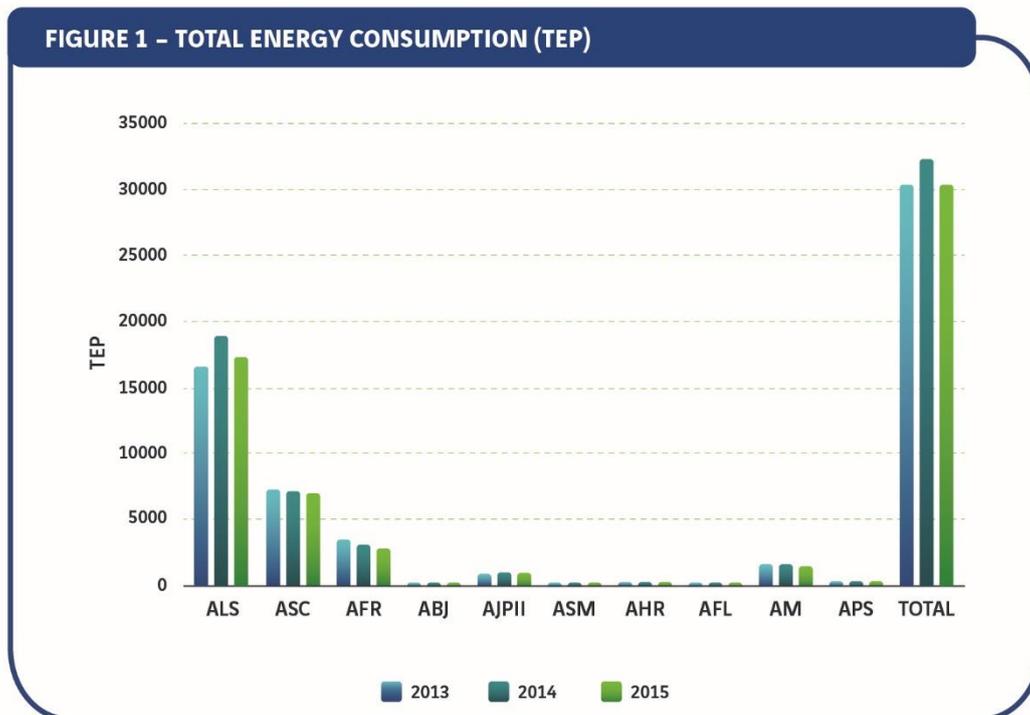
The company’s overall positive performance in terms of the management of its carbon emissions was reflected in ANA’s accreditation level under the ACI’s independent Airport Carbon Accreditation (ACA) scheme. In 2015, not only did all 10 ANA airports renew their accreditation, but 7 of them went up from level 1 (mapping) to level 2 (reduction). This result proves that these airports were able to show that they had reduced their carbon footprints (scopes 1 and 2).



4. ENERGY

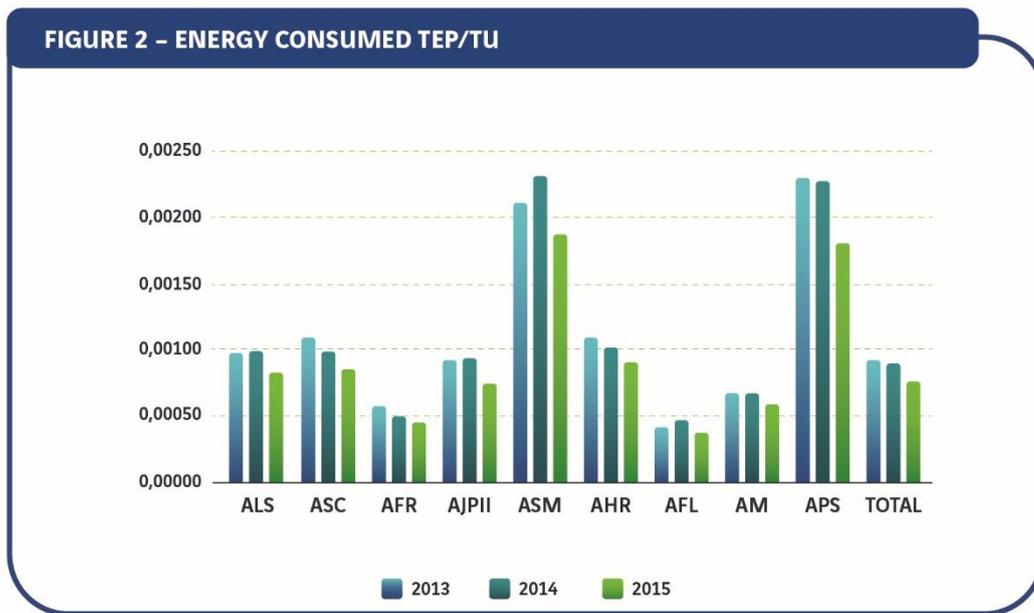
ANA consumes both direct energy (petrol, diesel, natural gas, butane gas and propane gas) and indirect energy (electricity). In 2015, electricity was once again the most significant source of energy. The graph below breaks down ANA's energy consumption.

It shows that there has been a significant fall in overall energy consumption at ANA. This is accounted for by consumption reduction initiatives and the enhanced energy efficiency measures identified by the Energy Efficiency and Management Group in each airport. The result is particularly notable given the considerable growth in traffic at ANA airports. In absolute terms, the reduction was most striking at Lisbon Airport.



The correct way to assess the energy performance at airports is to measure specific energy consumption (including electricity, liquid fuels and natural/propane gas) by traffic unit (TEP/TU)¹, as detailed in the following figure.

The graph shows that specific energy consumption fell across the board at ANA airports². This decrease can be accredited to the combined effect of lower overall energy consumption and a significant increase in traffic volumes. This reduction was most pronounced at Ponta Delgada (-20.3%), Porto Santo (-20.3%), Flores (-19.4%) and Santa Maria (-19.0%) airports.



Energy efficiency is very important in the airport business, both in economic and environmental aspects. This is a key area of our sustainability management.

We have been making a significant effort in this area in recent years, through the ongoing implementation of various measures designed to bring down energy consumption.

At Lisbon Airport, we have introduced more efficient climate control mechanisms and are now managing our energy consumption through the Centralised Technical Management System (CTM), we have been installing low consumption lighting solutions, based on LED technology. The incandescent light fittings on runway 03-21 and on some taxiways were also replaced by LED-based solutions.

¹ TU calculated as per sector Law no. 254/2012, of 28 November.

² We have not calculated consumption per TU for the Beja Civilian Terminal as traffic growth at this airport is highly specific and this indicator does not result in a useful measure of the airport’s environmental performance.

At Porto Airport, the amount of outside air getting into the building has been reduced by replacing the existing doors with rotating doors. The technical management of the HVAC system has been optimised by redefining the control management zones. Low consumption lighting solutions, based on LED technology, have been installed.

At Faro airport, flights were processed in check-in area 1 during the 2014/2015 and 2015/2016 IATA winter seasons. The HVAC system has been optimised, particularly as regards the primary and secondary circuit pumps for the chillers in heating plant 1 (HP1), in the circulation pumps for the chillers in HP 2 and in the ventilator for air-handling unit 8. Low consumption lighting solutions, based on LED technology, have been installed in two departure lounges.

In Beja, consumption monitoring resulted in a readjustment to the on and off timing of the lighting system and of the procedure for shutting down equipment when it is not needed for use/standby.

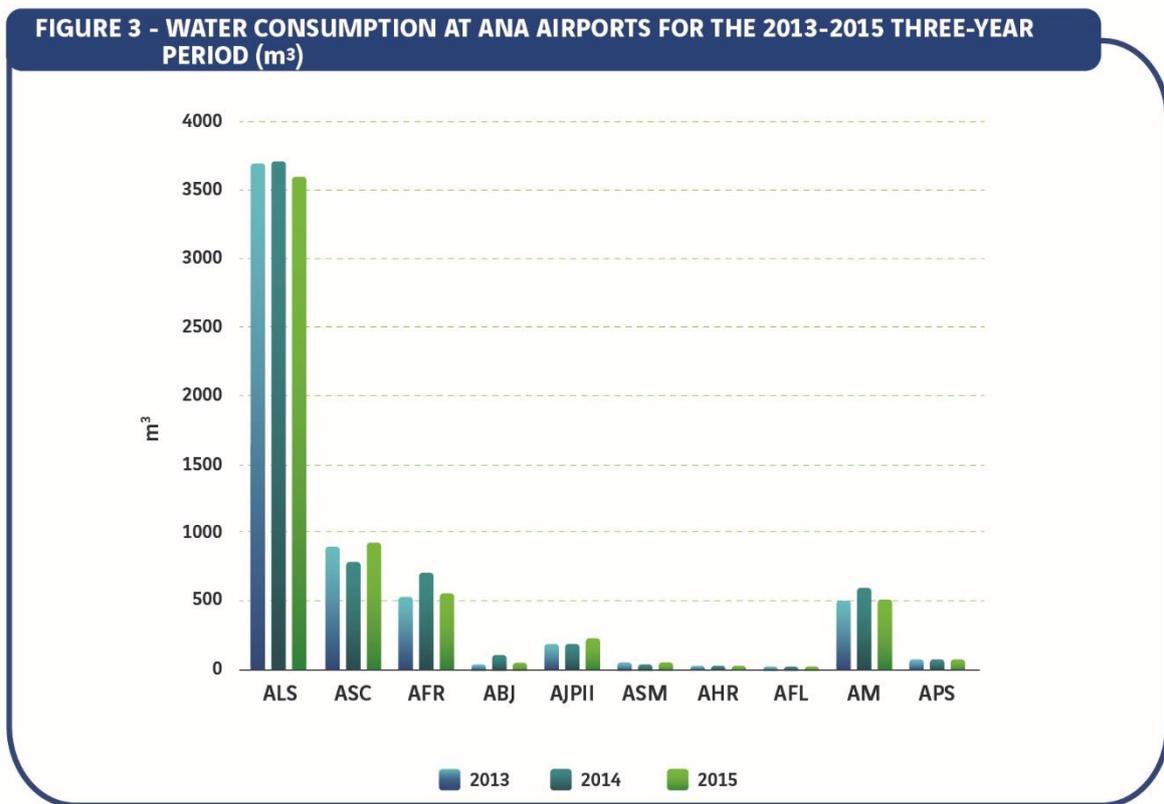
The main measures implemented at the Azores airports in 2015 included the replacement of fluorescent light fittings with LED-based ones in various parts of the airport, mainly in the public areas.

At Madeira Airport, consumption has been reduced by replacing the existing chiller with a more efficient one, replacing the light fittings in the passenger terminal with LED technology and replacing the pumps in the chilled water circuit. A new transport booking policy was also introduced and this had the effect of reducing both petrol and diesel consumption. At Porto Santo Airport, the pumps in the chilled water circuit were replaced.



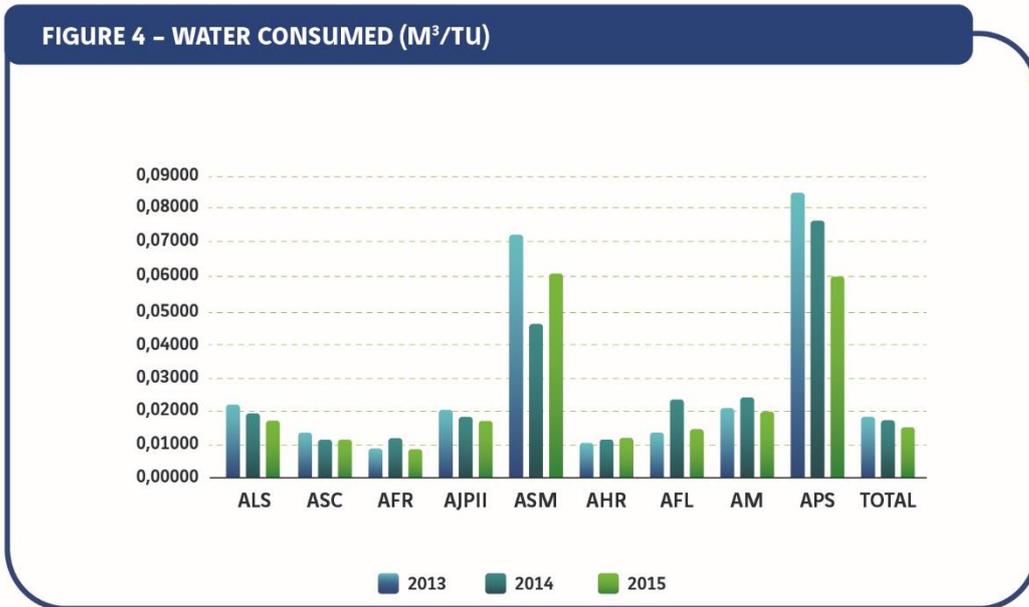
5. WATER

In 2015, ANA consumed a total of 600,885 m³ of water, which is 3.5% less than in 2014. This reduction is accounted for by lower consumption at Lisbon, Faro Beja, Flores, Madeira and Porto Santo airports, achieved through the implementation of reduction/optimisation measures and the plugging of a number of leaks that occurred in 2014.



Specific consumption for 2015 came to 0.01496 m³/TU, or 12.6% less than in 2014. The largest reductions in consumption were achieved at Flores (-39.1%) and Faro (-24.1%). In 2014, both of these airports had suffered large-scale water leaks that were no longer a factor in 2015.

Specific and absolute water consumption only rose at Porto (+1.0%), Santa Maria (+34.1%) and Horta (+2.5%) airports. In the case of Porto, this rise is explained by a slight increase in outdoor watering, attributable to the fact that 2015 was particularly hot and dry. At Santa Maria, consumption rose because less water was billed to clients, construction work was taking place inside the terminal (remodelling of the departure and arrival lounges) and a number of OSEAS³ (training with real fires) courses were run. The increased consumption at Horta was largely accounted for by a major leak in the main feed pipe to the terminal. Other contributory factors include an OSEAS course, the adaptation of a new fire-fighting vehicle, vehicle maintenance that required emptying tanks, an increase in training and the reactivation of the fire-fighting network, with all the testing that this involved.



ANA has invested substantially in drainage systems designed to deal with rainwater and contaminated run-off. Entire networks have been reconfigured at some airports and programmes have been installed to monitor the quality of wastewater, rainwater and run-off.

For 2015, these monitoring programmes showed that the parameters set out in the legal framework for the treatment of wastewater, rainwater and run-off were complied with in the main.

One key aspect of our water policy is the calculation of ANA’s water footprint. In 2015, we calculated our water footprints for 2013 and 2014. ANA’s overall water footprint is calculated by summing our blue, green and grey water footprints.

³ Training course for volunteer fire-fighters so that they can work in airports

The blue water footprint accounts for most of the water consumption at ANA airports. This direct consumption of surface or underground water fell by 7% between 2012 and 2014, reflecting the company's improved overall water performance.

The total green water footprint rose by 45% between 2012 and 2014. This was due to the climate conditions experienced in this period (lower rainfall), which increased the amount of evaporated/transpired water incorporated into processes. The non-natural green area at ANA airports remained unchanged between 2012 and 2014.

The grey water footprint fell by 13% between 2012 and 2014. Although there was an increase in the amount of effluents treated, there was a lower pollutant load, which helped to lower this measure.

In overall terms, ANA's water footprint was cut by 1% between 2012 and 2014.

TABLE 2 - BLUE, GREEN, GREY AND TOTAL WATER FOOTPRINT FOR ANA, 2012 TO 2014

TYPE OF FOOTPRINT	CONSUMPTION (M ³)			VARIATION (%)
	2012	2013	2014	Var. 12/14
PH Azul (WF Blue)	639.374	506.656	594.407	-7%
PH Verde (WF Green)	194.439	246.374	282.692	45%
PH Cinzenta (WF Grey)	453.875	199.570	395.774	-13%
PH Global (WF Global)	1.287.688	952.601	1.272.829	-1%
WF Global / TU (m³/TU)	0,040	0,029	0,035	

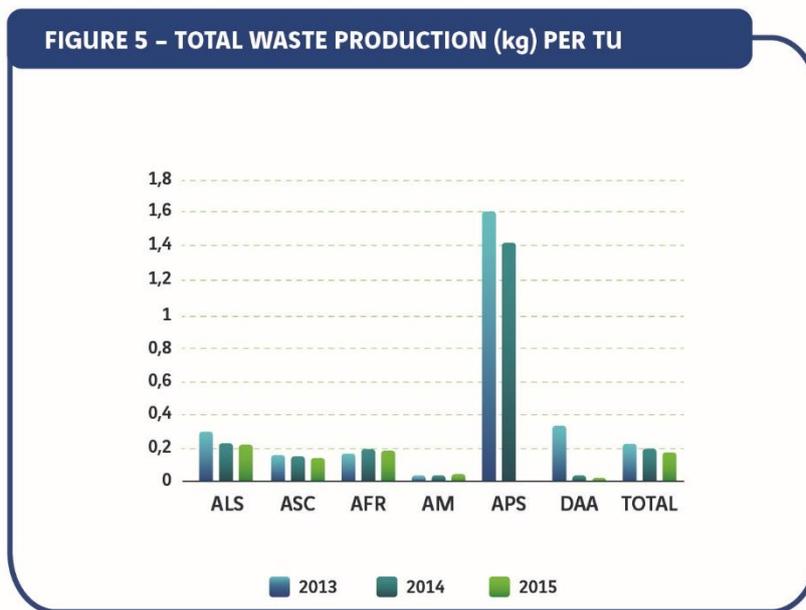
One outcome of the efforts being made in this area was the implementation, towards the end of 2014, of the "system for reusing emergency vehicle training water" at Porto Airport. In addition to reducing the water consumption of such training activities by a highly significant 35%, this project also won the "Sustainable Development" award in the European Region category of the 2015 VINCI Innovation Competition.



6. WASTE

ANA produced 7,077.4 tonnes of waste in 2015, 21.5% more than in 2014. Most of this extra waste was produced at Lisbon, Porto and Madeira airports and was the result of increased traffic levels.

ANA's specific production of waste by traffic unit actually fell by 8.1% in 2015, to 0.176 kg/TU for the company as a whole.



The proportion of hazardous waste rose over the year. In absolute terms, 241.4 tonnes of hazardous waste was produced in 2014, compared to 423.8 tonnes in 2015. This increase is chiefly accounted for by the cleaning of the hydrocarbon separators at Lisbon Airport.

Both Ponta Delgada and Santa Maria airports managed to markedly reduce the amount of waste they produced. The reduction at Ponta Delgada airport was essentially due to a lower production of diesel waste, contaminated

absorbent materials and fewer out-of-use products. The airport has also produced less food fat, RCD, metal and wood packaging waste. At Santa Maria Airport, the fall is explained by the non-production of metal and tyre waste.

At Madeira Airport, however, the overall amount of waste produced went up, due to an increase in the frequency with which the hydrocarbon separator housings.

Tracking the quantity of waste produced by garden cleaning was improved at Porto Santo Airport. As a result, it was possible to ascertain that the figures for previous years had been significant underestimates.

Although overall waste production rose, ANA's waste reuse rate increased by 4% in 2015, to 82.7%.

At Beja Airport, only solid urban waste is produced and this is collected by the local council, so no quantitative information is available for this waste.

We continue to dispose of waste in the most appropriate manner, prioritising, where possible, reuse over landfill disposal. This has resulted in high waste reuse rates at both Lisbon and Porto airports. In overall terms, ANA's reuse rate has gone up.

At the Azores, Madeira and Porto Santo airports, the high waste reuse rates for 2015 are chiefly due to the fact that the solid urban waste produced at these airports is managed by the local councils. Thus, there is no reliable way in which we can quantify the production of this type of waste. The following table details the waste quantities for 2015.

TABLE3 - WASTE QUANTITIES									
Airport	Total quantity of waste (tonnes)			Quantity of hazardous waste (tonnes)			Waste reuse rate (%)		
	2014	2015	Var. 15/14	2014	2015	Var. 15/14	2014	2015	Change 15/14
ALS	4.394,27	4.675,12	6,39	102,86	304,35	195,88	85,53	86,96	1,67
ASC	1.103,11	1.184,56	7,38	102,12	67,17	-34,23	85,01	93,49	9,98
AFR	1.208,20	1.088,80	-9,88	18,41	19,88	8,00	10,40	18,99	82,60
DAA	40,45	22,03	-45,53	11,53	8,32	-27,87	98,63	99,23	0,61
AM	82,64	106,79	29,22	6,37	24,11	278,60	96,74	97,82	1,12
APS	144,44	0,08	-99,94	0,10	0,01	-93,00	99,70	99,93	0,23
TOTAL	6.973,11	7.077,38	1,50	241,39	423,83	75,58			
AVERAGE							79,34	82,52	4,01

Note: The figures for DAA, APS and AM do not include solid urban waste. This type of waste is managed by the local authorities, who do not provide figures on quantities.



7. BIODIVERSITY

Airport operations are incompatible with the presence of birds in and around the airport itself. As a result, we have had to take specific steps to scare away birdlife. The measures employed include bioacoustic dispersal, gas canons and vegetation species control. ANA uses falconry as a complementary measure to these more traditional methods, particularly at Faro and Lisbon airports, where it has proven to be significantly more efficient.

Given such a context, the possibility of applying biodiversity protective measures in airport surroundings is somewhat limited. To compensate for this, ANA has joined the Business & Biodiversity project run by the Institute of Nature Conservation. Through the project, we have sponsored two wildlife rescue centres, as a way of helping to conserve biodiversity in Portugal.

As Faro Airport lies within a protected area, its development plan includes the implementation of such specific measures as the monitoring of water resources, ecology, phytoplankton and fish populations. In 2015, our land animal monitoring programme, one of the measures in our Environmental Impact Statement for the installation of the Runway 10 Approach Line, was concluded. At Faro, there is also an ongoing assessment study of birdlife in the area affected by the infrastructure and of potential nesting protection measures, with a particular emphasis on the little tern, *Sternula albifrons*. This 5-year study, which began in 2012, is being run by IMAR - The Institute of the Sea, which produces quarterly reports.

Lisbon Airport's "Survey of Swallows and Swifts" was completed in 2015. The airport is currently engaged in an "Assessment of dovecotes in the neighbourhood of ALS and the reduction of feeding opportunities in the runway areas". This project should be completed in early 2016.

Another project that was brought to a successful conclusion was the "Assessment of the Interaction between Birdlife and Airport Operations at Madeira and Porto Santo Airports". The aim of this project was to fill the gap in our knowledge and understanding of the way in which birds use Madeira and Porto Santo airports and how this interrelates with the safety of airport operations.



8. ENVIRONMENTAL MANAGEMENT OF CONSTRUCTION WORK

In 2015, we continued to implement our Construction Work Environmental Management Plan, which has been in place since 2004. This plan guides the implementation of environmental priorities / environmental impact minimisation measures through a timely definition of the functions, responsibilities and procedures involved in the environmental impact assessment, works execution plan, procurement process and works execution phases of construction work at the airports.



9. ENVIRONMENTAL AWARENESS

In terms of societal cooperation, we participated in the online MOBI - Mobility game, in partnership with the company TIS. In this game, employees work in teams that compete with each other to see who can make the highest number of sustainable journeys on a weekly basis. The MOBI project, which is part of the European Commission's Intelligent Energy Europe Programme, was run over a 4-month period. On 5 June, which is World Environment Day, a formal closing ceremony was held and awards were handed out.

In Lisbon, ANA also participated in “Bike to Work Day”, another sustainable mobility initiative. We came second in the C class competition (companies with more than 50 employees). Two speakers gave a lecture on using bicycles to get to and from work in the city on a daily basis.

Over the course of the year, the Business Council for Sustainable Development in Portugal also recognised some of the measures implemented by ANA, by publishing a number of ANA case studies. These included “Voluntary Carbon Management and Energy Efficiency”, published in the Sustainability 2015 Yearbook, in BIORUMO / BCSD Portugal and “Air-conditioning with efficient motors at Faro Airport” and “Smart Metering” in the BCSD’s “The economic potential of energy efficiency - Action 7 - Demonstrating the value generated by energy efficiency projects”.

We continued our regular internal awareness-raising initiatives, through the International Day of Biodiversity (22 May) and World Earth Day (22 April).

Each airport also engaged in local awareness-raising initiatives. Lisbon Airport celebrated World Environment Day by hosting an awareness-raising seminar for airport employees on the rational use of materials, the prevention of waste production and the rational use of water. Promotional gifts were distributed to raise awareness of best practices in the prevention of waste production (reusable tea and coffee cups and bottles of water). Service providers and licence holders were invited to an awareness-raising session and offered pamphlets on environmental issues.

Porto Airport participated in the 2015 European Week of Waste Prevention, with a display and video inside the airport. As is now usual, the monthly analyses of water quality and information on the airport’s environmental management were also posted around the airport.

Faro Airport hosted a number of awareness-raising initiatives, including a celebration of World Environment Day, in partnership with RIAS - Wild Animal Recovery and Research Centre. This involved helping a group of children build animals out of recyclable materials. On 17 April, during a student visit, we provided information on environmental impact minimisation measures implemented at the airport. Between July and September 2015, the airport hosted the exhibition “Exploring the Ocean Depths - MeshAtlantic Project” on the habitat maps and the marine biodiversity found along Europe’s Atlantic coast. The maps and other information were produced as part of the European MeshAtlantic project (in partnership with the University of the Algarve).

In the Azores, environmentally themed games were given out to airport visitors on World Environment Day. At Ponta Delgada and Santa Maria airports, the results of the quality control tests carried out on water for human consumption were published. All employees, concessionaires, service providers and clients were made aware of the quality of the water distributed through the airport’s network. Employees and service providers were also included in awareness-raising initiatives on environmental best practices. These focused on waste management and the actions to be taken in the event of spillages. Between October and November, the Azores airports once again took part in the SOS Cagarro campaign.

Madeira and Porto Santo airports organised an awareness-raising event for employees that addressed “best practices in the selective collection of waste in the workplace”. Madeira Airport also ran a full-scale simulation of a

hydrocarbon spill into the sea, which involved activating the “Portuguese Navy Clean Sea Plan” and the resources of the port authorities in the Autonomous Region of Madeira.

Finally, all the airports organised awareness-raising initiatives in the form of guided environmental tours for third parties. These aimed to clarify, verify and promote compliance with legal requirements and with the best practices employed by ANA.



10. CONCLUSIONS

ANA’s environmental system is embedded in a broader management model (quality, health and safety in the workplace and research, development and innovation) that has been ISO 14001 certified since 2008. As would be expected, we strive to ensure that our environmental management is the best that it can be. We are determined to take it beyond mere legal compliance, through our ongoing focus on performance improvement.

Our management of the environment in 2015 was, in overall terms, highly positive, thanks to the effectiveness of our local and corporate environmental initiatives. These focused on reducing energy consumption and CO² emissions, cutting water consumption and waste production and managing noise and gas emissions efficiently. They also included compensatory measures designed to encourage biodiversity.

We are already looking forward to 2016 and are planning a new raft of environmental initiatives that will help us to improve the company's environmental performance as a whole.