



# **ANA ANNUAL REPORT 2014 - 2015**




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## FOREWORD

This report looks back to the achievements since July 2014 until mid-year 2015 compared to plan.

Four major items impacting the organisation and management of ANA are to be mentioned as special milestones met in addition to the regular work and projects results delivered during the reporting period:

- 1- The release of the ANA Strategy and Plan agreed and supported by the *Ministre du développement durable et des infrastructures* (MDDI).
- 2- The assignment of ANA as the Aerodrome Operator in the frame of the EU regulation 139/2014.
- 3- The start of the assessment projects in the frame of the strategic action plan as mentioned under 1 above.
- 4- The implementation of a new Terminal ANS Charges (TNC) scheme in line with EU regulation 391/2013 and the national and FABEC Performance Plan (FPP) for Reference Period 2 (2015 – 2019).

Just a quick reflection on these items:

### 1 - ANA Strategy & Plan:

ANA, on request of the Ministry, developed a strategic action plan 'ANAFuture' outlining 10 strategic directions and options that ANA could pursue if proven beneficial.

The plan was unveiled during a general assembly of ANA staff in the presence of the Minister and is described in the ANA Annual Plan 2014-15. This gives ANA a mandate to look at future options more strategically and longer term.

### 2 - Aerodrome Operator Function

ANA was nominated by MDDI to prepare the aerodrome for certification by end 2017 in line with requirements in the Aerodrome Regulation 139/2014, and to assume the role of aerodrome operator.

ANA created an interim steering and working structure for the work and started the preparatory work with the stakeholders and other airport parties at the aerodrome. A big part in this work is related to safety and security partly in fields that were up to then not part of the scheme of services of the Safety Management Unit (SMU).

### 3 - Strategy assessment projects

ANA identified a list of options to start with investigating and assessing the feasibility and benefits as potential future changes and implementation.

The four main axis for this assessment we have selected to start with are:

- ATC: ANS service synergies with FABEC partners;
- CNS: CNS synergies and savings in system hardware and software upgrades;
- Aerodrome Services (AER) - aerodrome certification preparation and service integration and
- MET - aeronautical and non-aeronautical services separation and financing; *plan national d'intempéries* (adverse weather alerts);
- SIS – start of discussion on the project for the creation of a national fire brigade and rescue service (*Corps Grand-Ducal d'Incendie et de Secours*, CGDIS).

The assessment and investigation projects have started and will be ongoing for some time before decisions can and will be taken. And until we and our Ministry know what is the outcome and what is feasible and beneficial no decision will be taken and no implementation plan will be developed.

### 4 – Performance Plan and TNC Scheme implementation

ANA developed a Performance Plan (PP) and a modulation mechanism for TNC in full compliance with EC regulation. The modulation formula reflects the efforts of airlines in limiting aircraft noise. The scheme was endorsed by *Direction d'Aviation Civile* (DAC), approved by EC and is in use since 1 Jan 2015.

The FABEC and national (BE – LUX) PP is subject to final approval by EC. The critical item for ANA is the same as for many ANSPs in Europe: the achievement of the EU wide cost-efficiency targets for ANS services. This is a performance goal for our strategic initiatives and we are looking for synergies with our partners.

Of course our core work in ANA in all services and projects continued.

Thanks to the persistent work and efforts we achieved further improvements in nearly all areas. Sometimes we did not reach our targets. There we need to see how and what we must improve.

Let me just summarise what I consider are specific achievements and areas for improvement that need mentioning:

In the **safety** area we have made major improvements in occurrence reporting, we have adopted a Just Culture policy, we are continuing to improve the effectiveness of our Safety Management System, and have more closely incorporated the safety aspects in our projects. In addition, and in partnership with our stakeholders, we have re-established and broadened the remit of a runway safety team through the Luxembourg Airport Airside Safety Team (L-AST).



Most **projects** foreseen to be finished could be finished successfully and in time and budget while some projects are in delay and there is a stockpile of more projects waiting to be finished in 2015 – 2016.

Good project management at all levels is key and we are investing in additional training to help project people to acquire more competence in this area. The **project management** for all new projects started since 2012 is working well, delivers better project results and has helped to manage - and in some cases save - costs.

The major infrastructure projects that **CNS** is tasked with are the installation of equipment to support the implementation of an Advanced Surface Movement Guidance and Control System (A-SMGCS), the Surveillance (SUR) chain upgrade, the related hard- and software upgrades and support to the implementation of the TWR Controller Working Positions - to mention the ones that are directly related to ATC – are complex. We need to make sure, that all parties involved deliver their parts.

The **management structures** we have in place help coordinating efforts and prioritising and completing actions, mitigating problems and meeting regulatory and other requirements.

**Quality** and **KPI management** have delivered the basis for performance monitoring and reporting. This process is the data source also for this report.

Efforts to integrate the **Finance** area more closely into all business processes and major projects has started. In some processes we have improved cost efficiency and made savings, and in other areas we have devised new processes and clearer working methods and rules. And more will need to be done in the forthcoming reporting period.

This does not mean that other areas i.e. ATC, SMU, SIS, ELE and ADM that are not mentioned here are any less important. All service areas are covered and acknowledged in this report with their results.

There is one final topic that I would like to highlight: **user and stakeholder consultation and coordination**.

The formal process of consulting airport users is working successfully. This will continue. ANA, in its role as the Aerodrome Operator is working with all parties operating on the airport and is coordinating activities in preparation of the aerodrome certification. This is good and works well, but the picture is incomplete without the regulatory authority on board also.

I thank all staff in ANA for their good work done. My wish is that the motivation, morale and dedication to work of the people in ANA will not cease:

**Together we will manage.**

*John Santurbano, Acting Director ANA*



## EXECUTIVE SUMMARY

This document is the Annual Report for the year from July 2014 up to end June 2015 of ANA, the Provider of Air Navigation Services and the Aerodrome Operator at Luxembourg Airport.

This report summarises the activities, developments and results achieved in 2014-15 in comparison with what had been planned to be achieved in the certified services of ANA and beyond in all other service areas.

### Scope of this report

Readers will find information on ANAs:

- performance in air navigation services delivered;
- performance as an ANSP in comparison to the performance indicators in the 2014-15 Annual Plan;
- performance indicators and targets set, and where ANA did not meet the target, why;
- technical and operational developments introduced into service;
- progress of our projects;
- policies and processes on human resources
- financial results for the year 2014.

### 2014-15 Main objectives

This report reflects the efforts and results achieved by ANA staff and management in relation to the objectives to

- achieve the Reference Period 2 (RP2) EU wide, FABEC and national performance indicators and targets applicable to ANA in the Performance Plan (PP);
- review and align ANA service KPIs, Performance Indicators (PIs) and performance targets;
- develop a budget, staff resource and competence requirements in line with the PP and the strategy;
- start the preparatory work for the aerodrome certification;
- continue and intensify stakeholder consultations and involvement;
- review projects and align projects and activities with the PP and the strategic vision;
- select and work on options for the strategic initiatives and vision proposed and start assessing the options of the ANA future strategy.

### Results of strategic work

The strategic work is related to ten major initiatives. They were in the focus of the development work in the reporting period (and beyond):

1. Develop synergies and cooperation with partners in FABEC;
2. Apply modern technology where it offers benefits;
3. Increase efficiency and safety of ground movement;
4. Use European central services and common infrastructure solutions;
5. Optimise ANA services in line with requirements;
6. Apply measures to reduce environmental impacts and footprint;
7. Develop a common purchasing policy with partners in FABEC;
8. Create effective working conditions and work environment in ANA services;
9. Adapt manpower planning, recruitment and training of staff in line with competence demands;
10. The certification of the aerodrome in compliance with the new EU regulation 139/2014 and related guidance material.

During the last 12 months ANA has selected priority work items and rolled out the first assessment / preparation projects:

- ATC - identification of ANS service synergies with FABEC partners;
- CNS - synergies and savings in system hardware and software upgrades;
- Aerodrome Services (AER) - aerodrome certification preparation and service integration and
- MET - aeronautical and non-aeronautical services separation and financing.

The projects have started and will be ongoing for some time before decisions can and will be taken and or clear course or way forward is emerging.

This report provides an update on the status in all strategic areas. The Table at the end of this Executive Summary depicts the approach and steps of the strategic work plan.

### Performance results in services and projects

**Safety:** In the Key Performance Indicators (KPIs) and targets set in 2014-15 ANA achieved the following results:

- Effectiveness of its Safety Management System (EoSMS) increased from 59% to 70,64% according to the RP1 measuring scale<sup>1</sup> and managed to achieve all 3 specific targets set;
- ANA maintained its level in the application of Risk Assessment Tool RAT to ATM ground (100%) and applying RAT to ATM-SE;

<sup>1</sup> If the revised RP2 measuring scale is applied, the result is 64,33%.



- ANA improved in Just Culture by establishing a clear ANA Policy on the development of a Just Culture within the working environment and action plan to implement the policy;
- the targets for reducing the number of ATC related incidents were again at a very low level;
- the reporting of occurrences was improved;
- failure of safety critical equipment for CNS, ELE and MET could be further reduced.

**Quality:** Efforts continued on internal QM structures, quality trainings and regular QM meetings at departmental and at ANA management level.

Internal management reviews, quality audits, KPI reviews and updates, and meetings for coordinating legislative / regulatory issues and quality and safety officer meetings are conducted and followed up with actions.

QM is regularly following up on customer complaints and the outcome of external audits (ISO, DAC) and non-conformities.

**SES compliance:** ANA has adopted a fully transparent cost-allocation (En Route, ER and Terminal, TNC) mechanism and reported costs in line with the regulation in its PP. ANA has updated its PP in line with the recommendations of the EC in June which improved its cost-efficiency. This

scrutiny included the revision of the investment plan (CAPEX) and capital costs. In all other areas ANA is consistent with the EU targets.

In view of the EU regulation 1035/2011, ANA has progressed in 2014 to close the Non-Conformities (NC) identified during past DAC audits on Software Safety Assurance System (SSAS) and developing a Contingency Plan. The contingency measures of the plan were subject to validation, technical and other facilities and workable procedures have been partly developed.

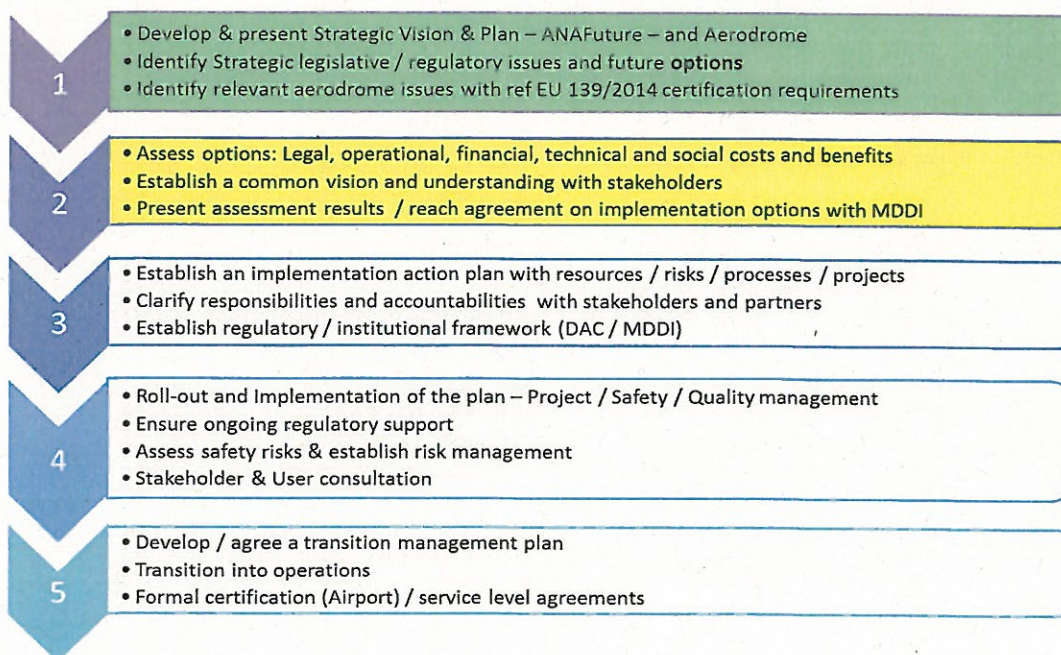
ANA is slightly late in covering the requirements in the Interoperability regulation EU 1207/2010 but a plan with a clear scope was devised in CNS for the technical infrastructure required which is now in the tender action.

**Operational / technical infrastructure projects:**

Several projects were completed in the last year, while work is ongoing on others, in particular the implementation of the Advanced Surface Movement Guidance and Control System (A-SMGCS). Some projects were delayed due to administrative, technical or legal issues, or pending policy decisions. A total of 15 projects were finished by end June 2015.

It is part of the strategic plan that ANA scrutinises projects and plans to find appropriate and cost efficient solutions.

Table – 2015 Strategic vision and action plan with all stakeholders (status: end June 2015)



Note: A top-down planning process in steps is followed. Green = finished; Yellow = ongoing / not finished; No colour = work not yet started



## PERFORMANCE REPORT 2014

### 1.1 Performance framework

The Business Plan 2013 – 2017 (BP) and the Annual Plan 2014 - 2015 (AP) are the basis for the performance reporting in this report<sup>2</sup>.

These documents provide ANAs mission, vision and strategic objectives as well as the Key Performance Indicators (KPI's), Performance Indicators (PI's) and targets set for 2014-15.

**Objectives:** The objectives of ANA for 2014-15 were

- achieve the RP2 EU wide, FABEC and national performance indicators and targets applicable to ANA in the Performance Plan (PP);
- review and align ANA service KPIs, Performance Indicators (PIs) and performance targets;
- develop a budget, staff resource and competence requirements in line with the PP and the strategy;
- start the preparatory work for the aerodrome certification .
- continue and intensify stakeholder consultations and involvement;
- review projects and align projects and activities with the PP and the strategic vision;
- select and work on options for the strategic initiatives and vision proposed and start assessing the options of the ANA future strategy;

These objectives were transformed and integrated into the performance scheme as far as applicable. The agreed KPI / PI scheme is used in this report as the reference scheme for assessing the level of performance against the set targets.

### 1.2 ANS Performance in 2014<sup>3</sup>

The website provides news and information on all services and traffic, freight and passenger statistics<sup>4</sup>.

The site also provides information on environmental programmes and achievements and their status.

Table 1 (next page) summarises the traffic, passenger and freight evolution since 2011 and compares the years 2013 – 2014.

<sup>2</sup> ANA (2013), ANA Business Plan 2013 – 2017, Version 1.0 (08/2013) and ANA (2014) Annual Plan 2014-15, Version 1.0.

<sup>3</sup> The data is for the entire year 2014, Jan – Dec.

<sup>4</sup> <http://www.ana.public.lu/fr/index.html>

**Traffic evolution:** The result of ANS related activities for the year 2014 compared to 2013 shows an increase in total commercial, business and local flights<sup>5</sup>; and an increase of transported freight<sup>6</sup> and passengers. This trend continues in 2015 as the Q1-Q2/2015 figures indicate.

**Passengers:** The greatest increase is in the number of passengers<sup>7</sup> passing through Luxembourg Airport reaching nearly 2.5 Mio in 2014 (a plus of 12,3 %) whilst flights are up by 2,5%. This trend is observed in other countries and indicates that airlines are using the available transport capacity and seats better.

**Freight:** The freight sector is of high economic importance for Luxembourg and expected to grow further in the forthcoming years. The 2013 results of the main freight operator demonstrate this strong trend.

The infrastructure developments in the cargo center and new business areas (e.g. Freeport) are a further indication for a growing importance of this economic sector.

**Night flights:** From Jan to Dec 2014 (incl.) a total of 1.554 passenger and freight night flights were handled (23:00 – 06:00hrs) of which two-third (66%) departures / arrivals were during the last hour (2301-23:59 hrs). On average about 130 movements (arrivals and departures) per month were during night hours. This is a stark increase compared to 2013. A press conference on noise was held at MDDI.



Figure 2 – B 747 take-off at ELLX

<sup>5</sup> Combined scheduled, non-scheduled and business flights

<sup>6</sup> Combined freight and postal transport

<sup>7</sup> Combined departing / arriving passengers



Table 1 - Traffic, freight and passenger statistics 2011-2014 and changes (increase) 2013 – 2014

Year	Total commercial	Total international	Total local	Total mvt overall	Total passengers	Total freight (t)
2011	53 854	59 999	23 406	83 405	1 791 231	656 651
2012	54 168	59 785	21 378	81 163	1 919 694	615 905
2013	55 316	60 727	19 670	80 397	2 197 331	673 500
2014	56 906	62 260	21 962	84 222	2 467 864	708 078
Change 2013-2014	2,90%	2,50%	11,70%	4,80%	12,30%	5,10%



Figure 2 – Luxembourg Airport (P1)



### 1.3 ANS Safety Performance

ANA adopted the EU / FABEC Performance Indicators (PI) (see FABEC Performance Plan) and has set additional Performance Indicators (PI) and targets for all safety critical and safety relevant services in 2014.

A revision and update of the targets and achievements was done in autumn 2013 and in spring 2014 during KPI review sessions.

This report uses the latest available KPI / PI and target as well as the specific performance actions applicable for this report.

**EU Safety performance indicators & targets:** The (European and respectively FABEC) KPIs and targets applicable and agreed for the FABEC PP are trifold with the following targets and results at end 2014 (the level reached in % is given in Table 2):

- the Effectiveness of its Safety Management (EoSM) (target: reach Level 3 (C);
  - o Results: (see Table 2)

- the Classification of Severity of ATM Occurrences (target: application of Risk Assessment Tool (RAT)) (all ATM ground; all ATM-SE related to operational and safety function);
  - o Results: Targets reached.
- Just Culture reporting (target: 19 items on Yes; JC policy developed and agreed)
  - o Results: the score increased from 15 to 19 (out of 24) items – an increase by about 17%.

The Effectiveness of Safety Management (EoSM) indicator is measured by verified responses to a questionnaire at State, at competent authority (DAC) and service provision (ANA) level. For each question the response should indicate the level of implementation, characterising the level of performance of the respective organisation.

Table 2 below shows the 2015 status of achievement in ANA in the 5 Management Objectives of the EoSM <sup>8</sup> (see also Figure 3).

Table 2 – Status of achievement in EoSM in 2014

#	ANSP Objectives	Performance Indicator	Level Reached
1	ANSP safety policy and objectives	<ul style="list-style-type: none"> <li>- Management commitment and responsibility</li> <li>- Safety accountabilities - Safety responsibilities</li> <li>- Appointment of key safety personnel</li> <li>- Coordination of emergency response planning/contingency plan</li> <li>- SMS documentation</li> <li>- Management of related interfaces</li> </ul>	<ul style="list-style-type: none"> <li>75%</li> <li>50%</li> <li>100%</li> <li>25%</li> <li>50%</li> <li>75%</li> </ul>
2	Safety risk management	<ul style="list-style-type: none"> <li>- Safety risk assessment and mitigation</li> </ul>	75%
3	Safety assurance	<ul style="list-style-type: none"> <li>- Safety performance monitoring and measurement</li> <li>- The management of change</li> <li>- Continuous improvement of the SMS</li> <li>- Occurrence reporting, investigation and improvement</li> </ul>	<ul style="list-style-type: none"> <li>100%</li> <li>75%</li> <li>75%</li> <li>87,5%</li> </ul>
4	Safety promotion	<ul style="list-style-type: none"> <li>- Training and education</li> <li>- Safety communication</li> </ul>	<ul style="list-style-type: none"> <li>50%</li> <li>75%</li> </ul>
5	Safety culture	<ul style="list-style-type: none"> <li>- Establishment and promotion of safety culture</li> <li>- Measurement and improvement of safety culture</li> </ul>	<ul style="list-style-type: none"> <li>75%</li> <li>50%</li> </ul>

<sup>8</sup> Ref. EASA Annex to ED Decision 2014/035/R; AMC3 SKPI - ANSP level



Note (to Table 2): Due to a revision of the EoS questionnaires results presentation along management objectives it is not possible to compare results against past year(s) as was done in the past 2011, 2012 and 2013 Annual Reports. However, ANA could improve in a number of items in the 5 objective areas.

Table 3 below summarises the status of achievements in 2013 in the three EU wide/ FABEC PIs in ANA plus the related local PI's and targets which address specific actions planned to be taken in 2013 in certain, identified safety related areas .

Table 3 – Assessment of safety performance against FABEC / EU and local PI's in 2014

KPI – SAFETY – 2014-15	Performance targets set for 2014-15	Measured ANA achievements in 2014-15 against targets	Performance outcome assessment (KPI Review results)
PI# 1 - EoSMS	<p>FABEC / EU target: Reach Level 3 (by 2014)</p> <p>Local PI's: Reach Level 3:</p> <ul style="list-style-type: none"> <li>- Safety data sharing</li> <li>- Publish safety performance info</li> <li>- Competence level</li> <li>- Safety related performance information availability</li> </ul> <p>Reach Level 4:</p> <ul style="list-style-type: none"> <li>- Safety information and knowledge sharing with industry</li> </ul>	<p>FABEC / EU targets:</p> <ul style="list-style-type: none"> <li>- As agreed in FABEC</li> </ul> <p>Local ANA PI's:</p> <ul style="list-style-type: none"> <li>- Sharing safety information and knowledge with industry stakeholders</li> <li>- Structured approach to gather information on operational safety and SMS best practices</li> <li>- Sharing of safety and SMS best practices with industry stakeholders</li> <li>- Emergency response</li> </ul>	<p>FABEC / EU targets:</p> <ul style="list-style-type: none"> <li>- Targets mainly achieved</li> </ul> <p>Local PI's:</p> <ul style="list-style-type: none"> <li>- Level 3 achieved</li> <li>- Level 2 achieved only in 'Emergency response'</li> </ul>
PI# 2 – Severity Classification (RAT)	<p>EU target:</p> <ul style="list-style-type: none"> <li>- Classification of all SMI, RI and ATM SE related incidents</li> </ul> <p>Local PI:</p> <ul style="list-style-type: none"> <li>- Classification of all ATM ground occurrences</li> </ul>	<p>FABEC / EU target:</p> <ul style="list-style-type: none"> <li>- All SMI and RI's classified / assessed using RAT; ATM SE not classified</li> </ul> <p>Local PI:</p> <ul style="list-style-type: none"> <li>- Severity classification of all SMI /RIs</li> <li>- Severity assessment of ATM SE occurrences</li> <li>- Monitoring of safety critical equipment in ATM/ CNS/ MET/ AIS</li> </ul>	<p>FABEC/EU target:</p> <ul style="list-style-type: none"> <li>- Targets reached;</li> <li>- From January 2014, the RAT is also applied to ATM-SE</li> </ul> <p>Local PI:</p> <ul style="list-style-type: none"> <li>- Target reached on monitoring of safety critical equipment for CNS, MET, ELE and AIS</li> </ul>
PI# 3 – Just Culture	<p>EU / FABEC: no target</p> <p>Local PI:</p> <ul style="list-style-type: none"> <li>- P4 - legal support provided by ANA to staff in case of legal action</li> <li>- P6 -Action taken in respect to staff after an occurrence preserve full pay and benefits until the end of investigation</li> <li>- P12 - Just culture principle included in all training curricula)</li> <li>- Set-up of ANA Policy on the development of a Just Culture within the working environment and achieving a Just Culture in ANA</li> </ul>	<p>Local PI:</p> <ul style="list-style-type: none"> <li>- # of items</li> <li>- Policy draft communicated</li> </ul>	<p>Local PI:</p> <p>Targets reached:</p> <ul style="list-style-type: none"> <li>- 20 items = Yes (5 + from 2013)</li> <li>- 4 items = No</li> <li>- JC policy has been adopted inside ANA, internal and external consultation process completed; policy communicated to MDDI and DAC</li> </ul> <p>Outcome: Clarity for ANA personnel about what is acceptable, what is not</p>

Note Table 3: Safety EU / FABEC targets are coordinated and agreed in FABEC Safety SC. As regards PI#2 – RAT application it was decided that only ATM-SE's having an effect on OPS and an impact or potential impact on a safety related function on OPS should be scored and 'loss of redundancy' and 'loss of supervision' are not in the scope of the regulation.



Local PI's and targets are coordinated and monitored in the ANA Safety Committee which also takes corrective actions with the respective safety officers and heads of department. Figure 3 below shows the EoSM scores in 2015 for ANA.

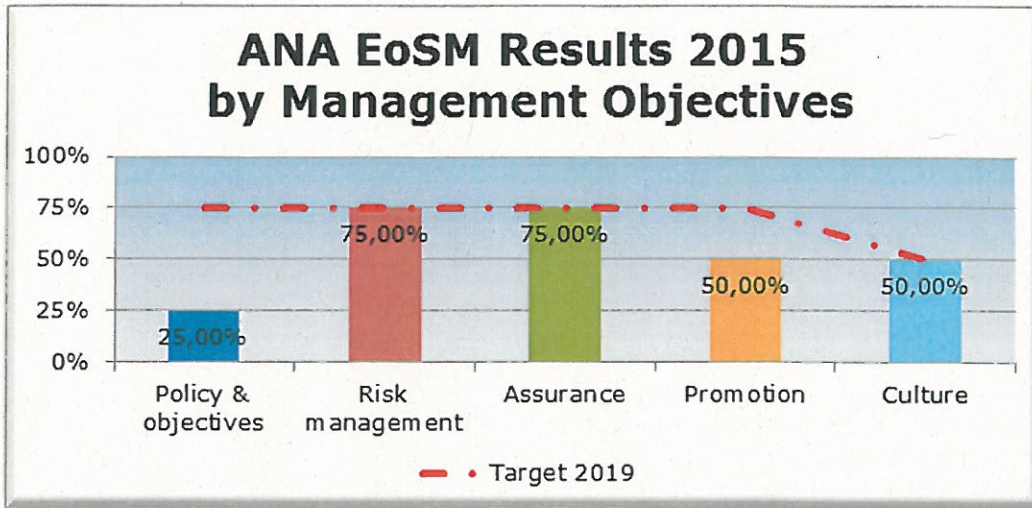


Figure 3 – Results (achievement scores) in the EoSM questionnaire for ANA (ANSP level) in 2015

The results indicate the limiting factor in the Policy & Objectives Management area: Coordination of emergency response and **contingency planning** which overshadow the otherwise good achievements in other policy areas. Similarly limit the results in regard to **safety training** and the measurement and improvement of **safety culture** the achievement in regard to Safety Promotion and Culture. On the other side are the results in safety assurance and safety risk assessment promising and show that ANA has done a lot in these two core areas of the SMS.

**Safety work:** The Safety Management Unit (SMU) should be involved in all safety assessments - by verifying that the correct process has been followed and that the results are sensible. The safety assessments should be done by the projects themselves.

In this sense during 2014-15 SMU was involved in in the<sup>9</sup>

- AWOS / ATIS implementation;
- Implementation of NAV-aid replacements (CNS);
- Replacement of TWR CWP / screens and consoles;
- LVP update (ATC);
- Firewall upgrade for safety critical CNS equipment;

SMU is involved in all ongoing projects with safety critical installations of infrastructure and procedures for example

- the ongoing implementation of the Advanced Surface Movement Guidance and Control System (A-SMGCS);

- ALCMS (airport lighting) upgrade and the new aerodrome power supply station (station Sud);
- CNS system upgrade and network architecture design and implementation.

The **ANA Safety Plan** published in the Annual Plan 2014 -15<sup>10</sup> lists a number of objectives and activities that ANA planned to achieve during 2014 – 15.

**ANNEX 2** provides a detailed update on the status of achievements in all lines of action as by June 2015. The results show that three-quarter (74 %) of all actions (84 in total) were achieved / completed on time and another 18% were started and are still ongoing. A few actions are late or have not yet started (8 %).

**Corrective Action Plan (CAP) Items:** The following actions from the CAP were implemented in 2013:

- *External services and supplies* – ANA developed and implemented a procedure to ensure the safety of the externally provided services and supplies: a formal register of

<sup>9</sup> See project list in Table 16 for details.

<sup>10</sup> ANA (2014), ANA – Annual Plan 2014-15. Luxembourg: ANA.



staff involved in safety related tasks, the number, status and deployment of personnel including personnel from subcontracted operating organizations has been created.

- *Stakeholder assistance* – ANA has established and published formal interfaces with all stakeholders which may influence directly the safety of the provided services. External and internal stakeholders list have been defined, and SLAs with internal and external parties were set-up.

**Continuous safety management improvements:**

The Safety Management Unit (SMU) participates in all internal management meetings and monitors safety related activities of ANA.

The most important internal meetings for SMU are

- *LEAD Integrated Management System (IMS)* Team addressing legislative / regulatory and certification related issues;
- *SMT – Strategic Management Team* where ongoing projects and activities are monitored, decided and corrective actions are taken;
- *Safety / Quality officer meetings* to address occurrences, potential threats and latent conditions;
- *Management reviews* to report, exchange and revise performance processes run by Quality Manager (QM);
- *Project review meetings* run by PMO;
- *Safety Committee* meetings run by SMU.

**Safety KPI development at departmental level:**

ANA has set safety performance indicators and targets for safety related incidents in ATC and for safety related technical impacts on ATM from CNS, MET and the Electro-technical Service (ELE) which are observed by the departments in close cooperation with SMU.

The results on departmental safety indicators are reported in the chapters on ATC, CNS, MET, ELE and AER.

**1.3.1 ESSIP - Safety Objectives achievements in 2014 cycle**

The following Table 4 summarises the results in regard to the Local Single Sky Implementation Plan (LSSIP) implementation actions during the 2014 cycle in the European Single Sky Implementation (ESSIP) programme in safety related Objectives.

Table 4 – ESSIP Safety Objectives– Results / Status 2014

ESSIP OBJ	2014 Results	Measures to address performance gap
ATM Safety  GEN01 - Contingency Measures	This OBJ is not anymore active in ESSIP. ANA developed a Contingency Plan which was endorsed by DAC. Contingency measures / equipment is partially in place (ongoing).	CAP closed and NC lifted after presentation of the Contingency Plan in spring 2015. Simulation of AT C 'Clear the Sky' procedure with Belgocontrol finished in June 2015. Equipment and facilities (fall-back) partially installed (ongoing); contingency plan will be audited in October 2015 by DAC.
SAF10 - Airspace Infringement Risks	ANA has No Plan for this OBJ. Occurrence reporting data suggests that airspace infringements are rare in LU airspace; occurrences are closely monitored.	No performance gap identified
AOP03 - Improve RWY Safety by preventing RWY incursions	Supported by agreement from DAC ANA re-established the working arrangements at ELLX for fostering and preventing inter alias RWY incursions. The Luxembourg local Airside Safety Team (L-AST) which has taken up work beginning 2015.	Performance gap closed
SAF11 - Improve RWY Safety by preventing RWY excursions	ANA is late in implementing this OBJ and no full plan has been established. However, the working arrangements are in place with the re-establishment of the L-AST (see above).	Performance gap still open; will be addressed by L-AST.

With respect to GEN01, contingency procedures and equipment and a dedicated formal contingency plan is in place.

This objective is close to final and ANA has made significant progress and has tested the key procedure. There is hard evidence to have workable and safe procedures in place.

With respect to AOP03 and SAF11, the re-establishment of the Luxembourg Airport Airside Safety Team (L-AST) which deals with operational safety issues and involves all airport partners at working level will enable these topics to be monitored and, where practicable, improved.



### 1.3.2 Efforts to increase safety competence and performance

ANA has maintained the level of competence of its staff and safety officers on safety issues in ATC, CNS, MET and has increased the competence of its staff in regard to aerodrome certification related matters.

**Aerodrome safety:** Since ANA was nominated by the Ministry to take the role as the Aerodrome Operator in the frame of the EU Regulation 139/2014 in April 2014 substantial investments have been made into:

- aerodrome certification related training (see also below);
- establishing the working arrangements and involving all airport partners to address and resolve pending safety issues on the manoeuvring area and
- reviewing / updating and integrating or aligning all aerodrome procedure documents.

More details on the progress in this important work area of ANA can be found in the [Aerodrome Chapter 1.9](#) in this document.

**Staff safety training:** A safety training programme is in place and is followed for staff in accordance to their duties as safety officers / deputy safety officers.

The Safety training programme of ANA from July 2014 – July 2015 complimented the courses

scheduled in the previous reporting period and consisted of the following courses organised internally or externally:

- Safety management system in ATM ( SAF – SMS - 5 days);
- ATM occurrence reporting and investigation tools (SAF – Tools – 5 days)
- Human factors for ATM Safety Actors ( SAF – HFA – 5 days)
- ATM occurrence investigation and analysis (SAF – INV – 5 days)
- Introduction to Safety Assessment (SAF – SA1 – 5 days)
- Practical safety assessment (SAF – SA2 – 5 days)
- Safety management survey –Stage 1 (SAF-SAS -1 – 3 days + 2 days )
- Advanced ICAO Annex 14 (5 days)
- EASA Aerodrome certification requirements for operators and authorities (3 days).

In addition, all staff receive general training on safety management and ANA's policy and approach.

Not directly related to safety, but relevant for the work was the specific training for the management team and heads of unit on management of change (2 days).



## 1.4 ATC Performance

In 2014 ANA ATC safely handled an increase of 3% international and 12% local movements compared to 2013.

The main targets for ATC in 2014-15 were:

Participate and lead ongoing projects:

- ATC contingency procedure 'Clear the Sky' simulation with Belgocontrol with the milestones successful passing the test.
- A-SMGCS implementation with a milestone of achieving the Factory Acceptance Test (FAT).
- TWR consoles implementation.
- FABEC airspace change implementation restart of the SWAP project.
- Support to the Approach synergy (APP Syn) project ANA – Belgocontrol and DFS.

The details are given in the following chapters.

### 1.4.1 Safety

**Contingency:** The 'Clear the Sky' procedure agreed with FABEC partner Belgocontrol was due to be complemented by a comprehensive contingency strategy and plan; the basic contingency concept for ATC was finalised.

The entire plan was presented to DAC and the non-conformity against EU 1035/2010 was removed.

The next step was the test of the ATC procedure 'Clear the Sky' in collaboration with Belgocontrol. This validation, starting in early 2015, included a full simulation and test of the procedure at Belgocontrol. The test was successful; the procedure works as expected, the safety assessment showed that safety risks are sufficiently covered and effective.

In parallel, fall-back equipment has been installed at the alternative TWR location. The equipment will enable a limited ANS to be provided ensuring a minimum level of business continuity to be assured.

**Safety culture:** Various initiatives to increase safety awareness, to refine and define safety processes and procedures and to involve staff and safety practitioners continued in 2014.

ANA SMU in close cooperation with ATC implemented the following actions in 2014:

**Just Culture Policy** was drafted, coordinated with stakeholders, endorsed and implemented. The policy aims to develop a just culture within the work environment. Long-term actions to achieve a just culture are documented and are being implemented.

The next steps, closely aligned with developing a just culture, will be to define the qualification and competence requirements, including relevant practical skills, for those involved with safety processes.

### 1.4.2 KPI # 4 - ATM ground contribution to incident

The safety record in ATC in the Performance Indicator (PI) 'ATM ground contribution to incidents'<sup>11</sup>, shows further improvements compared to the PI targets defined in the KPI for ATC in 2014 (see Table 5 and Figure 4) providing a graphical comparison with 2011 – 2013 figures.

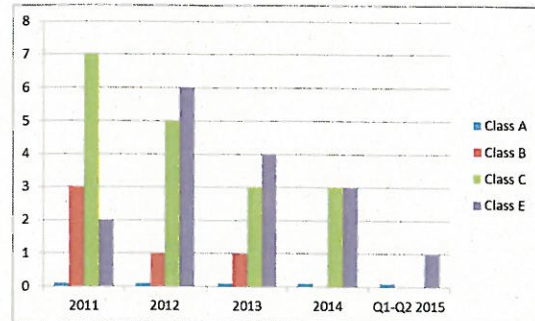


Figure 4 – ATC ground contribution to incidents compared to KPI targets set for 2013

The Q1-Q2 /2015 results are a clear indication that the trend continues: so far only one Class E incident was recorded<sup>12</sup>.

### 1.4.3 Capacity – KPI # 5

Luxembourg airport and TMA are not constrained by a significant lack of traffic handling capacity.

There was no significant restriction in capacity, i.e. delay due to ATC during the reporting period (see Table 5).

**En Route:** SES performance indicator and targets for En-Route flight efficiency (delays) are not applicable to ANA; En route service in Luxembourg airspace is provided by Belgocontrol and MUAC.

**Terminal delay (PI 6):** For ATFM arrival (terminal) related delays for RP2 FABEC decided to establish delays at national level. Terminal ATFM delays are calculated and monitored at Network Management (NM) level; ANA had in 2015 Q1 + Q2 an average delay of 0,08 minutes per flight<sup>13</sup> which is very low compared with the FABEC target (0,48) and the EU - wide arrival delay average 2014.

**Airport delay (PI 7 and 7bis):** As regards to airport induced delays ANA monitors the slot adherence at

<sup>11</sup> This PI sets targets for the maximal tolerable annual number of ATM incidents (where ATC is involved), in 5 severity classes.

<sup>12</sup> Still under investigation as regards the classification.

<sup>13</sup> January – December 2014 average airport ATFM delay as calculated by PRU and reported in the PRR 2014.



airport level in accordance with EU Regulation 255/2010.

The 2014 results are in line with the demand in the EC Regulation<sup>14</sup> for a > 80% of slots adhered to (annual average around 83%).

**PI 8 – Per-departure delay:** There is no target yet established. The results for 2014 as reported in the PRR 2014 are – despite increasing traffic – better than in 2013 with an average of 0,15 minutes / departing flight.

#### 1.4.4 Capacity & Environment – KPI # 6

The environmental EU - wide performance indicators and targets for Reference Period 1 (RP1, 2012 - 2014) and RP2 are of limited relevance for ANA<sup>15</sup> as regards the 'average en-route horizontal flight efficiency'.

However, ANA has adopted one environmental performance indicator applicable for ATC as agreed in FABEC: the implementation of Continuous Decent Operations (CDO) (horizontal flight efficiency).

- Belgocontrol designed in 2012, together with ANA, a Continuous Decent Approach (CDA) procedure for the routes to Luxembourg Airport (both RWY 06 and 24)<sup>16</sup>.
- However, due to the unavailability of electronic Terrain Obstacle Data (eTOD) in line with ICAO Annex 15 and EC Regulation 73/2010 the procedures are pending implementation and publication in AIP.
- ANA developed the technical requirements document and prepared a tender document for photometric eTOD submitted to the MDDI for decision.
- ANA in 2014 supported DAC in developing the technical definition of the required institutional and regulatory policy and setup which was issued and is still pending.
- ANA received in July 2015 a complete conceptual design from Belgocontrol and launched a call for tender action to acquire the most urgently required TOD through a kind of 'manual' measurement approach (see also the AQER chapter on aerodrome Obstacle Limitation Surface (OLS) data.

<sup>14</sup> Art. 11 of Regulation (EC) 255/2010 (ATFM IR) states that (1) 'Member States shall ensure that where adherence to ATFM departure slots at an airport of departure is 80 % or less during a year the ATS unit at that airport shall provide relevant information of non-compliance and the actions taken to ensure adherence to ATFM departure slots.'

<sup>15</sup> Difference between actual and optimal flight trajectory - En route outside of a 40 NM circle around the airport.

<sup>16</sup> Similar options for extended COD exist for the eastern APP/DEP routes handled by DFS.

The plan is to receive the TOD data by end 2015 and implement the CDOs in 2016.

**PI 10 - CDO:** The definition, development and implementation of CDO procedures for approach and departure to /from Luxembourg airport is considered to be an important contribution to reducing the environmental impact for ANA and to improve the relationship with the local community surrounding the airport.

ANA has highlighted this in the past in the Annual Plans and Annual Reports.

The KPI 'Horizontal en-route flight efficiency' sets a clear target of developing and implementing one CDO in 2013 and one in 2014. This KPI has not been reached up to now; the current status is as follows (see also Table 5 (KPI/PI) and Table 6 (ESSIP)):

**PI 9 - Taxi Out Time:** The Taxi Out Time (TOT) is currently monitored by ANA ATC to determine the realistic time taken by aircraft to taxi to the runway at Luxembourg Airport.

The data will be used in the next reporting period to establish a 'best practice' solution for a performance indicator and target that is balanced with other airport delay indicators and influencing factors to be respected and observed.

ANA has started to establish a local collaborative approach with other airport partners and has established contact with the relevant Network Management (NM) airport domain to establish more precise pre-departure information in future.



Figure 5 – TWR ANA at ELLX

Table 5 summarises the results.



Table 5 – Summary 2014 – 2015 KPI / PI monitoring and comparison with 2012 – 2013

ATC SERVICE - KPI's # 4 - 7 - ATFM incidents; ANS delay; CDO - Achievement 2014 (Q1-Q4) - 2015 (mid year)						
KPI 4	Severity of ATM ground contribution to incidents	2012	2013	2014 (Q1-Q4)	2015 (Q1-Q2)	Targets
PI 6	Severity Class A	0	0	0	0	1
	Severity Class B	1	1	0	0	2
	Severity Class C	5	3	3	0	12
	Severity Class E	6	4	3	1	24
KPI 5	Arrival ATFM delay attributable to terminal & airport ANS					
PI 7	Arrival ATFM delay in min	0,13	0,08	0,08	0,05	FABEC target: 0,48
PI 7 bis	Airport slot adherence (%)	84%	83,14	82,68%	NA	>80%
PI 8	ATFM pre-departure delay in min	0,2	0,33	0,15	NA	No target set
KPI 6	Additional Taxi Out Time (TOT)					
PI 9	Additional time in taxi out phase (min/ dep)	1,1	NA	NA	NA	No target set
KPI 7	Average en-route horizontal flight efficiency					
PI 10	Develop/implement CDO procedures for APP/DEP ELLX	NA	0	Not achieved	Not achieved; started	1
Common PI's		2012	2013	2014	2015	Targets
PI 1	Maintain / develop competence of staff	Achieved	Achieved	Achieved	Achieved	Specific Actions
PI 2	Maintain regular stakeholder consultation intern	Achieved	Achieved	Achieved	Achieved	No target set
PI 3	Maintain regular stakeholder consultation extern	Achieved	Achieved	Achieved	Achieved	No target set

#### 1.4.5 Training – PI 1

During 2014 the Unit Competence Scheme (UCS) and refresher training processes and procedures / documentation have been improved and revisited in an extensive June 2014 re-certification audit with success.

All training documentation have been re-endorsed, all findings closed and a new certificate was granted in November 2014.

Corrective Actions 2014 - 2015: The non-conformities noted during DAC and EASA audits in 2012 / 2013 were resolved by end June 2014. The re-certification audit was positive. An internal quality audit of the training scheme revealed some areas for further improvement mainly in terms of documentation procedures.

#### 1.4.6 ESSIP ATC Objective achievements in 2014

Table 6 summarizes the results in regard to ESSIP Objectives relevant for ATC.

The results show that, with the exception of the Environment Objective ENV01, ANA ATC is meeting all relevant ESSIP objectives (for details on environment see Chapter 1.4.2 above).

The continued delay in the implementation of the objective could not be overcome despite efforts to advance the pending decision on institutional and regulatory matters at State level. ANA has now decided to get the obstacle data for urgent projects (i.e. aerodrome areas; FABEC airspace change related projects; FABEC CDO decision) through other means



Table 6 - ESSIP ATC Objectives – Results / Status 2014

ESSIP OBJ	2014 Results	Performance gap identified.
<i>Airspace Management OBJ</i>		
<b>AOM13.1 - Harmonise OAT and GAT handling</b>	OAT is negligible in LU airspace. Objective is not applicable.	No gap in performance
<b>AOM19 - Implement advanced airspace management</b>	ASM / ATFCM is handled at FIR Brussels level by EBBR via NM. The Objective is not applicable.	
<b>AOM21 - Implement Free Route Airspace</b>	Concerns FABEC ACCs. Not applicable for ANA.	
<i>ATC &amp; Data Processing OBJ</i>		
<b>ATC02.2 - Implement STCA</b>	Is implemented since 2008.	No gap in performance
<b>ATC02.5 - Implement Area Proximity Warnings (APW)</b>	Planned to be implemented.	No gap in performance
<b>ATC02.6 - Implement Minimum Safe Altitude Warning (MSAW)</b>	Is implemented since 2008.	No gap in performance
<b>ATC02.7 - Implement Approach Path Monitor (APM)</b>	Planned to be implemented.	No gap in performance
<b>ATC07.1 - Implement Arrival Manager (AMAN)</b>	ELLX is not a high density TMA. Not applicable.	No gap in performance
<b>ATC16 - Implement ACAS II compliant with TCAS II change 7.1</b>	Is implemented since 2012.	No gap in performance
<b>ATC17 - Electronic dialogue as automated assistance to controller during coordination and transfer</b>	OLDI functions supporting automatic assistance during coordination and transfer are implemented but not enabled. - To be done if required by neighbouring centers. No plan.	No gap in performance
<i>ATFM</i>		
<b>FCM01 - Implement tactical Flow Management Service</b>	Is implemented since 2007. Some SLoAs are not economically justified and are not implemented.	No gap in performance
<b>FCM03 - Implement collaborative flight planning</b>	Is implemented since 2007. Some SLoAs are not economically justified and are not implemented	No gap in performance
<b>FCM04 - Implement short term ATFCM</b>	Not applicable.	No gap in performance
<b>FCM05 - Implementation of interactive rolling NOP</b>	ANA does not operate an ASM system and ELLX is not (yet) a coordinated (slot info) airport. ANA has no plan for this objective.	No gap in performance
<i>Airport ATS</i>		
<b>AOP04.1 / 04.2 - Implement ASMGCS Level 1 / Level 2</b>	A-SMGCS level 1 is under implementation; FAT passed in June and level 1 will be finalised in 2016.	No gap in performance
<b>AOP05 - Implement Airport CDM</b>	Not applicable.	No gap in performance
<i>Environment</i>		
<b>ENV01 - Implement Continuous Descent Operation (CDO)</b>	Luxembourg is late and did not achieve its target in 2014 due to pending TOD. ANA will acquire the data required for specific projects that are depending on the availability of TOD.	Performance gap identified.

**In summary:** The performance results measured against set performance indicators during the 2014 - 15 reporting period were good.

The targets set were achieved except for the ENV target.

#### 1.4.7 ATC infrastructure projects

**A-SMGCS** is a major project for ATC / TWR and required active involvement of ATC staff throughout 2014 and will demand their efforts further on.



The planning of the infrastructure (airport sensors) for all parking in the coverage map led to some modifications in the mapping and one additional sensor is to be placed to ensure full coverage.

One important item for ATC was the development and implementation of new Controller Working Positions (CWP) and consoles in the TWR with changes in the cabling. The respective planning started in 2013 with CNS and with leading technical support from DFS and continued in 2014. The work could be finished in 2015 in time and without severe impacts on traffic handling during the works.

The first Factory Acceptance Test (FAT) was not fully satisfying and had to be repeated in June 2015. The set criteria were passed successfully this time. The equipment is now delivered and installation will start in second half of 2015.

In parallel the ground works on the SMR foundations were done. The 2 SMR sensors are also delivered and will be installed in autumn 2015.

This part of the A-SMGCS project will be finished in Q4 / 2015 (see project list in [Table 15](#)).

**ATC contingency project:** One major step overcoming an existing gap was the finalization of the contingency plan for ANA and the planning, testing and documentation of the existing 'Clear the Sky' procedure with the support of Belgocontrol.

**FABEC airspace change:** The restart of the SWAP (South – West Airspace Project) led to a continuation of consultations with neighboring ANSPs and regulators regarding the connecting SID / STAR routes to / from ELLX. An operationally feasible and efficient solution is agreed and the design work will start in time.

#### 1.4.8 Status and progress in strategic initiatives set for ATC

A major project is the support by ATC to the Approach synergy (APP Syn) assessment project ANA – Belgocontrol and DFS.

The Table in [ANNEX 3](#) summarizes the progress.

The aim of the assessments is to provide decision making authorities in Luxembourg with the information, data and means required to decide on the options as regards the future approach and TWR services that ANA as the ANSP shall provide.

The main milestone deliverable is a Cost- and Benefit Analysis (CBA) of the options.

ATC (together with CNS / AIS) has supported the provision of operational, technical and other information to the project and is involved in the evaluation of proposed technical means and operational procedures.



## 1.5 CNS performance

CNS is responsible and supports the technical realisation in a number of projects (see also [Table 16](#) for a full list):

- **ATC systems:** CNS continued its support to the implementation of the Advanced Surface Movement Guidance and Control System (A-SMGCS), technical planning and integration continued in 2014 - 15 which is still in progress.
- **ATC systems:** Support and infrastructure change to the new TWR consoles implementation (CWP) (this is also related to the A-SMGCS project).
- **NAV:** The replacement of the NDB LE and WLU was achieved and the DVOR DIK monitoring projects was finalised.
- **MET:** Implementation support to the implementation of the AWOS/ATIS - Automatic Weather Observation System / Automatic Terminal Information Service continued and will be finalised in autumn 2015. The project is delayed due to problems with the software of the system. The new FS11P RVR sensors have been installed on all runway locations (RWY 24, MID, 06) and the Site Acceptance Test (SAT) was passed successfully. A hardware update is required and needs to be done.
- **SUR:** The update of the existing SUR system is still in the planning stage (ongoing). The replacement of the SuRveillance Message Conversion and Distribution Equipment (RMCDE) system by a new SUR Data Distribution System (SDDS) will be finalised in 2016.
- **NETWORK / IT:** Implementation of a new centralised network topology and architecture based on IP and the installation of a new server infrastructure based on a virtual server solution (ongoing).

Some of these projects are of strategic importance: SUR data exchange with SURNET partners; a stable and interoperable network and a redundant and stable CNS server architecture are the 'backbone' of the entire system.

### 1.5.1 SUR projects

In 2014 the surveillance project on the implementation of a third Terminal Radar (TAR3) was put on hold and ANA was charged by State authorities to search for opportunities and assess available options for the radar coverage in the airspace for which ANA is responsible without implementing TAR3. This work was done in partnership with Belgocontrol in 2014.

The outcome of the studies and tests clearly indicated that sufficient contingency exists in the current radar network (RADNET / SDDS, ARTAS) also in case of a failure or maintenance of the TAR2 radar and that TAR3 was not required. ANA has proposed to discontinue the project.

In 2014 CNS was charged to assess the state and performance of the surveillance chain (SUR chain) in the light of

- a) applicable legislation, in particular EC 1207/2011 and related other regulations and
- b) as regards future requirements in the new ANA strategy (see ANA Annual Plan 2014-15, Table 3)

and make a proposal for a cost-efficient and safe upgrade of the SUR system. This work is still ongoing.

(See also the Table in [ANNEX 3](#) reporting the status of achievements against the strategic initiatives and directions proposed in the Annual Plan 2014-15).

### 1.5.2 CNS safety critical equipment

**Safety - ATM technical effects (ATM SE):** The CNS KPI # 8, performance indicator (PI # 12) applies.

The protection of the ATM system from effects or failures of the technical systems is at the focus of regular and preventive maintenance.

A 24hr / 7 days intervention service in case of equipment failure to ensure ATM service continuity is available at ANA either on site (during regular office hours) or via standby duties (during weekends, public holidays and outside office hours).

This service is a main task of CNS.

The PI for the (technical) Effects on ATM Services (ATM SE) is the 'Maximal tolerable CNS direct contributions to incidents'.

The 2014 - 2015 target values and the 2014 (entire year) and 2015 (Q1 - Q2) results are given under PI #12 in [Table 8](#).

The table shows that no **category AA - B** ('partially affected ATM service') event occurred, a result that is better than targeted.

In **category C** ('degraded ATM service while still able to function fully') 50% more events happened as targeted incidents in 2014 due to technical effects.

The main reason for this higher incident rate in category C were, similar to 2012 and 2013, mainly the failures of the (current and still in use) ATIS system, METPRO, DVORs and FDP system.

The new AWOS / ATIS system could not be put into operations.



**Equipment availability (performance):** The technical safety record in CNS is governed by specific PI # 11 in the CNS KPI (#8) with detailed targets assigned to all safety critical CNS equipment including ATC, MET and AIS equipment.

From the total number of safety critical systems maintained in 2014 - 15 by CNS availability results are provided in Table 7 and Table 8 in a condensed format.

**Equipment outage:** Table 7 gives the system outage results as piece of equipment to identify systems that are prone to fail more often than targeted (target achievement is monitored as per 6 month period).

The table shows that some equipment was more prone to outage or malfunctions in 2014-15 and required more often the intervention by CNS.

The reasons were:

- equipment at the end of lifecycle (e.g. AWOS/ATIS, METPRO RVR<sup>17</sup>) waiting for being replaced;
- removing bugs and malfunctions after equipment upgrade (e.g. FDPS);
- equipment close to the end of lifetime and more prone to error and outage (i.e. RDP<sup>18</sup>).

The problems related to the exceptional long outage of the DVOR DIK<sup>19</sup> in Jan 2015 were resolved.

The persistent problems with the old AWOS/ ATIS system and RVR have to be mentioned in particular. The undue long implementation time of a new AWOS and ATIS system required the keeping into service of the old system which is beyond life-cycle and already on 2013-14 failed often.



Figure 7 – DVOR Diekirch

<sup>17</sup> AWOS = Automatic Weather Observation System;  
ATIS = Automatic Terminal Information System;  
METPRO RVR = Runway Visual Range system

<sup>18</sup> RDP = Radar Data Processor (TAR2)

<sup>19</sup> DVOR DIK = Doppler Omnidirectional Radio Range Diekirch (LU)

Table 8 gives a comparison of the 2014 (entire year) and Q1 and Q2 results 2015 with 2012, 2013 in the three categories of equipment availability in line with the four performance indicators (PI #11 and the related CNS service response times in PI # 13 and 14) agreed and monitored in the frame of the CNS KPI.

**CNS intervention time:** Throughout 2014 and in the first half of 2015 the service response time (PI# 13) was only once above the response time targeted (that is > 2 hrs); the average response time (monitored since 2014) was slightly less long in the first half of 2015 than in 2014.

**PI # 14** measures the response time during office hrs since 2014 which shows low average response times for local equipment. Interventions at remote locations (i.e. DME/VOR DIK) have lead once to an intervention time > 2hrs.

The regular calibration of equipment, that is, the measurement and if required adjustment of the various sensors in place to maintain their reliability and validity was done within the time frame of 2 weeks.



Figure 8 – TAR 1 at Luxembourg Airport



Table 7 – CNS equipment availability in 2014-15 (July 2014 – June 2015)

Equipment	Outage (min)	Severity Class	Most failed Equipment	> Target 2014-15 over 6 month period
Voice COM	4 900	C or E	RX 118.9MHz Notfunk	YES (Notfunk RX)
Digital COM	155	C or E	ADD Touchpanel TWR	NO
NAV	10 069	C or E	DME Diekirch GP24	YES (DME Dik) GP24
SUR	1 899	C or E	RDP FDP Stripp-printer	NO
MET	2 058	C or E	ATIS / AWOS METPRO RVR	YES (ATIS/AWOS; METPRO RVR)
POWER & SEC	206	C or E	PWR TAR 2	NO
Comparison 2013-14 vs 2014-15	Outage + 8599 min	No increase in severity	GP24 AWOS/ATIS METPRO	Less outages in total compared to 2013-14

Note Table 7: The non-availability of the GP24 was due to an unusual thick layer of snow (during night time) that had to be removed simply.



Table 8 – CNS – Performance Assessment / Achievement 2012 – 2015 against KPI and local PI's (KPI#8)

CNS SERVICE - KPI # 8 - Availability of Safety Critical Equipment - Assessment / Achievement 2014 - 2015 (mid year)						
KPI # 8	Conformity/reliability of safety critical CNS services	2012	2013	2014 (Q1-Q4)	2015 (Q1-Q2)	Targets
PI # 11	Availability of safety critical equipment (min 99,90%)	25/31	25/31	29/31	30/31	31/31
	Availability of safety critical equipment (min 99,95%)	12/13	9/13	13/14	12/13	13/13
	Availability of safety critical equipment (min 99,99%)	04/04	04/04	04/04	04/04	04/04
PI # 12	Maximal tolerable ATM SE incidents (AA)	0	0	0	0	0
	Maximal tolerable ATM SE incidents (A)	0	0	0	0	0
	Maximal tolerable ATM SE incidents (B)	0	0	0	0	2
	Maximal tolerable ATM SE incidents (C)	84	100	70	25	45
	Maximal tolerable ATM SE incidents (E)	24	23	37	26	20
PI # 13	Average of service response time	not monitored	not monitored	0h 46 min	0h 34 min	< 2h
	Number of service response time > 2hrs during standby duties	0	0	0	NA	0
	Number of service response time > 2hrs during office duties	not monitored	not monitored	0h 14 min	0h 7 min	< 2h
PI # 14	Equipment calibration > 2 wks after due date	0	0	0	NA	max. 2 weeks after due date
<b>Common PI's</b>		<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>Targets</b>
PI # 15	Maintain / develop competence of staff (OJT)	not monitored	not monitored	100%	100%	80%
PI # 16	Maintain / develop competence of staff (external training)	not monitored	not monitored	70%	100%	80%
PI # 17	Maintain regular stakeholder consultation intern/extern	not monitored	2	2	2	>6

**Note Table 8:** The numbers in the columns number of equipment that achieved the target (e.g. 12/13 means 12 out of 13 equipment in the category with a 99,95% availability target achieved the target). 2014 Results are for the entire year; 2015 results are half-year results (Jan – Jun (incl.)).



Figure 9 - Terminal radars TAR1 / TAR2 and Cargolux hangar



### 1.5.3 CNS staff training & stakeholder management

Maintaining and developing the competence of CNS staff is a key factor to better performance in projects and system maintenance.

CNS staff followed the specific training requirements and performance indicators (PIs) and targets in the KPI as planned.

**PI #15 - Training target:** Fulfil OJT<sup>20</sup> and external training targets for Air Traffic Safety Electronics Personnel (ATSEPs) in line with competence requirements (80%).

In 2014 the targets in OJT training (total number of actually trained staff compared to planned trainings) were passed but slightly undercut for external trainings with a total of 153 days of professional training including refreshers. Figures in 2015 so far are beyond target.

ANA CNS is aware of the requirements in regard to

- Software Safety Assurance System (SSAS);
- Interoperability (IOP);
- Safety critical changes and
- IT network operations and security.

External professional and technical assistance and competence is provided to the CNS team especially in these competence areas.

**Stakeholder management** is an area for improvement in CNS: the target of holding more than 6 stakeholder consultations were not met in 2014 and more needs to be done in this area.

The efforts in training of engineers / technicians in regard to SSAS and interoperability requirements and in IT network management need to continue.

**In summary:** CNS system performance results in comparison to 2013-14 and against set performance targets for 2014/15 are satisfying and have further improved.

However, and as indicated before, the replacement of old systems often takes much longer as expected causing the keeping into service of and maintaining legacy systems beyond their lifetime.

This not only is correlated with an increasing amount of outages of the systems in question but also demands increasing efforts from CNS spent in repair and fixing the problems.

<sup>20</sup> On the Job Training

The extra time and efforts lost also impacts and in some cases delays the implementation of new equipment and increases costs.

This vicious circle needs more attention and is definitely an area for improvement.

The area of stakeholder consultation and establishing regular exchange on needs and requirements between partners internal and external to ANA is an area for further improvement.

### 1.5.4 ESSIP achievements - 2014 cycle

**Table 9** shows the status in the ESSIP Objectives that fall under the auspices of CNS in 2014 as reported in the Luxembourg 2014 LSSIP report.

The table shows that ANA CNS has no immediate gap in performance in the Navigation and Communication Objectives of the current ESSIP. Some Objectives are decided not to applicable or relevant in Luxembourg.

However, the implementation of the interoperability and performance Objective in the Surveillance domain is late due to a missing safety case for the existing SUR system which needs to be achieved in 2015.

It is planned to upgrade or renew the current system; the scope of this renewal is not finally defined. This is related to ongoing assessment in the scope of the synergy objectives in the new strategy.

### 1.5.5 Status and progress in strategic initiatives set for CNS

The results regarding the strategic objectives and activities proposed in the Strategic Initiative (see: Annual Plan 2014-15) are summarised in Table in **ANNEX 3** under CNS.

The major items of strategic importance are:

- Establishing a safe and effective solution for radar contingency in case of TAR2 maintenance or failure without a third radar (TAR3);
- Ensure IOP capability according to requirements from SURNET and A-SMGCS projects;
- Development of a customised and minimum SUR Chain upgrade implementation concept;
- Technical support to the synergy projects with FABEC partners.

**In summary:** the first bullet item was completely resolved with a series of studies and tests, including a flight test and comparison of tracks between flown route and radar track (see **Chapter 1.5.3**).



As regards the other bullets: there is progress in regard to implementing SDSS and IOP gateway which is required also for the A-SMGCS project.

It is pertinent for the next reporting period to achieve the objectives set in full. The implementation of the virtual server infrastructure and the network topology solutions are a further step towards a

sufficiently redundant, stable and cost effective CNS system.

The technical support to the ongoing APP Syn project (last bullet) has also to be ensured which will include frequency coverage studies for all used frequencies in ATC.

Table 9 – Status of SES (ESSIP) Objectives for CNS – Results in 2014-15<sup>21</sup>

ESSIP OBJ	2014 Results	Measures to address performance gap
<i>CNS - Communication</i>		
COM09 - Migrate data networks to Internet Protocol (IP)	Local IP network is in accordance with the requirements for international / regional communication exchange on IPv6 based protocol since 2011	No gap in performance
COM10 - Migrate AFTN to AMHS	AMHS implemented and full migration is achieved in June 2014 (all functionalities)	No gap in performance
COM11 - Voice over Internet (VoIP)	ANA has no fixed plan yet but has started to check the available / to be changed HW / SW in the current R&S COM system	No gap in performance
ITY-FMTP - Apply common Flight Message Transfer Protocol (FMTP)	System is installed since 2012 and is fully compliant; the safety case was finalised end 2014	No gap in performance
ITY-COTR - Implement air-Ground automated coordination processes	All OLDI messages as required are implemented.	No gap in performance
ITY-AGVCS2 - Air/ground voice channel spacing (8.33kHz) in airspace FL <195	Planned to be achieved by 2018 in ANA for ANA frequencies	No gap in performance - ongoing
<i>CNS - Navigation</i>		
NAV03 - Implement P-RNAV	ANA does not plan to implement P-RNAV as there is no justification / business case for it. NOT APPLICABLE.	No gap in performance
NAV10 - Implement APV (Approach Procedure with Vertical Guidance)	ANA has no plan to implement this and has no established need for it. NOT APPLICABLE.	No gap in performance
<i>CNS - Surveillance</i>		
ITY-ACID - Aircraft identification	Planned to be implemented - pending feasibility and requirements.	No gap in performance - ongoing
ITY-SPI - Surveillance performance and Interoperability	IOP ensured with other ANSPs using a common protocol (RADNET); the safety assessment of the existing SUR system is LATE; pending decision on the scope of changes to the existing system	LATE - ongoing

<sup>21</sup> EUROCONTROL (2015), Local Single Sky Implementation (LSSIP) – LUXEMBOURG. Year 2014 – Level 1 & 2. Brussels: Eurocontrol.



## 1.6 MET (MeteoLux)

MeteoLux, the certified MET provider in Luxembourg provides two distinct services:

- **Aeronautical MET** service (weather forecast, warning, observation and climatology service, weather reports etc.) for ATC, commercial and general aviation, SAR and the airport;
- **General MET** service (weather forecast bulletins, alert service, climatological bulletins and customised weather reports) for general public, national institutions and other ministries.



### 1.6.1 Aeronautical MET performance

MeteoLux is compliant with the relevant ICAO standards applicable to aeronautical MET services at a high-very high level of service quality and integrity (see KPI results in [Table 10](#).)

In 2014-15 ANA further strived to improve its aeronautical service provision and service quality in line with service demand:

- reinforcement of competences of ANA MET staff with training sessions at Belgocontrol, Deutscher Wetterdienst (DWD) and Meteo France;
- update of existing Service Level Agreement (SLA) with a number of parties (i.e SN, CREOS, PCH, ELE, CNS, AGE<sup>22</sup>); formalisation and exchange of services and improved Runway (RWY) state information procedure;
- participation in the airport Winter Operations Cell.

The new AMHS (Aeronautical Message Handling System) is in full use for issuing meteorological messages which has helped to bring down the number of syntax faults in TAF messages.

The introduction to operational use of the new TELVENT Automatic Weather Observation System (AWOS) proved difficult.

The new system is running in parallel to the current AWOS for testing, validation and system verification and several starts of a shadow phase which had to be discontinued.

The implementation and putting into service of the system could therefore not be finished in 2014 as was planned due to new software problems (e.g. bugs) and other failures.

<sup>22</sup> AGE = Administration de la Gestion de l'Eau

MeteoLux together with PMO took action with the successor company of Telvent to establish a final plan which is now in operation and shall deliver the system ready for going operational in autumn 2015.

A new training session is planned for all staff working with the system in autumn and the shadow phase is ongoing and planned to end before end August 2015.

### 1.6.2 2014-15 Results – aeronautical MET

The cooperation between MeteoLux and institutes and universities in Luxembourg and abroad as well as the partnership arrangements with other aeronautical (MET Alliance) and public MET services offer great opportunities for synergies, improved service quality and cost-efficiency.

One project concerns the automatic prevision using numerical models.

Of high importance is the partnership and working relations with the Belgian MET provider RMI<sup>23</sup> and Belgocontrol.

During the 2014-15 reporting period several activities took place with partners Meteo France and RMI. MeteoLux is continuing with the investigation of implementing a lightning detection system in Luxembourg which will be used in conjunction with IMB.

[Table 10](#) lists the results of the Aeronautical MET service in 2014-15 up to and including the 2015/Q1 update in the various performance indicators (PI# 17 – PI# 20) against set targets and in comparison to 2012 (PI#17 – 19) and 2013 results.

The results for all indicators are fully in line with the targets.



Figure 10 – MET weather measurement garden

<sup>23</sup> RMI = RMI = Royal Meteorological Institute of Belgium



### 1.6.3 General MET services

Some part of the MET services is related to outside aeronautical MET areas in close cooperation with other Luxembourg administrations, institutions and services with the following activities in 2014-15:

- Continuation of the coordination with and MET service support to Luxembourgish administrations (e.g. agriculture, police, fire brigades and rescue services), universities and international meteorological services;
- Extreme weather alert service *Plan d'Intervention d'Urgence* (PIU) approved (May 2015) and service launched for the following alert services (alert red / orange):
  - o Wind (gusts);
  - o Snow & ice;
  - o Thunderstorm;
  - o Extreme heat;
  - o Extreme cold;
  - o Heavy rain.

The *MeteoLux website* and the meteorological bulletin are of public interest and have been issued as planned. Visitors of the website receive up-to-date weather information, warnings and forecasts.

- The number of visits of the website constantly increased during 2014 (Q3 & Q4) by 5,3%
- The subscriptions to the MET Bulletin in the same period increased by 2.3 % from 2013 – 2014.

In 2014 ANA MET plans to further improve the accessibility of its general MET web-information for mobile devices.

MET aims for synergies between both activity areas when planning projects and ensuring project sponsoring. Full cost-transparency of projects for the two areas is enabled.

**Staff competence:** MET staff keeps up-to-date competence in all relevant working methods and

procedures in line with applicable ICAO standards. The training and competence targets were achieved.

**In summary:** ANA aeronautical MET service has achieved and outperformed in all instances its set performance targets.

### 1.6.4 Status and progress in strategic initiatives set for MET

The results regarding the strategic objectives and activities proposed in the Strategic Initiative (see: Annual Plan 2014-15) are summarised in the Table in ANNEX 3 under MET.

The objective to agree with State authorities on projects on non-aeronautical service provision is practically achieved: The service that MeteoLux provides for public use is acknowledged, is appreciated and is used.

The remaining step for State budget provision for non-aeronautical services will start not earlier than 2016.

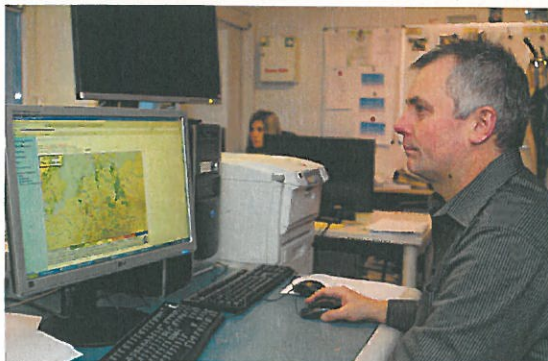


Figure 11 – MeteoLux office



Table 10 – Performance results against targets in PI's for ANA aeronautical MET in 2014-15 (Q3/2014 – Q2/2015).

MET SERVICE - KPI # 9 - Results 2014-15 compared to 2012, 2013 results against set PI targets					
KPI # 9	Conformity/reliability of safety critical aeronautical MET service services	2012	2013	2014-15	2014-2015 Targets
PI # 17	Timely provision of METAR	97,80%	98,50%	98,38%	≥ 97 %
PI # 18	Timely provision of MET bulletins	96,60%	99,50%	97,30%	≥ 96,5 %
PI # 19	Timely provision of TAF	98,80%	97,30%	100%	≥ 97 %
TAF verification	Wind direction	No data	99%	99%	≥ 90%
	Wind speed	No data	99%	100%	≥ 90%
	Wind gusts (in stable conditions)	No data	90%	93%	≥ 90%
	Visibility	No data	41%	53%	≥ 30 %
	Present weather	No data	36%	57%	≥ 30 %
	Ceiling	No data	44%	51%	≥ 30 %
Common PI's		2012	2013	2014	2015
PI # 21	Application of WMO competence assessment	not monitored	completed	completed	Applied
PI # 22	Specific Meteolux related training	completed	completed	completed	Provided
PI # 23	Update cycle of SLAs respected (internal stakeholders)	No	completed	completed	100%
PI # 24	Update cycle of SLAs respected (external stakeholders)	completed	completed	completed	100%
PI # 25	Customer polling	No	No	completed	once/year

Notes: The results for the timely METAR and MET Bulletin provision (PI# 17 and 18) are for 3 quarters (2014 Q3 & 4 and 2015 Q1). The data for PI# 19 and 20 (TAF provision and verification) are based on measurements made between 10 Oct 2014 and March 2015; no data is available from the 2014 Q3 & 4 period.



## 1.7 Electro – technical Service (ELE)

The electro-technical service department provides essential services to ANS of ANA and is involved and responsible for a number of safety critical equipment.

To this effect ELE is supervised in accordance with applicable standards, processes and procedures.

The main task of the ELE service is to install, maintain (and improve) the electrical infrastructure of the aerodrome:

- the airport lighting system (Runway (RWY), Taxiway (TWY), Approach (APP), stop bars, signs);
- the primary aerodrome power supply to all critical ANA infrastructure including power provision in case of outage or failure and in case of contingency through auxiliary power units and or secondary power supply.

ELE also maintains the integrity, validity and reliability of a geographical information system (*Système d'Information Géographique, SIG*) of the infrastructure (e.g. maps of electrical and fibre optic cabling and wiring; infrastructure maps; geographical info and telephone system).

This information and data is an important input and enabler to the planning and implementation of nearly all infrastructure projects as, for example the RWY and TWY refurbishment works, the A-SMGCS project, power supply projects and all construction and building projects.

The ELE OPS (Operations) Manual is regularly updated.

### 1.7.1 Performance of safety critical equipment

**Aerodrome lighting:** In 2014 the main project was to implement the Mobile Airfield Light Monitoring System (MALMS) which measures airfield lighting performance against the criteria for beam intensity and orientation as defined in ICAO Annex 14.

The system is in place and has demonstrated its usefulness (see [Table 11 & 11bis](#) and [Figure 13](#)).

Specific training is required to operate the system and further training sessions are planned in the next reporting period.

Directly related to the availability and performance of the lighting system is the continuity of power supply and achieving the max switch-over time during short break tests according to ICAO requirements. These tests were successful (see [Table 11](#)).

**Power supply project status:** ANA as the ANSP (CNS, ATC, MET) planned in 2013 the implementation of a dual (independent) power supply infrastructure and started two main projects:

- **Project 'Station Hamm'** - Installation of an auxiliary power supply and of an auxiliary telecommunication connection for CNS equipment to resolve the risks related to the existence of a single point of failure and in the old cabling. The project was finished in 2014.
- **Project 'Main Power Station South'** - New power supply station with a second external source for electric power supply and a further Emergency Power Unit (Genset). The project is still ongoing.

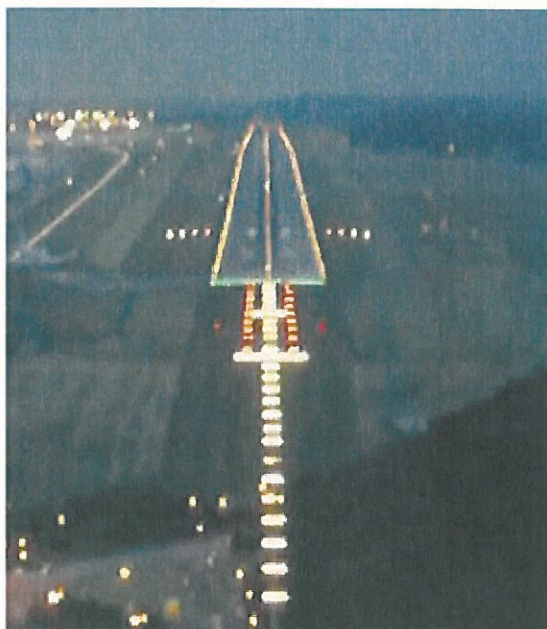


Figure 12 – ELLX RWY 06 lighting

**Safety - ATM technical effects:** In line with the above, the protection of the aerodrome / ATM system from effects or failures of the safety critical electro-technical system is in the focus of regular and preventive maintenance and the 24hr service intervention.

The PI for the (technical) effects on ATM Services is the 'Maximal tolerable number of ELE direct contribution to severity classes AA – E' incidents; the target values and 2014-15 results are given in [Table 11](#).

The figures show a high above target availability of lights: between 93% and 100% of the RWY centre lights of the Airfield Ground Lighting (AGL) system are above standard in light intensity, a very good result. Good results are also achieved in the Touch Down Zone lights.

Concerning the severity of ATM – SE incidents classes AA (inability to provide ATM services) to



class B (partial effected ATM service) no incidents occurred. In classes C (degraded ATM service while still able to function fully) less incidents happened in 2014 as targeted. Class E effects have no safety impacts and the number of occurrences was within the targeted level.

In three areas (PI# 27 and 28) in 2014 -15 for the first time practical measurement procedures and means were adopted to measure the effectiveness of the secondary power supply and lighting system availability after short-cut of the main system. Both results are in line with ICAO requirements.

PI# 30 results of service intervention time average is below target time, which is a positive result.

### 1.7.2 Status and progress in strategic initiatives set for ELE

The Table in ANNEX 3 gives an update on progress achieved against the strategic initiative objectives set for ELE: to gain a closer involvement and influence in the RWY / TWY and other infrastructure work on the aerodrome.

Past experience has shown room for improvement in the planning process and preparation of the maintenance and refurbishment work that could affect or has affected the functioning or integrity of electrical installations.

This includes attendance at meetings with PCH and coordination between ELE, AER and PCH respective other airport partners during works.

This objective has been achieved.

ELE is strongly involved in the ongoing aerodrome certification project (see for more details the AER Chapter).

A specific requirement in ICAO Annex 14 is the frangibility of the masts for RWY approach lights (see project list in Table 16) – one project for which ELE is responsible. The project is ongoing but progress is hampered by a dispute over access rights to deliver the replacement equipment to one of the required locations.

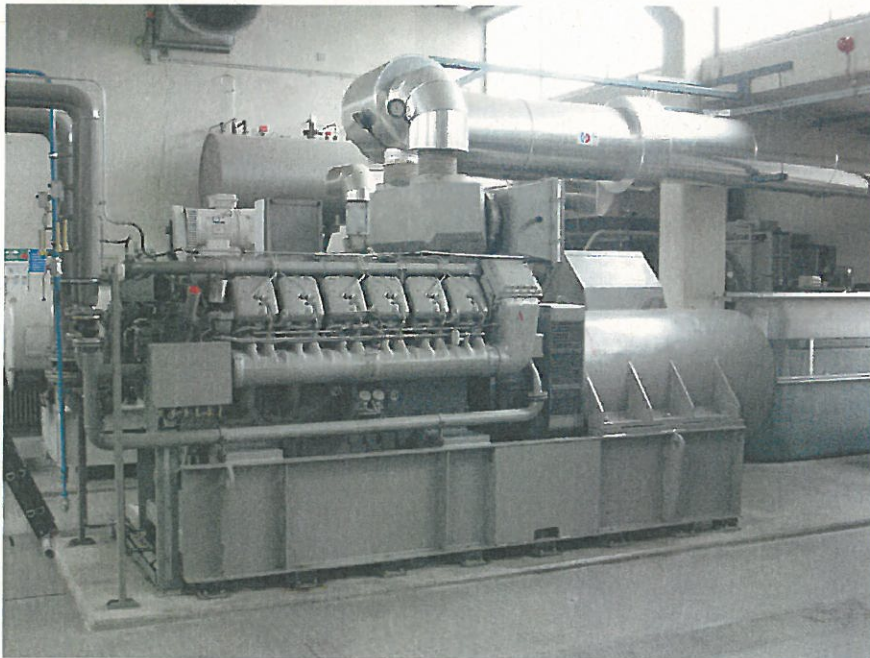


Figure 13 – ANA - 3kV power supply engine and generator



Table 11 – Availability of ANA electro-technical services and safety critical equipment and other PI's – results 2014-15 against targets compared to 2013

ELE SERVICE - KPI # 11 - Availability of Safety Critical Equipment					
KPI # 11	Conformity/reliability of safety critical CNS services	2013	2014 (Q1-Q4)	2015 (Q1-Q2)	Targets
PI # 26	Availability of safety critical equipment - RWY AGL (Airfield Ground Lighting)	achieved	96% RWY 24 89% RWY 06	94% RWY 24 96% RWY 06	75 - 95%
PI # 27	Availability of safety critical equipment - secondary power supply	NA	NA	achieved	< 1sec
PI # 28	Availability of safety critical equipment - all lighting systems	NA	NA	achieved	< 15 sec
PI # 29 Levels	Maximum tolerable ATM SE incidents (AA)	0	0	0	0
	Maximal tolerable ATM SE incidents (A)	0	0	0	0
	Maximal tolerable ATM SE incidents (B)	0	0	0	2
	Maximal tolerable ATM SE incidents (C)	13	13	5	10
	Maximal tolerable ATM SE incidents (E)	4	4	16	20
PI # 30	Average service response time	NA	49 min	1hr08	< 2 hrs
Common PI's		2013	2014	2015	Targets
PI # 1	Maintain/ develop competence of ELE staff	Only plan established	Needs established; training started	Consense training module in test phase	Training plan completed for all staff
PI # 2	Stakeholder consultation (internal stakeholders)	NA	MET/ELE SLA	TBD	Define relevant interfaces
PI # 3	Stakeholder consultation external stakeholders)	Stakeholder list for ANSP part	Revised stakeholder list	TBD	Establish a complete register

Notes Table 11: The performance figures in PI# 29 were recorded in occurrence reports (Form C) and stored in SMU. The target for severity class C is since 2014-15 changed to 10 and was 13 for 2013 and 2014. The elevated number of occurrence reports with severity C in 2013/2014 was due to the fact that the new ALCMS is providing more information to the ATCO's.

One issue for the RWY06/24 AGL is the photometric measurement of the RWY lights using specific measuring equipment (MALMS).

The percentage figures for PI# 26 are the percentage of lamps that are 50% above standard (ICAO requirement; adopted by EASA in the frame of the EU 139/2014). Although EASA does not specify the number of times the photometric properties of the lights are to be checked; photometric measures are done at ELE at least once per year.

Table 11bis below relates to the KPI above and gives the measured results since 2011 – 2015 (first half) measures.

The 2014 – 15 results indicate very good performance (percentage of lamps meeting the photometric requirements) as one performance indicator for the PI# 26.

Table 11bis – Photometric results RWY lights 2011 - 2015

Year	Percentage of lamps meeting the photometric requirements			Identified problems
	RW24 lights	RWY 06 lights	RW TDZ <sup>24</sup>	
2011	41%	56%	NA	NA
2012/1	No measurement	29%	NA	RWY de-icing product
2012/2	83%	No measurement	NA	NA
2014/1	96%	89%	NA	None
2015/1	94%	95%	93%-100%	None

<sup>24</sup> TDZ = RWY Touch Down Zone



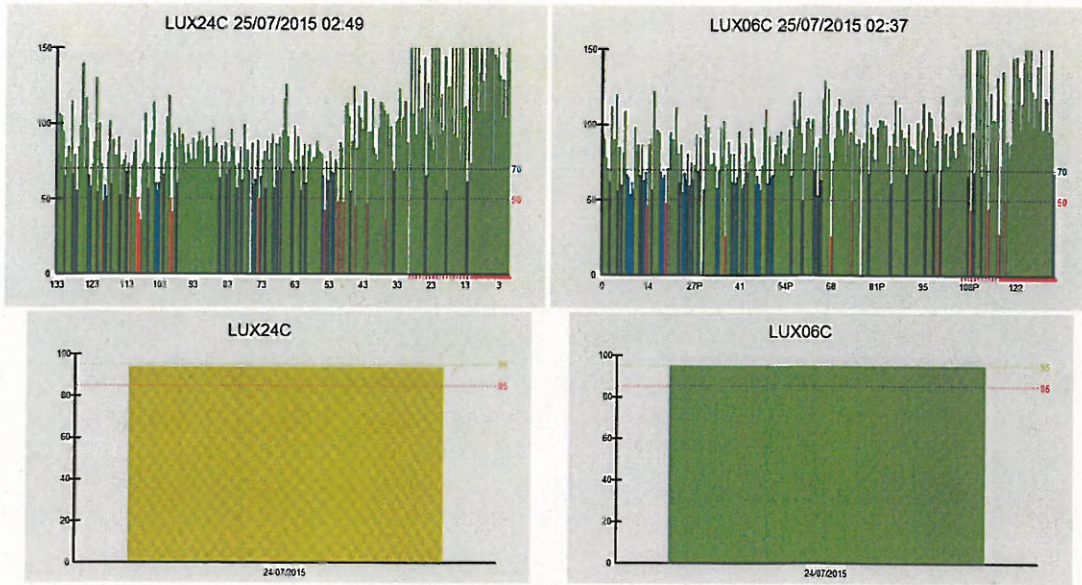


Figure 14 – Graphical representations and results of photometric measurement of RW 24/06 lights (2015)







**AER / aerodrome certification:** AIS was actively involved in AER responsibilities in 2014; these activities will continue.

**Strategic initiatives:** (see Chapter 1.8.4 and Table in ANNEX 3).

**Other activities:** AIS participated in meetings of AROC, the Winter Operations Cell, and Airport User Committee (AUC) plus in external groups (Eurocontrol, FABEC).

### 1.8.2 AIS Performance 2014

AIS started in 2014 to apply the PI's developed and agreed in 2013 and has adopted since the same approach to performance measurement as other operational services.

Table 12 below lists them together with the status of achievement in 2014 (Q1 – Q4).

Table 12 – AIS performance results 2014

AIS SERVICE - KPI # 10 - Integrity / quality of aeronautical information - Achievement 2014 (Q1-Q4) - 2015 (mid year)				
KPI 10	Severity of ATM ground contribution to incidents	2014 (Q1-Q4)	2015 (Q1-Q2)	Targets
PI 21	% of completed SLA's with external data providers	0	No data	80%
PI 22	(Lack of ) integrity of Luxembourg aeronautical data published by Belgocontrol	1,77%	No data	0%
PI 23	(Lack of ) integrity of Luxembourg aeronautical data from dat providers transmitted by AIS to Belgocontrol	6,94%	No data	0%
Common PI's				
PI 1	Maintain / develop competence of AIS staff	Done	Ongoing	No target set
PI 2	Maintain regular consultation and exchange with ANA internal stakeholders	Done	Ongoing	No target set
PI 3	Maintain regular consultation and exchange with ANA external stakeholders	Done	Ongoing	No target set

**Notes:** The measurement of PI 22 is the number of detected differences between the data issued by AIS and the data actually published by Belgocontrol. Similarly, PI 23 measures the number of detected differences between data received from an external data provider and the data that is transmitted by AIS to Belgocontrol following AIS internal consistency etc. checks.

Regarding the common PI's it is to be noted that:

- 14 AIS /ARO staff followed 24 different training sessions / courses in 2014.
- AIS is involved and participates in all relevant meetings / consults with internal parties: ATC (on flight issues; alerts etc.), CNS (AIS equipment), SIS (winter ops procedures and coordination with MET, ATC, AER).

- AIS also holds internal and external meetings with data providers to AIS on AIP publications.
- Regular consultation and exchange with external parties is ensured: Belgocontrol (IAIP publication), Cargolux, Luxair, other airport users and LuxAirport (data provision), DAC (regulatory issues; participation in ADIM meetings), DFS (contingency for AMHS; ICAO documentation) and others.

### 1.8.3 ESSIP achievements in 2014

Table 13 (next page) shows the AIS-relevant ESSIP Objective for 2014 as reported in the Luxembourg 2014 LSSIP report.

The table indicates that ANA has an immediate gap in the achievement of the current ESSIP in regard to two AIS related Objectives:

- **Integrated briefing level 5:** Full level 5 briefing is still planned but not implemented. **Visio briefing:** AIS and MET planned visio briefing facilities are ongoing. It took long to come to an agreement on appropriate sites for the visio briefing facilities which have eventually been identified and technical and financial matters are decided (ongoing).
- **ADQ implementation (EC 73/2010):** this item relates to the continuing status of AIS as a not certified service as an AIS service provider. In 2014 this was recognised and decided to change this. The institutional and regulatory framework for implementation of the ADQ Objective is still pending (related also to INF07).



Figure 15 – AIS office (panorama view)

### 1.8.4 Status and progress in strategic initiatives set for AIS

The Table in ANNEX 3 summarises the status on progress in strategic initiatives proposed.

As indicated before the process and proposal established and sent to MDDI for a national policy / regulatory framework for aeronautical data and information handling in line with ADQ Rule is still pending.



The eTOD tender action is also still pending and hampering the acquisition of electronic obstacle data at the airport and its surrounding which is required to overcome urgent pending PANS OPS, aerodrome certification and FABEC (SWAP project) cases and to implement the developed CDO operation procedures in Luxembourg airspace.

In order to overcome the backlog in these developments ANA has taken to acquire the data and mapping information using a direct measurement approach. It should be mentioned, that this is a quick fix and does not replace the need to acquire and maintain an electronic database of TOD for Luxembourg.

Table 13 - ESSIP Objective AIS – Results in the 2014 reporting cycle

ESSIP OBJ	2014 Results	Measures to address performance gap
<p><i>AIS/MET Briefing</i></p> <p><b>INF04 - Implement integrated briefing</b></p>	<p><u>This objective applies to both AIS and MET</u></p> <p>ANA is late in implementing Level 5 integrated (AIS/MET) briefing</p> <p>The establishment of Level 5 briefing facilities at the airport proves difficult and costly; the investment costs have to be justified.</p> <p>The implementation of visio briefing is ongoing; 2 different sites are identified and ready for installation of video-briefing facilities (1 air- and 1 landside)</p>	<p>The project on vision briefing is ongoing after final decision on site and budget / funding is taken. Due to finish end 2015.</p>
<p><i>Aeronautical Data</i></p> <p><b>ITY-ADQ - Ensure quality of aeronautical data and aeronautical information</b></p>	<p>ANA is late in implementing ADQ requirements</p> <p>ANA AIS issues data to Belgocontrol as the next intended user and publisher of information. Formal arrangements are in place and documented in IMS.</p> <p>ANA AIS lacks inputs and instructions from a competent authority on aeronautical data handling, management and maintenance in line with EC 73/2010 requirements, in particular eTOD.</p>	<p>The decision on the proposed formal arrangements at regulatory and State level are pending at State level.</p> <p>ANA / AIS has not been appointed as aeronautical data provider for Luxembourg.</p>
<p><i>Aeronautical Data</i></p> <p><b>INF07 - Electronic Terrain and Obstacle Data</b></p>	<p>This objective is under planning. The institutional and regulatory framework was developed and proposed by DAC to State authorities. The technical requirement doc for the tender were checked against current agreed standards from the TOD WG and issued to MDDI.</p>	<p>The decision on the tender action is pending, the related institutional and regulatory issues are not yet decided.</p> <p>ANA escalated the issue to regulatory / supervisory level for clarification and decision.</p>



## 1.9 Aerodrome Services (AER)

The main tasks of the AER services are

- project-managing, contracting, coordinating and monitoring the maintenance of the RWY and TWY's in close coordination with the main contractor PCH;
- coordinating and performing safety works in compliance with safety requirements; the SMU verifies then that this is done in accordance with procedures and has a sensible output;
- technically specifying, tendering and contracting of related aerodrome studies (e.g. RWY marking, TWY resistance; buildings and obstacles in the vicinity of the airport);
- leading and managing the Winter Operations Cell, coordination and implantation of actions during conditions of snow and ice; decontamination liquid storage management;
- RWY inspection (e.g. FOD, signals) in coordination with ATC, MET, SIS.

After an internal re-organisation wildlife service was moved under the ADSM Department.

### 1.9.1 2014-15 Activities and projects

**RWY / TWY maintenance:** Several re-surfacing activities on RWY/TWY in close cooperation with the services from *Ponts et Chaussées* (PCH) in two implementation periods during the reporting period, one in autumn 2014 and one in spring 2015 were organised, coordinated and monitored.

The airport had to be closed during nights (00:00 – 06:00hrs) remained open at all other times.

Besides some issues during the autumn 2014 campaign the spring 2015 campaign works was achieved with limited restrictions to traffic (see [Table 16](#)).

The 'convention de travail' in place between ANA and PCH is still the basis for the coordination. ANA / AER drafted an SLA; the agreement by PCH of the document is still pending.

The SLA covers the planning, organisation and execution of

- aerodrome infrastructure works;
- surface markings;
- supervision of the works;
- RWY/TWY inspections;
- winter (snow removal) and summer (grass mowing/ removal);
- civil engineering;
- maintenance of the (surface water) retention basin.

#### **RWY friction testing:**

The friction testing vehicles operated by SIS suffered some major problems during the year. The most recently supplied vehicle was ultimately

returned to the supplier for repair and rigorous testing before being put into service once again. A replacement vehicle was provided by the supplier in the interim.

**Aerodrome certification:** The work on the Aerodrome Certification in line with the EU 139/2014 Regulation<sup>26</sup> is of principal importance for AER. The work continued in 2014, is ongoing and will be continuing until 2017.

The publication of the new airport regulation, EU 139/2014, sets requirements that replace national law, and is now the basis for this activity towards certification (see next paragraph).

The **Certification Steering Group** set up as the steering body for this work coordinates the work. All aerodrome partners participate and contribute to the work. The main task at this moment is to draft a consistent, coherent and valid Aerodrome Manual which includes (revised and harmonised) procedures and processes (see next paragraph and [Figure 16](#)).

The involvement of stakeholders at State level and establishing a regulatory framework and participation of the regulator in the certification process is an urgent key requirement still to be ensured.

Regular and broad information and communication on the certification work and the processes set up has started in 2015 with the first edition of the 'Aerodrome Certification Bulletin'

**Aerodrome Manual:** ANA AER and other departments continued to work on the Aerodrome Manual that will integrate existing documents (e.g. PTO<sup>27</sup>) from the various parties and will describe the processes, procedures and arrangements around the airport as an integrated process.

The PTO was finalised and released in spring 2015.

The involvement and active participation of all airport stakeholders (ANA Departments AIS, SIS, SMU, ATC, Luxair, Cargolux, lux-Airport, lux-Airport, PCH, AUC<sup>28</sup> and Luxfuel) is now ensured.

The implementation of regulation EU 139/2014 will almost inevitably require changes to the responsibilities of some departments and personnel within ANA.

Restructuring the existing organisation to align better those departments involved with aerodrome

<sup>26</sup> EU Regulation 139/2014 laying down requirements and administrative procedures related to aerodromes pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council.

<sup>27</sup> ANA (2015), Consigne d'Exploitation de PTO – Procédures Techniques et Opérationnelles (Aerodrome). ANA : Luxembourg.

<sup>28</sup> Airport User Committee



operations is being considered in order to ensure a coherent and integrated management of all aerodrome related activities.

ANA AER will take the lead in defining an integrated and coordinated approach which will enable also an information flow and feedback for improvement.

### 1.9.2 Performance achievements

AER in 2013 had no KPI / PI defined and agreed for its services. Work started in Q2 2014 with QM to define PIs and set in place targets for the forthcoming reporting period.

This work continued in the second half of 2014 and AER could provide a full update during the March 2015 KPI / PI review. The results are given in Table 14.

Table 14 – Results in aerodrome service related PI's

AER SERVICE - KPI # 19 - Safety, quality and integrity of aerodrome service - Achievement 2013 & 2014 (Q1-Q4) - 2015 (Q1)					
KPI 19	Safety, quality and integrity of aerodrome service	2013 (Q1-Q4)	2014 (Q1-Q4)	2015 (Q1-Q2)	Targets
PI 51	FOD # according classification scheme for FOD (Unit responsible: SIS; see KPI# 16)	Birds: 29 Other A.: 4 Metal: 7 Veget.: 3	Birds: 29 Other A.: 4 Metal: 7 Veget.: 3	Birds: 29 Other A.: 4 Metal: 7 Veget.: 3	No target set
PI 52	RWY incursion (Unit responsible: SMU)	ACFT: 3 Cars: 1	ACFT: 3 Cars: 0	ACFT: 0 Cars: 0	0
PI 53	# bird strikes per 10000 acft movements (responsible: Wildlife)	NA	Area 1: 1,39 / 1,95 Area 2: 0	No data	Target to be defined
PI 54	TWY incursions (Unit responsible: SMU)	ACFT: 0 Cars: 3	ACFT: 0 Cars: 3	ACFT: 0 Cars: 0	0
PI 55	Obstacles erected (authorised/non-authorised)	non-auth.: 3 author.: 7	non-auth.: 4 author.: 10	non-auth.: 0 author.: 2	0
PI 56	Delayed RWY opening due to Work In Progress (WIP) (responsible Unit: AER)	NA	2h 10	2h (1 occasion)	0
PI 57	Delayed RWY opening due to snow removal (responsible Unit: AER)	PI and target to be re-defined			
PI 58	Number of SIS interventions on incidents classification (responsible Unit: SIS)	Fire: 159 Techn.: 86	Fire: 152 Techn.: 95	Fire: 23 Techn.: 11	Target to be defined
Common PI's					
PI 1	Maintain/develop competence of staff	Several ACI courses on safety held	ACI - ICAO Annex 14, EASA certification	TBD	Target to be defined
PI 2	Maintain regular consultation with internal stakeholders	Achieved	Achieved	Achieved	Target to be defined
PI 3	Maintain regular consultation with external stakeholders	Achieved	Achieved	Achieved	Target to be defined

The KPI and related PI's need to be coordinated with the other partners responsible for reporting and monitoring:

- SIS – Fire brigade and rescue service (see also Chapter 1.10);
- SMU – Safety Management Unit.

The results show that the efforts made in the AER domain do pay off. The number of incursions (RWY & TWY) is decreasing as well as are bird strikes.

AER has in 2014 put up signs at crossroads and drafted a new plan on the TWY separations to remove ambiguity in the communication between drivers and ATC. This plan is under implementation.

An important step was made with the start of drafting and agreeing on new aerodrome driver certification and driving rules.

These works are done in close coordination with other aerodrome partners and in line with the works in ANA as the assigned aerodrome operator (Regulation EU 139/2014).

### 1.9.3 Staff competence in AER

Given the new role and responsibilities to ANA as the aerodrome operator for implementing the EU Regulation 139/2014 efforts to develop staff competence in AER and on all relevant aerodrome matters is a key requirement.

As indicated in Table 14 AER personnel has received training in various aerodrome safety and in ICAO / EASA requirements directly relevant for the certification work.

Involvement of further personnel (including AIS) in training activities and other activities designed to improve competence on aerodrome matters is considered to be a matter of urgency and great efforts will be put into its organisation.

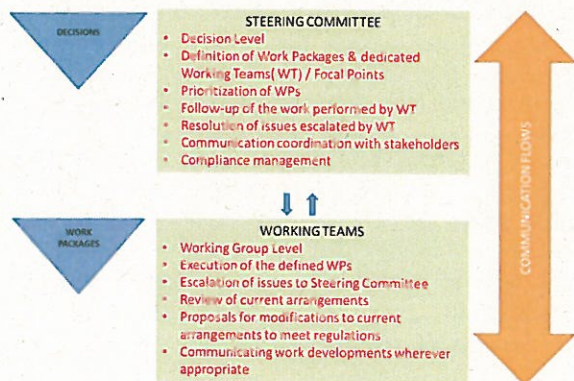


Figure 16 – Aerodrome steering and working arrangements for airport certification works



## 1.10 Fire brigade and rescue service (SIS)

The main tasks of SIS are the

- intervention in case of aircraft incidents / accidents;
- support to persons (first aid) in critical conditions at air- and landside.

SIS is also tasked with

- interventions in case of liquid spills (fuel and other liquids e.g. oil, chemicals; in some cases interventions are done in cooperation with external partners (SIA<sup>29</sup>) e.g. in cases of unknown or dangerous goods requiring special equipment and protection);
- interventions in accordance with the Dangerous Goods Regulations;
- daily inspections of the RWY and the TWY's and collection of FOD and remains after bird strikes (in cooperation with AER);
- wildlife / bird strike management (in cooperation with the wildlife management cell in ADM).

During winter operations SIS

- performs regular friction tests with a special friction tester vehicle.

### 1.10.1 SIS Activities

**PIA**<sup>30</sup>: The intervention plan (PIA) governs the procedures, tasks and conditions etc. for interventions at the airport. SIS released the document in 2013; in 2014 a slightly revised and updated version followed.

**PTO**: The 'Procédures Techniques et Opérationnelles' (PTO) are summarising the other tasks in which SIS (and other services) are involved. ANA revised the relevant parts for this document; relevant parts are now included in the SIS operational manual (see [Chapter 1.9](#) for further details).

**Friction testing**: The friction test task is triggered by a MET report regarding weather conditions and the process that starts is closely coordinated with ATC and AIS and PCH. To this effect SIS establishes the friction test results in a standard format. The equipment has to be calibrated annually to ensure valid and reliable results; a procedure and plan was developed following unsatisfying results on a new friction tester. This development was done in cooperation with AER (see [Chapter 1.9](#)).

SIS provides the validated report of the results to ATC, AIS and PCH for their follow up and action as

appropriate. A new procedure including all concerned departments is being elaborated.

**Fire engine, equipment**: The two new Rosenbauer Panther trucks were put in full operation; this potentially increases the RFFS capability from the current 9 to 10 (see [Figure 17](#)). A new hangar for the trucks was built and is in use since 2014.

**Winter operations**: SIS is also represented in the airport Winter Operations Cell.

Finally SIS is responsible for the maintenance of about 120 vehicles and engines of ANA and PCH.

### 1.10.2 SIS Performance in KPI

SIS has agreed and signed KPI and PIs with clear targets.

It is to be noted that close corporation and coordination is ensured with AER partners and part of:

- FOD classification and reporting;
- Friction testing equipment.

AER has adopted a simple classification scheme for FODs, including wildlife remains. All FOD reports are drafted in a common form by the various parties that do inspections (i.e. AER, SIS). SIS gathers all reports in a central register. The analysis of the reports and reporting to management is done by AER.

Fuel and other spill reports are handled by SIS.

[Table 14](#) provides an overview in the PI achievements until Q2/2014.

SIS demonstrated its capability in keeping in line with the target set for intervention time, a major target also in regard to ICAO requirements.

SIS must and is planning to advance in the other PI's in line with the requirements laid down in EASA AMCs.

**Service level alignment**: The service level requirements (i.e. aircraft category) for SIS operations as indicated in the KPI form are related to training needs of SIS personnel as stated but also to the availability of trained personnel during shifts and in standby.

These, and related measures for a work schedule and operations more operationally driven have started in 2014 with an initial review of night curfew flight operations. The results as regards the Rescue and Fire Fighting Services category are under discussion.

The stakeholder consultation on service needs, also in relation to the ongoing ANA contingency plan (which includes SIS), investigations of the operating needs with airlines, and ICAO and EASA requirements will need further analysis and planning.

These activities are ongoing.

<sup>29</sup> Service d'incendie et d'ambulances de la ville (Luxembourg)(SIA)

<sup>30</sup> ANA SIS 2014, Plan d'intervention aéroportuaire. 2014



Table 15 - SIS – Performance Assessment / Achievement 2012 – 2013 against KPI and local PI's (KPI#16)

SIS SERVICE - KPI # 17 - Conformity / reliability of airport SIS safety critical services and equipment - Achievement 2014 (Q1-Q4) - 2015 (Q1-Q2)				
KPI	Conformity / reliability of airport SIS safety critical services	2014 (Q1-Q4)	2015	Target
PI 37	Emergency response time (Equipe 1, 17/1/14)	02 min 42 s	No data	< 3 min
	Emergency response time (Equipe 3, 3/3/14)	02 min 29 s		
	Emergency response time (Equipe 2, 1/7/14)	03 min 25 s		
	Emergency response time (Equipe 4, 3/7/14)	02 min 19 s		
Common PI's				
PI 1	Maintain and develop competence of staff: fire fighting and rescue competence development	Achieved	Ongoing	Training plan completed (100%)
	<u>Action:</u> Establish and agree level of security and operational need	NA	Ongoing	To be defined
	<u>Action:</u> Ensure conformity of the SIS competence scheme and training plan with the agreed level of security and operational need	NA	Ongoing	To be defined
PI 2	Maintain regular internal services interfaces	Achieved	Ongoing	All relevant interfaces identified, defined and coordinated
PI 3	External services interface	Achieved	Ongoing	All actions defined, coordinated and resolved with external parties

### 1.10.3 Staff training

The core PI for SIS is the rapidity of intervention in case of accidents and rescuing passengers and crew in distress, danger or injured as soon as is possible. Regular

- training of SIS staff in accordance with the fire fighting and rescue training plan and
- exercises of the staff under various conditions of fire fighting and rescue

are key for the proper functioning of the service.

ANA puts a high priority on training of SIS personnel with substantial investments in working and training facilities on site and for external and on-site training.

In 2014<sup>31</sup> SIS personnel achieved the training and rescue exercise plan:

- 142 practical exercises were held on-site;
- 12 firemen were trained in specific training facilities abroad (Teeside, UK);
- 8 firemen received formal training on a/c rescue (Bergelehrgang);
- 6 firemen received practical training in the national training centre in Luxembourg.

The number of interventions technical and fire/rescue related are reported in Table 15.

**ICAO exercise 2014:** The SIS fire and rescue exercise in autumn 2014 with the participation of Luxair, handling agents, police, SIA and other

support and operational groups was important and revealed a number of issues in the organisation of the exercise that were recorded, allocated to concerned parties and resolved.

The changes will be considered in forthcoming exercises.



Figure 17 – New SIS / ELLX fire engines (Panther); operating dashboard

<sup>31</sup> The training data for 2015 is not included.



## PROJECT MANAGEMENT IN OPERATIONS & INFRASTRUCTURE

### 1.11 Progress in Project Management (PM)

The Programme Management Office (PMO), established in 2012, continued and advanced in 2014 – 2015 with the implementation of PM tools and procedures, regular internal project reviews and direct and indirect project support.

#### 1.11.1 General PM issues

The managing of the portfolio of projects and ensuring progress according to schedule and in line with budget and resources is a normal PM task. However, to achieve it in practice is still a challenge. The reasons for sometimes substantial delays in finishing projects (and cost-overruns) are manifold. Some important factors are:

- time needed for a correct and complete identification and establishment of technical requirements;
- delays in the tendering process;
- delays in required external civil engineering works and studies;
- safety case work;
- extended acceptance testing / shadow mode and non-compliance with technical requirements;
- legacy projects not developed and planned according to current ANA PM standards.

A particular issue but common subject in nearly all developments and implementation projects are the safety WP's and tasks and the initial and continuous testing and transition period following implementation.

The efforts required during these phases are often underestimated even in cases of implementation of COTS<sup>32</sup> products. A reset after serious bugs or failures easily can delay projects as it did in some instances. Close coordination between partners involved, regular and honest feedback and an attitude and a positive culture that supports the finding of solutions is key.

PMO is providing its service to project leaders and teams and provides the feedback, gives alerts and monitor and controls projects. The aim is to keep projects afloat and finding solutions for problems in a partnership approach.

The safety case work in projects – especially when Interoperability (IOP) and Software Safety Assurance (SSAS) are involved – requires specific competence in the project teams. This competence is acquired step-by-step with support by external experts. This competence must be commensurate with the competence at supplier level and, last but not least, at NSA level.

This is still an area for improvement, requiring further efforts in training and human resources despite the fact that big steps forward have been made in project teams in this regard.

Despite these challenges 2014 / 2015 saw an important number of finished projects, many changes implemented and endorsed (see [Table 16](#)).

The following chapters provide an overview of the 2014 - 15 achievements.

#### 1.11.2 Program and PM processes

**Project launch & approval:** Project leaders are required to fill the Project Change Request Template (PCRT).

During this process step PMO and the Strategic Management Team (SMT) in charge for approving and monitoring progress in projects scrutinise the reasoning for a project, links to existing systems, ensuring that requirements from other departments that are involved or are using a product get their say and advise on technical, operational, financial or regulatory matters related.

The aim is clearly to be as precise and complete in the requirements, the resource needed and performance indicators to be observed.

**Project documentation:** All projects are set up in the tool PMTalk which is accessible online and project leaders are requested to regularly update the status and upload documents related. Project status has to be flagged (e.g. delay is flagged red) that issues can be resolved and or escalated to next level for resolution as soon as is possible and tracking of the item is enabled.

Through regular so called 'Project Cockpit Reviews' at project leaders meeting (quarterly) and in SMT (monthly) all ongoing projects are discussed and status confirmed.

In 2015 SSAS documentation is made part of the Project Life Cycle (PLC) and PCRT. Further advancements and supporting tools are planned to be implemented (e.g. SSAS configuration management).

**Project resource planning and execution:** The estimation of the likely financial (and other) resources is an important first step in achieving cost effectiveness and efficiency. One issue to overcome is the amount of departmental (ANA) efforts during the project life cycle that is to be estimated.

The actual FTE needed for projects is a lot higher as planned; this was observed in some projects like "FDP upgrade", "ADD update" and 'AHMS'.

The tracking of the execution of allocated funds is another big issue.

Since late 2014 ANA support in the purchasing process is available and is employed in helping departments and projects in establishing a proper

<sup>32</sup> Commercial Off The Shelf



tendering, purchasing and tracking methodology. This has had substantial and positive impacts on the projects outturn (e.g. savings made; re-negotiation of existing contracts and contract controls).

**Project cost tracking measures:** In 2014 PMO has started also to establish a project cost tracking methodology and has achieved in 2015 a first important step: PMO will have access to the financial system to track actual expenses in each project against available funds. Actions can now be taken to monitor the cash flow and take actions in case of under- or overspending in comparison to planned budgets.

The PCRT was updated accordingly in 2015 requesting project leaders to estimate project costs on the two budget lines:

- Investment costs (INV);
- Operational costs (OPC).

Guidance is provided online using the correct 'assiette de redevances' codes.

As indicated in Table 16, PMO will only then be able to monitor the initial project budget estimation against actual amounts spent and establishing a reasonable target for this PI.

These measures are closely coordinated with the Financial (FIN) department and require changes to the tools employed and tasks to be performed.

### 1.11.3 PMO Performance in KPI

PMO adopted the KPI – performance management approach in early 2015; the results are provided in Table 16.

The results indicate that

- 14 Projects of the strategic Project Management Plan (PMP) were finalized in 2014. This gives an average of more than 1 project / month which higher as were observed during 2013.
- As reported before PMO now has the means and tools in place to track the performance in project budget execution against plan. The first consolidated project budget / expenses table was established for Q1-Q2 2015.

The following is a list of program and project management activities that continued in 2014 - 2015:

- Quarterly meetings of all project leaders to improve PM processes and procedures.
- Dedicated meetings with Project Leaders to improve prioritization of projects and resource allocation.
- Organization of dedicated sessions to enhance the use of PMTalk, the PM internal web application further populated with additional documentation and facilities.

- Improved cost management process and procedures for each project (Modification of the "Bon de Commande") and project purchasing / contract management duly in place with controls.
- Change notification process is in place and use of the process is firmly agreed; a 'Global Change Management Process' guidance document is available.
- Introduction of PMO related PI's into the ANA Performance Plan is achieved.
- The link between the PMO KPI's and the ESSIP / LSSIP and FABEC Performance Plan is clearly observed; the developments in FABEC PMG are followed.
- SSAS documentation is from now on mandatory as part of the process to implement a new system after approval of the revised / amended Safety Management Manual (SMM) by the DAC.
- Development of a generic CONOPS template is now available to be used in all projects.
- Development and implementation of guidelines for the assessment of the KPA: 'Environmental impacts' of a project.
- Quality control of the PM documentation was improved.
- Project investment costs and other (operational) cost estimation are improved and guidance is available to project leaders. The monitoring and related cost-efficiency measures can now be applied.

The following are areas for improvement in PMO:

### 1.11.4 PM competence

The program for PM training of project leaders and teams was developed, communicated and agreed. Three modules for PM training (Part 1) are foreseen:

- **Module 1:** (for beginners) – basic PM at ANA (in-house by PMO);
- **Module 2:** (intermediate level) – training in the use of PM tools in ANA (PMTalk) (in-house by PMO);
- **Module 3:** (advanced level) – for experience project leaders managing major projects, (external training).

Table 16 gives an overview on the Status of finalised projects, projects ongoing, on hold or cancelled.

**Note:** Status of projects in the table lists only major projects that started or were finished in 2014 up to and including projects that finished until end June 2015 and were supported by PMO.



Table 16 – Status of projects started, ongoing or finished in the period 01 July 2014 – 30 June 2015

Project Status Category <sup>33</sup>	Project Name	Service	Project Status	End date	Scope	Reference to EU / ESSIP / ICAO / PI Reference KPI / KPA
Finalised	DVOR DIK Monitoring	CNS	Implemented	2014	SES	PI (CNS): Availability of safety critical equipment / remote COST EFFICIENCY
	AWOS / ATIS – Automatic Weather Observation System	MET	Deployment operational shadow phase closed 07/2015	Will become operational October 2015	ICAO	ICAO Annex 14 COST EFFICIENCY
	Replacement NDB LE/WLU	CNS	Implemented	2014	Internal ANA	PI (CNS): Availability of safety critical equipment
	LVP update	ATC	Implemented	2014	SES	SAFETY
	Replacement ILS protection barriers / lights RWY	ELE	Implemented	2015	ICAO	ICAO Annex 14 SAFETY
	TWY movement area panels	AER	Implemented	2015	SES ICAO	EU 139/2014 SAFETY
	TWY centreline markings	AER	Implemented	2015	SES ICAP	EU 139/2014 SAFETY
	TWR COM contingency phase 1	ATC	Implemented	2015	SES	EC 1035/2010 Annex 2 – Contingency plan
	DFS Consoles – CWP TWR	CNS / ATC	Deployment	2015	SESAR	HUM03.1 / Project related to A-SMGCS project SAFETY / COST-EFFICIENCY
	MALMS Engineer solution (RWY lights monitoring)	ELE	Deployment	2014	ICAO	ICAO Annex 14 PI: Availability of safety critical equipment
Ongoing	A-SMGCS – Advanced Surface Movement & Ground Control System	ATC	Implementation ongoing	2017 Phase I	SESAR	AOP04.1 / 04.2 / ATM MP SAFETY
	Aerodrome Certification	AER	Study / definition	2017	SES EASA	EU Re 139/2014 (EASA)
	SSAS – SW Safety Assurance System	CNS	Deployment	2015	SES	EC 482/2008 (SSAS) SAFETY
	SDDS – SUR Data Distribution System	CNS	Deployment	2015	SURNET / SES	SURNET agreement / SAFETY (Contingency) EC 1207/2011 (IOP)
	IOP Gateway (digital IP / analogue gateway)	CNS	Deployment	2015	SES	EC 1207/2011 (IOP) SAFETY (Contingency)
	E-TEC new Server Building	CNS	Definition	2017	SES	CNS Contingency / Redundancy (SAFETY) Enabling implementation of other projects
	eTOD – electronic Obstacle & Terrain Data - Photogrammetry	AIS	Definition Policy Decision by MDDI pending	2017	SES	EC 73/2010 (ADQ) / AIP BE LUX Core data enabling implementation projects SAFETY / ENVIRONMENT
	ELLX APP Control CDO – Continuous Descent Operation	ATC	Definition (pending obstacle data & validation/ design)	2015	SES / FABEC	EU 390/2014 (performance) FABEC Performance Plan (FPP) PI (ATC) : Implement CDO ENVIRONMENT
	PMTalk – Project Management Support Tool	PMO	Deployment (Training)	2015	ANA	COST EFFICIENCY

<sup>33</sup> Only major projects listed



Ongoing	Support structures implementation of frangible masts APP 06	ELE	Study (pending legal case)	2016	SES / ICAO	EU 139/2014 (airport) ICAO Annex 14 conformance SAFETY
	Main Power Station SUD	ELE	Definition	2016	NA	Continuity of service - Power supply
	Electro-tech stations at Gates 06 / 18 / 24	ELE	Definition (pending decisions, PCH)	2016	SES ICAO	Continuity of service PWR supply
	ALCMS upgrade (RWY/TWY lighting system)	ELE	Definition / Implementation	2016	SES ICAO	Upgrade of lighting system COST EFFICIENCY
	CNS & MET Network architecture	CNS	Definition	2016	SES	Replacement - increase reliability, redundancy, IOP
	ATM architecture virtualisation	CNS	Deployment	2015	SES	EC 1207/2011 (IOP) CNS Contingency / Redundancy / Replacement (SAFETY)
	PANS OPS Software	AIS	Definition	2016	SES ICAO	EU 139/2014 (ICAO) – Certification SAFETY
	ANA Security Concept	IMS	Definition	2016	SES	SECURITY
	RWY / TWY refurbishment	AER	Definition (pending decision, PCH)	2017 / 2019	Aerodrome ANA	Airport continuity of service; decision pending
	Electric distribution Glidepath RWY 24	ELE	Definition (pending buildg. decision, PCH)	2016	SES ICAO	EU Reg 139/2014 SAFETY
	Backup Telephone System (UNIFY)	ELE	Definition / Implementation	2016	ANA intern	NA
	SUR Chain upgrade	CNS	Definition (pending offer and CBA)	2016	SES	EC 1207/2011 (IOP) CNS Service continuity
	RVR Sensor (RWY Visual Range)	MET	Deployment	2015	SES ICAO	EU 139/2014 SAFETY
	Replacement wind sensors	MET	Deployment; HW update pending	2015	SES ICAO	EU 139/2014 SAFETY
IOP Gateway	CNS	Deployment	2015	SES (IOP) (ASMGCS)	Ensure interoperability between systems (ASMGCS / SUR)	
On hold	Full integrated briefing AIS MET	AIS / MET	On hold	Study	SESAR	INF04 / ATM MP (alternative solutions investigated; sites identified, final decision and budget tbd) The project will most probably be re-launched in late 2015.
	Replacement MET garden	MET	On hold	TBD	ICAO	Project is related to AWOS / ATIS project
	D-ATIS	CNS / ATC	On hold	TBD	Internal ANA	Project is related to AWOS / ATIS project
	MUAC Fallback system	ATC	On hold	TBD	SES	EC 1035/2010 Annex 2 – Contingency plan



Cancelled	Interface AWOS / CLISYS	MET	Cancelled	--	Internal ANA	No reference
	Thies – Web-Module	MET	Cancelled	--	Internal ANA	No reference
	TAR3 – Terminal Area Radar	CNS	Cancelled	--	NA	Alternative solutions and measures found for radar contingency
	CLISYS Database Monitoring Systems	MET	Cancelled	--	Internal ANA	No reference

**Note:** The table lists the major projects that started in 2013 - 2014 most of which were published in the Annual Plan (see: ANA, 2014, ANA Annual Plan 2014-15. Luxembourg, ANA) plus projects approved during 2014-2015. The total investment volume of all projects finalised and ongoing (except AER RWY project) is about 18 M€.

Table 17 – KPI achievements against newly established KPI / PIs

PMO SERVICE - KPI # 20 - Maintain quality and efficiency of Project Management - Achievement 2014 - 2015 (Q1-Q2)				
KPI 20	Maintain quality and efficiency of Project Management	2014 (Q1-Q4)	2015 (Q1 - Q2)	Target
PI 49	Number of projects finished / planned to finish	Total of 15 projects finished	3	No target set / TBD
PI 50	Effectiveness of project costs to project budget	Development of approach	Tool devised to track costs from FIN system	No target set / TBD
Common PI's				
PI 1	Maintain and develop competence of staff in PM	Planning of courses	Presentation of Modules 1-3 Ongoing	100%
	Action: Implementation of PM training plan for project leaders and teams			
PI 2	Maintain regular consultation and exchange with ANA internal stakeholders / customers	3 meetings held	2 meetings held	100%
	Action: Hold quarterly project leader meetings			
PI 3	Maintain regular consultation and exchange with ANA external stakeholders / customers	Achieved	Planned	100%
	Action: Attend / report at formal Airport User Committee (AUC) meetings			



## QUALITY MANAGEMENT

### 1.12 QM activities and results

ANA Quality Management Service (QMS) is responsible for the development, maintenance and revision internal Quality Management (QM) structures, procedures and processes. This includes:

- internal communication (Lead IMS; coordination between safety, quality, PM, security and training);
- management review meetings (twice annually reporting and review of all internal management processes);
- KPI review meetings (twice annually reporting and review of all departmental KPIs, PI's and performance targets and associated actions and setting new / revising existing performance indicators);
- internal audits in different services (in 2014 a total of 13 intern audits were held; quality improvements and feedback);
- external audit (EASA, DAC) – follow up, organisation of corrective actions and coordination with DAC;
- preparation and follow up actions to ISO 9001 audits;
- internal quality management processes through meetings with quality officers (quality improvements, corrective actions following audits etc).
- organisational structure (organigramme); detailing of job responsibilities, training, security and safety questions for assigned officials.

#### 1.12.1 External audits

The results as regard external audits / ISO are positive:

- remaining non-conformities (NC) from NSA audits were closed in 2014 (2) and 2015 (1) and a total of 18 observations (OBS) from NSA audits were closed;
- ISO audits in 2014 were passed without NCs and the ISO certificate for ANA was renewed until 2017.

With this result all non-conformities regarding common requirements regulation EC 1035/2011 (Annex I) could be closed.

The process for the management of external audits is clearly defined in the IMS manual.

#### 1.12.2 Internal audits

- A new team of internal auditors was created in May 2013 in order to restart the internal audits. Subsequently a total 12 (of the 13 planned)

internal audits were organised in 2013, resulting in many findings which has allowed improvements in all aspects.

- Specific training on internal auditing was given to all quality officers.

#### 1.12.3 Processes and procedures

The efforts in 2014 concentrated on internal QM structures, quality trainings and regular QM meetings at working (departmental) and management level.

As in the preceding reporting period internal processes, procedures and structures were either created or revised and integrated into the Integrated Management System (IMS) and documented as appropriate.

The management team convenes regularly at least once per month in **Lead IMS meetings** which aim to get a better understanding of the applicable regulations and standards and upcoming changes. The aim is then to coordinate the internal activities related and establish a shared approach and response.

Records of meetings are kept and the action list is followed up on.

#### 1.12.4 Performance reviews & management measures

Twice annually (March / October) a full day meeting is held during which departments / services report about achievements against performance indicators (PI's), targets and specific actions in past 6 month.

An outlook to the next 6-month period is given and proposals are made for revisions, updates or new PI's to adapt better to strategic business objectives and new demands.

This process provides also the inputs for the Annual Reports and the Annual Plan and has proven to be effective.

**Departmental KPI management:** Following the spring KPI review meeting all departmental KPIs and PI's / targets and actions are updated, coordinated with all units, agreed and signed. ANA runs a total of 20 KPIs covering all departments and services (not just certified services) and about 60 PI's.

Several services / units have in 2014 / 15 joined this process and developed performance indicators (e.g. AER, PMO and QM).

The performance management processes are and important tool at this stage of the organisational and internal culture change process in ANA.

The performance results achieved during the last three years are a clear indicator for the big steps that ANA as an organisation, as a business partner and last but not least as a service provider has made in all areas.



The efforts spent in the performance management process have paid off.

**Quality award for ANA 2014:** Winning the 2014 'Prix Luxembourgeois de la Qualité et de l'Excellence' for medium size enterprises was an additional positive sign that ANA is moving in the right direction in terms of quality and internal process and procedure management. Special emphasis was given by the assessors to the clear strategic vision and the safety and quality culture developed.

**1.12.5 Strategic KPI – KPA mapping**

ANA QMS keeps an eye also on the strategic objectives in performance management. Departmental KPIs aim also to achieve the wider (general) Key Performance Areas (KPA's).

Table 19 presents this mapping of KPI results against KPAs and the progress achieved / gaps remaining from this strategic performance perspective.

**1.12.6 Management reviews**

Two management review meetings were held during the reporting period: one in October 2014 and one in March 2015 with the CEO present and including all management staff.

The goal of the management review is to check the performance of the Quality Management System (QMS) and to review the main managerial processes. Actions for improvement are established.

**1.12.7 KPI results in QM 2014-15**

One QM performance indicator concerns the compilation, consolidation, follow up and reporting of customer complaints. Table 18 provides the situation for 2014

Table 18 – KPI results / achievements 2014

QUAL SERVICE - KPI # 18 - Maintain Quality Management System - Achievement 2014 - 2015					
KPI 18	Total ANA customer complaints	2013	2014	2015	Target
PI 47	External occurrences / safety reports	72	67	No data	No target set
	Laser attacks		7		
	Birdstrikes / suspected birdstrikes		36		
	TCAS warnings		3		
	Others		21		
PI NN	Internal audits		12	3	14
PI NN	External audits		2	0	No target set
	# of findings (NCs/OBS)	17	3		
	Closed findings	NA	18	15	No target set
	Open findings		6 NCs/9 OBS	2	

The results summarise the achievements. In March 2015 a revised KPI for QMS was adopted.



Table 19 – Mapping of main actions and results in departmental KPIs / PI's against Key Performance Areas (KPA's), corrective actions and performance gaps

Key Performance Area (KPA)	EU wide / FABEC / ANA KPI / PI and targets	ANA 2014-15 specific actions planned	Performance achievement 2014-15	Corrective actions proposed	Gaps closed in 2014-15?
SAFETY	<b>SES-PI 1:</b> Effectiveness of SMS (EoSMS) Target: FABEC - Reach level 3 in all items by end 2014	ANA to continue improving the safety situation in 2014-15 inside ANA by: P 1. Verify and document redundant capabilities in primary systems during emergency / contingency P 2. Share safety and SMS best practices P 3. Establish structured approach to operational safety and SMS	Ad #1: Partly achieved; a big step forward achieved with Belgocontrol in regard to the clear the sky procedure testing and safety assessment. Ad #2: Achieved – participation in IntACT audits established. Ad #3: Further improvement in a number of relevant documents and processes achieved; re-establishment of the L-AST with clear mandate and TORs is a key achievement. The publication of the Safety Plan and systematic work on the actions in the Safety Plan.	Work on contingency / redundancy of systems and procedures needs to continue. Closer partnership and coordination with airport partners is achieved and will enable to resolve safety issues at the airport. SAF Plan – finalise late or pending actions. Specific efforts required in management objective on safety policy.	The SAF system has worked well and most actions were closed. There is a strong need to improve the management area of safety policy and objectives. Ongoing work on SAF Plan to close open actions.
SAFETY	<b>SES-PI 2:</b> Apply severity classification ANA Target: Apply severity classification to all SMLs and Ris and ATM -SEs	P 4. Apply the severity classification of ATM occurrences	Achieved	None identified	Yes – ongoing activities
SAFETY	<b>SES-PI 3:</b> Reporting of Just Culture Target: No FABEC target ANA target: 19 Items YES	P 5. Improve Just Culture.	ANA has developed and released a JC Policy with actions as regards protection of staff pay during investigation, inclusion of JC principles in all training	<b>State regulator and justice system adaptation in accordance with Just Culture recommendations are not in the power of ANA.</b>	Gap is not fully closed State (juridical system) actions are still required
SAFETY	<b>SES</b> – Implement Contingency measures (in accordance with SES / ESSIP Plan) Part of Corrective Action Plan (CAP) (DAC)	P 6. Develop a Contingency Strategy and plan. P 7. Agree and coordinate basic measures with Belgocontrol ('Clear the Sky Contingency').	Contingency plans developed and presented to DAC. Clear the sky procedures tested and safety assessment done (with Belgocontrol)	Further revision of the Contingency Plan (ongoing). Contingency measures audit to be done. Agreement with stakeholders and users as regards level of service continuity is required.	Main actions implemented in 2014 -15 as part of the Corrective Action Plan for ANA. Non-Conformity regarding EC 1035/2011 requirements on availability of contingency plan closed.



Key Performance Area (KPA)	EU wide / FABEC / ANA KPI / PI and targets	ANA 2014-15 specific actions planned	Performance achievement 2014-15	Corrective actions proposed	Gaps closed in 2014-15?
<b>SAFETY</b>	<b>SES</b> – Requirement on Software Safety Assurance System (SSAS) EC Regulation 482/2008	ANA to develop in 2013 a short – long-term plan and activities to increase competence and develop, with external support, a pilot case.	Training of staff in CNS and deployment of SSAS practice continued (see project list, Table 15).	DAC has delegated the work to neighbouring NSA. Continued training /practising of CNS staff	Not closed. ANA CNS to continue practising SSAS in new projects and improve skills.
<b>SAFETY</b>	<b>ANA PIs:</b> CNS maximal tolerable yearly number of CNS technical incidents	Replace obsolete equipment (AWOS ATIS, NDB, RVR...); P 11. Monitor / report availability of safety critical equipment twice /year	Performance targets were not met in 2014 - 15 – AWOS / ATIS system was implemented but could not be put into operation during 2014 – 15 reporting period due to continued SW problems. All safety critical equipment in CNS is monitored twice / year and reported. No incident > Class D	Supplier action / contract measures taken. Implementation of shadow phase / training and operation of AWOS system planned firmly; new date for operation / training autumn 2015	AWOS not closed - ongoing. Monitoring and reporting actions ongoing; gap closed.
<b>SAFETY</b>	<b>ANA PI :</b> ATC – ATM ground contribution to incidents ANA Target: A1/B2/C12/E24	P 6. Monitor ATM ground contribution to incidents	Targets fully achieved; further decrease in incidents	None	Yes
<b>ENVIRONMENT</b>	<b>SES PI (2):</b> ATC - Establish CDO procedures at ELLX.	P 10. ANA to implement one additional CDO procedure.	CDO procedures developed but could not be finished in 2014-15 due to non-availability of eTOD – pending tender action at MDSD ( see project list in Table 15)	Acquire specific Terrain and Obstacle Data as per project (CDO, SWAP – SID/SATAR) and for aerodrome Area 2 through other means (ongoing).	Ongoing, not closed in 2014-15.
<b>COST – EFFICIENCY</b>	<b>SES PI:</b> En-route and terminal costs	P 41. Cost reduction in ER and TNC (2%/annum) P 42. Cost reduction in TNC (2%/annum).	ANA is monitoring ER and TNC related staff/operating costs and investments together with ADMIN and PMO and takes measures in regard to tendering, purchasing and contract management with the aim to save costs and avoid extra costs in ER and TNC related areas.	Current cost allocation to be improved for SUB/COM. Increase precision in project / investment planning with Departments.	Ongoing, not closed
<b>COST – EFFICIENCY</b>	<b>SES PI:</b> Aerodrome cost	P 43. Cost reduction aerodrome (1,5%/annum)	AER costs are monitored in cooperation with internal partners; measures include tendering / purchasing improvements.	Analyse results / impacts from the cost allocation and DC exercise 2014 (input to action / process below).	Preparation of CEF for RP2 performance plans – gap closed in Q2/2014.



Key Performance Area (KPA)	EU wide / FABEC / ANA KPI / PI and targets	ANA 2014-15 specific actions planned	Performance achievement 2014-15	Corrective actions proposed	Gaps closed in 2014-15?
<b>COST EFFICIENCY</b>	<b>ANA PI:</b> Align investment and operations costs with budget available (no target defined)	No firm target or action defined for the 2014-15 period; however, investment / operations cost monitoring	Provisional tools for monitoring of budget execution in project related expenses are developed and employed (in PMO for all project related costs). Collaboration on financial mgmt. tools and procedures with stakeholders started and ongoing.	Continued planning of investments (CAPEX) required to close the gap between planned and executed budget; budget execution monitoring tools related to the BOB system required	Gap is only partly closed; further developments and in collaboration with external stakeholders (ministries and financial administrations) are planned for 2016.
<b>QUALITY</b>	<b>ANA PI: QM -</b> Quality management monitoring of compliance / adequacy of procedures for safe and efficient operational practices	P 47. External occurrences safety reports	Monitoring and follow up of external occurrences is done and coordinated between partners and addressed during internal QM meetings.	Further improvement areas identified in User Survey and internal QM meetings to be followed up	No immediate gap existing; the continuation of all quality management actions to improve processes and procedures on an ongoing basis



## OTHER ANA SERVICES

### 1.13 Administrative service (ADM)

ADM is the centralised service unit supporting other services of ANA in administrative and technical tasks.

ADM consist of four sub-departments<sup>34</sup>:

**IT (INF)** – provides and maintains the IT infrastructure and auxiliaries (hard- and software) and the internet sites and services of ANA.

In 2013 – 2014 an electronic document handling system was installed and IT continued with the installation of virtual PC solutions that enables a flexible use of the available PC infrastructure, central SW and HW maintenance, reduces maintenance and upkeep costs and increases the availability of IT infrastructure.

**Maintenance (ENT)** – this service part maintains and refurbishes ANA buildings and other facilities, is involved in the maintenance of green areas and provides driver service.

**Secretariat (SEC)** – this service part assists ANA in administrative and clerical tasks.

(See also the Chapter 'Human Resources Policy' which details the developments in 2014-15).

**Wildlife management** (ornithological observation, scaring off of birds, wildlife reporting<sup>35</sup>);

Wildlife service is in place and provides regular reports to the aerodrome community and works closely with the SIS.

The development of a Wildlife Hazard Management Plan has started. The document will be integrated into the PTO (and later into the Aerodrome Manual). The document will describe the framework and procedures in place to manage wildlife risks at ELLX.

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<sup>34</sup> After an internal re-organisation of the Financial and the Human Resources sub-departments became independent units and wildlife service unit was moved to ADM.

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<sup>35</sup> See: ELLX Wild Life Management Annual Report 2014 (in preparation). Luxembourg, ANA.







## ANA FINANCIAL PLANNING & SITUATION

### 1.14 Financial Unit framework

Finance (FIN) is responsible for establishing, managing and monitoring the budget and the financials of ANA projects.

The financial department is also responsible for cost accounting and calculation in line with European performance and charging regulation (see below) and the Central Route Charges Office (CRCO) (Eurocontrol) charging principles for En route charges.

Following an internal re-organisation in 2015 it was decided to establish the former FIN sub-department as an independent unit.

The financial situation and performance results in 2014 – 15 are reported further down.

A major step in 2013 – 2014 in the FIN department was the cost allocation in accordance with the SES requirements as laid down in EU regulations 390/2013 on performance and 391/2013 on air navigation charges.

The outcome of this exercise is the transparent and complete repartition of costs in the three cost areas:

- En-route (ER) Determined Costs (DC) and Determined Unit Costs (DUC);
- Terminal costs (TNC) (DC, DUC);
- Aerodrome (SUB) related costs.

The framework for performance planning for RP2 was given through the regulation itself and the generic templates and forms provided by the EC to the NSAs in the FABs.

In a **first step** ANA developed and employed the means and procedures for the determination and allocation of costs in line with the regulation for its En Route and Terminal services.

In a **second step** ANA developed the content and input for the FABEC Performance Plan (FPP) and the Belgium – Luxembourg PP for En Route (ER) and for the Luxembourg Terminal (TNC) determined costs and charges that reflect the EU wide targets for ER and setting cost reduction targets for ER and TNC.

#### 1.14.1 FPP & BE-LUX PP Preparation for RP2

The FPP and the BE-LUX PP inputs were coordinated and delivered in time, presented to users in 2014 at FABEC and at BE – LUX level (see Annual Report 2013-2014).

The 2015 revision cycle following Commission Implementing Decisions (EU) 2015/347 and 348 were also achieved in time. The inconsistencies relevant for Luxembourg concerned the cost efficiency in En Route charges.

Following the adoption of the recommendations in the EC decision to further reduce determined costs

and adopting the February 2015 traffic figures (base scenario) the revised FPP and BE LUX PP were delivered.

One important change concerned the complete revision and in fact replacement of the charging system for the charging of terminal charges in use until end of 2014.

The principles and calculation formulas of the EU Regulation 391/2013 were adopted. Environmental efforts of airlines in terms of noise emission reduction were honoured through a modulation scheme as laid down in Art 16 of the regulation. (See Chapter 'User and Stakeholder Consultation 2014 – 2015.)

#### 1.14.2 RP2 Performance Plan & State budget planning

The ER and TNC framework approach and cost breakdown was a major input to the FABEC Performance Plan (FPP), Belgium – Luxembourg PP (for ER services in the common charging zone, Brussels FIR) and the Luxembourg TNC cost base and performance plan for RP2.

**Adaptation of the Budgeting Process:** This work required the restructuring of the financial accounting process to come in line with the principles in the EU regulation – especially since 2015 as ANA has to comply with the cost recovery methodology as other ANSPs - whilst maintaining the budget management processes and principles that continue to be applied in Luxembourg public service organisations.

It is acknowledged and was discussed during meetings with the financial authorities in Luxembourg (e.g. IGF<sup>36</sup>) that the issue is a matter for improvement. It is envisaged to start this alignment process in late 2015. In the meantime ANA continues to apply the two approaches in parallel. As an interim solution tools were developed to facilitate this process and still achieving budget and cost transparency and monitoring as required by EU regulation, State budget rules and ANA internal performance indicators in Investment and Operational cost tracking at service and project level.

Table 20 lists the actions launched in the financial framework and processes.

<sup>36</sup> Inspection Général des Finances



Table 20 – FIN processes and procedures improvement actions 2014 - 2015

Improvement action	Benefit
Modifications budgeting process	Simplification budget structure; clarification of commitment and ventilation rules
Implementing SAP accounting system	Formalise match budget accounts – general accounts; less errors
Accounting system BOB	Retrieve data from SAP for ANA internal use (1. Step)
Update process for overdue accounts / unpaid bills	Clear definition of steps in monitoring and control
Review / formalisation of purchasing process	Clear rules and procedures to be followed in all purchases/ contracts (Purchasing Process Coordinator)
Review / formalisation of invoice management	Clear rules and procedures (Purchasing Process Coordinator)
Setup of revised billing process for en route and terminal charges	Calculation of charges in line with EU Regulation; modulation of TNC

**Note:** Achievements during 2014 Q3 – Q4 and 2015 Q1 only.

During the KPI and management reviews in late 2014 and March 2015 ANA internal and external issues were surfaced and discussed and further steps agreed.

### 1.14.3 Budget and investment planning at department level

Investments (CAPEX<sup>37</sup>) in technical and operational infrastructure projects are an important area for further improvements in the process from investment planning down to execution and monitoring. (See the other chapters in this report for examples and improvements.)

One important issue to be resolved is the timely start of the budget planning process which must allow sufficient time to coordinate, check and advise, and consolidate the figures.

Further steps were made in 2014 - 2015 to devise rules and controls in projects and in services in the purchasing, contract management, and contract execution and monitoring process (see Table 20).

The involvement of PMO and FIN, the support of the Purchasing Process Coordinator and the oversight through SMT and the Financial Coordination Team together with Project Leaders is necessary and has proven to be successful.

Additional steps in project budgeting, tendering and purchasing are planned for the next reporting period.

<sup>37</sup> Capital Expenditure

Better tools that allow easy, direct, complete and secure access 'on a fingertip' to financial data at project and service level are one important step to be achieved.

The competence in understanding the ins- and outs of financial budget planning, execution and monitoring and controls are another future step to take.

### 1.14.4 Results in FIN KPI performance

Table 21 lists the results against PI's in KPI # 12 – 15

The PIs for the FIN Department were defined with a view to the European and national financial performance indicators and targets and reflect the situation before the revision in the FABEC / national PP in 2015 and establishing the

The cost saving target in

- En Route (ER) and Terminal (TNC) costs of 2,1% per year during RP2 (2015-2019) in accordance with EU targets;
- savings of 6% in the subsidised budget part (mainly aerodrome) over the four-year period 2015 – 2018.

These targets are now changed in accordance with the revised determined cost situation.

The FIN Department monitors costs and on a regular basis and in close cooperation with the PMO (project related expenses) and department heads (for other purchases and expenses).

Due to re-prioritisation of projects or cancelled projects, delays in implementation a gap between planned budget for projects and actual expenses was detected during the check and monitoring exercise in 2015.

The reasons and likely impacts on the cost base are analysed and actions will be taken in the coming budget planning cycles.

It should be noted though that the planned investments in the FABEC PP / national PP for 2015 are not affected.

Table 21 is not complete as regards KPI 12 – 14 PI's; cost reduction targets will apply as from 2015 onwards and will be compiled on annual level. It should also be noted that the PI's # 41 and 42 were changed and aligned with the changes in the cost base for RP2 during the revision period.

Tight and effective control of Expenditure (CAPEX) and the regular cash flow at service and at project level is a necessity throughout RP2 to

- maintain the **cost balance ER / TNC** to avoid repercussions in the determined costs and related determined unit rates in both service areas;
- achieve **investment targets** in time and within the planned budget especially in infrastructure projects that are enablers for cost-efficiency.



to name but two reasons for improved budget discipline and cost consciousness in ANA.

Several strategic directives of ANA aim for synergies and saving service related costs; the related actions will support to reach the targets.

Table 21 – FIN KPI results 2013/14 - 2015

FIN Dept - KPI # 12 -15 - Cost reduction En Route / Terminal / Aerodrome (SUB) & Productivity increase - Achievement 2013 & 2014 (Q1-Q4) - 2015 (Q1)					
KPI 12 & 13	Cost efficiency - reduce determined costs for En Route & Terminal services	2013 (Q1-Q4)	2014 (Q1-Q4)	2015 (Q1)	Annual targets
PI 41	Cost reduction En Route costs (RP2)	NA	NA	end 2015	minus 2,1%
PI 42	Cost reduction Terminal costs (RP2)	NA	NA	end 2015	minus 2,1%
KPI 14	Cost efficiency - subsidised part (SUB)				
PI 43	Cost reduction aerodrome costs (as of 2015)	NA	NA	end 2015	minus 1,5%
KPI 15	Productivity increase				
PI 44	Reduce # of outstanding receivables (unpaid bills)	106	72	67	10%/annum
PI 45	Reduce # of recalls suppliers / total # of bills	149	140	end 2015	< 3,5%
PI 46	# of customer complaints (billing)	0	0	0	0

#### 1.14.5 Achievements in strategic initiative related activities

FIN is closely involved in the developments as far as financial issues are concerned. FIN is involved especially in the APP Syn projects (ATC) and provides financial and other data for the Cost Benefit Analysis (CBA) in the frame of the assessment projects with Belgocontrol and DFS.

#### 1.15 ANA financial situation 2014:

The following Tables 22 and 23 give the financial situation of ANA for the calendar year 2014 (and for the previous year for comparison) as from the externally audited Annual Account 2014.



## 1.16 Balance sheet after appropriation

Table 22 gives the final balance sheet for the year 2014 (January to December) approved by external financial audit.

Table 22 – ANA Financial Balance sheet 2014 (Status 31.12.2014)<sup>38</sup>

	Note	31/12/2014 EUR	31/12/2013 EUR
<b>ACTIF</b>			
Actif immobilisé			
Immobilisations corporelles	Note 3		
Installations techniques et machines		175 262,47	217 257,76
Autres installations, outillage et mobilier		393 377,04	388 432,53
Total Actif immobilisé		568 639,51	605 690,29
Actif circulant			
Stocks			
Matières premières et consommables		525 696,71	668 146,22
Créances	Note 4		
Créances résultant de ventes et prestations de services		2 500 105,62	2 572 589,94
a) dont la durée résiduelle est inférieure ou égale à un an			
Autres créances		912 704,71	912 704,71
a) dont la durée résiduelle est inférieure ou égale à un an			
Avoirs en banques, avoirs en compte de chèques postaux, chèques et en caisse		12 680 954,17	12 623 812,45
Total Actif circulant		16 619 461,21	16 777 253,32
Compte de régularisation		97 547,07	64 835,85
<b>TOTAL DE L'ACTIF :</b>		<b>17 285 647,79</b>	<b>17 447 779,46</b>
<b>PASSIF</b>			
Capitaux propres	Note 5		
Capital de dotation		5 550 087,48	5 550 087,48
Résultat reportés		11 285 586,45	11 061 406,33
Résultat de l'exercice		(158 722,01)	224 180,12
Total Capitaux propres		16 676 951,92	16 835 673,93
Dettes non subordonnées	Note 6		
Dettes sur achats et prestations de services			
a) dont la durée résiduelle est inférieure ou égale à un an		523 056,47	510 733,22
Dettes fiscales et dettes au titre de la sécurité sociale			
a) dettes fiscales		70 954,97	101 372,31
Autres dettes			
a) dont la durée résiduelle est inférieure ou égale à un an		14 684,43	-
Total Dettes non subordonnées		608 695,87	612 105,53
<b>TOTAL DU PASSIF :</b>		<b>17 285 647,79</b>	<b>17 447 779,46</b>

<sup>38</sup> Explanatory notes from the Annual Account Report 2014 have been omitted.



## 1.17 Profit and loss account

Table 23 below gives the final profit and loss sheet for the year 2014 (January to December) approved by external financial audit.

Table 23 - ANA Financial results (Profit / Loss) 1.1.2014 – 31.12.2014 (and 2013 situation)

<b>CHARGES</b>	<b>Note</b>	<b>01/01/14 au 31/12/14</b>	<b>01/01/13 au 31/12/13</b>
		<b>EUR</b>	<b>EUR</b>
Réduction du stock de produits finis et en cours de fabrication		-	18 035,21
Autres charges externes	Note 7	4 092 757,36	3 758 100,09
Frais de personnel	Note 8		
a) Salaires et traitements		11 418 070,62	10 966 720,05
Corrections de valeur			
a) sur frais d'établissement et sur immobilisations corporelles et incorporelles		139 913,67	130 841,61
b) sur éléments de l'actif circulant		172 998,95	42 436,22
Intérêts et autres charges financières			
a) autres intérêts et charges		7,47	-
Autres impôts ne figurant pas sous le poste ci-dessus		118 401,36	-
Excédent de l'exercice		-	224 180,12
<b>TOTAL DES CHARGES :</b>		<b>15 942 149,43</b>	<b>15 140 313,30</b>
<b>PRODUITS</b>		<b>01/01/14 au 31/12/14</b>	<b>01/01/13 au 31/12/13</b>
		<b>EUR</b>	<b>EUR</b>
Montant net du chiffre d'affaires	Note 9	15 729 785,82	14 756 338,63
Variation des stocks de produits finis, et de produits et de commandes en cours		30 549,44	-
Reprises de corrections de valeur			
a) sur éléments de l'actif circulant		3 255,05	107 867,22
Autres produits d'exploitation		19 813,20	276 107,45
Autres intérêts et autres produits financiers			
a) autres intérêts et produits financiers		23,91	-
Déficit de l'exercice		158 722,01	-
<b>TOTAL DES PRODUITS :</b>		<b>15 942 149,43</b>	<b>15 140 313,30</b>



## USER & STAKEHOLDER CONSULTATION 2014 - 2015

This chapter describes the user and stakeholder related activities and formal user consultation process in 2014.

### 1.18 2014 consultation of users

Two consultation and information meetings were held during the reporting period 2014 – 2015 with the Airport User Committee (AUC), representatives from airlines operating on Luxembourg airport, lux-Airport and ANA as the aerodrome operators, the regulator for the airport (*Institut Luxembourgeois de Régulation*, ILR<sup>39</sup>), DAC and the MDDI.

**July 2014 meeting:** After a first consultation meeting in June 2014 on the changes to terminal charges as of 01 January 2015 a follow up meeting was held in July to inform users about the steps taken in regard to the modulation of charges in line with Art 16, EU Reg 391/2013 and the results of a series of simulations of the likely impacts.

**December 2014 meeting:** This meeting was a full user consultation and information meeting in line with EU 1035/2011. Users were informed by ANA about the Annual Plan 2014-15, the Annual Report 2013-2014, the new strategy and initiatives started and on ongoing and planned aerodrome infrastructure projects. A special session was given on the planning and status of the certification of the aerodrome in accordance with EU Regulation 139/2014, the ongoing work on the aerodrome manual and PTO. Users were informed by DAC about the approval of the modulation scheme for TNC and the start of the scheme as of January 2015.

**User consultation process:** The document drafted by ANA on the user consultation process, rules of procedure and Terms of Reference (ToRs) agreed by all users, stakeholders and DAC was signed by the parties in August 2014.

### 1.19 RP2 Performance Plan user Consultation in 2014

Following the revisions of the RP2 Performance Plan (PP) one user consultation meeting was held in July 2015 in which ANA (together with Belgocontrol) assisted.

The main focus of the meeting was on the measures taken and planned to achieve the cost – efficiency targets for the entire period.

### 1.20 DAC – ANA mutual consultation

The exchange of information and consultation between DAC and ANA on safety regulatory and safety management matters took the format of regular meetings (ADIM).

The aim of these meetings is to create a common understanding of subject matter issues to save efforts and time and facilitate the preparation of documentation and audits.

These meetings continued throughout the entire reporting period and have proven to be effective and efficient and to mutual benefit.

### 1.21 Other Stakeholder consultation

ANA maintained a close coordination with other stakeholders at State level (MDDI and other Ministries), with lux-Airport, surrounding communities and other institutions that have a vested interest in the ongoing developments and in the various services of ANA.

<sup>39</sup> ILR is the national regulatory body and was identified as the appropriate Independent Supervisory Authority (ISA) for Luxembourg Airport and granted ISA powers by the Law of 23 May 2012 implementing EU Directive 2009/12/EC on airport charges.



## HUMAN RESOURCES POLICY

This chapter describes the human resources situation and policy of ANA during the reporting period.

### 1.22 Human resources situation

Human Resources (PER) is responsible for the coordination of personnel demand, recruitment, initial and the administrative part of the continuous general and specific job related training together with the State (ministerial) authorities involved and in close cooperation with the staff demanding units.

Areas for improvement are in a nutshell the alignment of the processes and procedures at State level that are to be respected whilst serving the specific competence requirements and needs of ANA technical and operational and other service areas. The IMS captures the resource abilities.

After an internal re-organisation in 2015 PER became an independent unit. The new function 'Legal Services' was created and a legal specialist appointed.

#### 1.22.1 Certified ANA Services

Description of the manpower situation in certified services in March 2014:

- **ATC:** 48 ATC controllers (officials) worked for this department in 2014 plus 3 contractors. Three controller students were undergoing initial training.
- **MET:** 21 staff worked for the MET department out of which 3 were hired as contractors. There were no students during the last reporting period undergoing initial training.
- **CNS:** 20 staff are responsible for ANA's technical equipment.
- **AIS:** 16 staff worked in the AIS department in 2014, out of which three were hired as contractors in 2014, while two students are undergoing initial training to become full staff members after examination.

#### 1.22.2 Enablers and Support Services

Enablers for service provision:

- **Safety Management Unit (SMU):** A total of five staff (in 2014), including the safety manager worked in the safety department in 2014. Each operational department provides a safety officer and a deputy safety officer assigned to this task as part of their normal responsibilities from within the departments who collaborate closely with the safety department.
- **Training Unit:** A Training Unit has been established and is developing processes for a

competence-based training programme. Additionally, the systems being implemented will evaluate the effectiveness and quality of training that is delivered to ANA staff. The Training Unit is based within the Safety Management Unit (because competence assurance is a key element of safety) and it is anticipated that responsibility for management of the majority of training processes will be transferred to Human Resources when they are established and working well.

- **Quality department:** ANA has one quality manager who is supported in his tasks by the quality officers and deputy quality officers assigned as part of their normal responsibilities from within the staff complement in each department.
- **Project Management Office (PMO):** One program manager supervises the management and the purchasing of the different projects and is supported by an assistant and the Purchasing Process Coordinator. Project leaders and task leaders are assigned to projects from the respective departments involved in the projects on a part-time basis.
- **Administration (ADM):** The administrative department is composed of four discrete units, (IT, Maintenance, wildlife and Secretariat).  
In 2014-15 a total of 15 staff worked in the ADM department.

Human Resources (incl. legal service 4 staff) and FIN (7 staff) became independent units in 2015 and wildlife service moved to ADM.

#### 1.22.3 Aerodrome services

- **Fire brigade (SIS):** 49 fire fighters worked in the SIS department; five newcomers are waiting for the 'examen – concours' as a future increase of the staff complement.
- **Electro technical Services (ELE):** 12 electricians work in this department.
- **Aerodrome services (AER):** In 2014 three people worked in that department.

### 1.23 Human resources policy

This sub-chapter describes the way in which ANA sets its policy and how it achieves to justify, recruit and finally acquires its human resources in accordance with operational, safety, technical and other demands.

ANA's duties and responsibilities are constantly increasing, leading to a growing need in staff numbers and changes in staff competence. The exact recruitment needs are identified, defined and justified inside ANA. In 2012 a workload assessment was used as a basis for the creation of a document on the human resources needs.



ANA hires staff either as civil servants (public officials), employees (agents) or workers. Occasionally it also contracts consultants who assist with specific projects, provide specific competences or to overcome immediate staff shortages.

The following paragraph describes the hiring procedure, which is different for each staff group. ANA requires the approval of the Ministry of Sustainable Development and Infrastructure (MDDI) before recruiting. For civil servants, employees and workers it also needs the approval of the Government Council and of the "*Commission d'économies et de rationalisation (CER)*".

**Impacts from Strategic Initiatives:** The new strategic initiative launched in 2014 of course impacts also the human resources requirements in terms of creating new of changes to existing functions and competence and skills. One of the aims of the synergy projects launched in 2014 is to use and build the competence of existing staff to cope with the changes and prepare to cover the new missions related to the new role as aerodrome operator. This 're-shaping' is necessary to make use of available staff in new functions rather than increase staffing and related costs.

#### 1.23.1 Civil servants

The hiring procedures for officials have not changed.

When ANA has received the approval of the responsible authorities, it asks the "*Ministère de la Fonction Publique et de la Réforme Administrative*" to organise an exam. If the number of successful candidates exceeds the number of available jobs, the candidate(s) with the highest marks get the job(s).

If ANA wasn't the only public service administration to announce a job, the successful candidates and all the participating administrations get together to find a suitable matching between candidates and specific jobs on offer. In case of high-ranking positions, ANA can choose between all successful candidates.

For ATC, MET, AIS and SIS, successful candidates are sent on specialized training courses that take from 6 to up to 30 months, depending on the type of training. Typically, these specialized training courses are delivered only in other countries (commonly France and Germany).

In all other departments successful candidates follow a two to 12 weeks training in a governmental institute in Luxembourg accompanied by On-the-Job training.

At the end of the initial training the candidates have to pass a second exam in order to be definitely appointed.

#### 1.23.2 Employees and workers

If ANA has received the approval of the responsible authorities, it asks the "*Ministère de la Fonction Publique et de la Réforme Administrative*" to publish the job.

All candidates send in their application via that Ministry and ANA then chooses from the complete list of suitable candidates. All employees are trained on the job.

#### 1.23.3 Consultants

If ANA detects a need for additional assistance in a specific domain, and for a limited time period it has to foresee the approximate amount in its budget proposition for the following year.

During the following year ANA can propose a candidate to the Ministry of Sustainable Development and Infrastructure. Having received written approval from the Minister, the director of ANA signs the contract with the consultant.



## ANNEX 1 – ABBREVIATIONS

a/c	Aircraft
ADD	Aerodrome Data Display
ADM	ANA Administrative Department
ADQ	Aeronautical Data Quality
AER	ANA Aerodrome Department
AFTN	Aeronautical Fixed Telecommunication Network (legacy system)
AGL	Airfield Ground Lighting
AIS	Aeronautical Information Service
ALCMS	Airport Lighting Control and Management System
AMC	Accepted Means of Compliance
AMHS	ATS Message Handling System
AP	Annual Plan
ANSP	Air Navigation Service Provider
APP	Approach Control Service
AR	Annual Report
AROC	Airline Representatives and Operators Committee (Luxembourg)
ARTAS	ATM Surveillance Tracker and Server
A-SMGCS	Advanced Surface Movement Guidance and Control System (ground radar)
ATC	Air Traffic Control
ATFM	Air Traffic Flow Management
ATIS	Automatic Terminal Information System
ATM	Air Traffic Management
ATM MP	ATM Master Plan (SESAR)
ATM – SE	ATM specific (technical) event (occurrence)
AWOS	Automatic Weather Observation System
BE-LUX PP	Belgium – Luxembourg Performance Plan (En route)
BOB	Budget System in use in ANA
BP	Business Plan
CBA	Cost Benefit Analysis
CAP	Corrective Action Plan
CAPEX	Capital Expenditure
CDO	Continuous Descent Operation
CEF	KPA - Cost-Efficiency
CFT	Call for Tender
CGDIS	Corps Grand-Ducal d'Incendie et de Secours
CNS	Communication, Surveillance and Communication Dept
COM	Communication
CRCO	Central Route Charges Office, Eurocontrol
DAC	Direction de l'Aviation Civile
DFS	Deutsche Flugsicherung
DoV	Document of Verification
DME	Distance Measuring Equipment
DVOR	Doppler VHF Omni-directional Ranging
EASA	European Agency for the Safety of Aviation
EC	European Commission
eTOD	electronic Terrain and Obstacle Data
EU	European Union
ECMWF	European Center for Medium-Range Weather Forecasts
ELE	ANA Electro technical Service Department
ELLX	ICAO code for Luxembourg airport



ENV	KPI - Environment
EoSMS	Effectiveness of Safety Management System (Questionnaire)
ER	En Route
ESSIP	European Single Sky ImPlementation (Plan; Eurocontrol)
FABEC	Functional Airspace Block Europe Central (BE, CH, DE, FR, LU, NL + MUAC)
FAT	Factory Acceptance Test
FDPS	Flight Data Processing System
FHA	Functional Hazard Analysis
FMTF	Flight Message Transfer Protocol
FOD	Foreign Object Debris
FPP	FABEC Performance Plan
FTE	Full Time Equivalent
GP	Glide Path
ICAO	International Civil Aviation Organisation
IGF	Inspection Général des Finances
ILR	Institut Luxembourgeois de Régulation
IMS	Integrated Management System (ANA)
IOP	Interoperability
IR	(EC) Implementing Regulation
ISO	International Standards Organisation
KPI	Key Performance Indicator
L-AST	Local Aerodrome Safety Team
LOC	Localiser
LSSIP	Local Single Sky ImPlementation (State ANSP and Regulator/ NSA Plan)
LVP	Low Visibility Procedure
MDDI	Ministre du développement durable et des infrastructures
MET	Meteorological service
MUAC	Maastricht Upper Area Control (Eurocontrol)
NA	Not Applicable
NAV	Navigation
NDB	Non Directional Beacon (a navigation aid)
NM	Network Manager (Eurocontrol)
NOTAM	Notice to Airmen
NSA	National Supervisory Authority
OPS	Operations
PANS	Procedures for Air Navigation Service
PCH	Ponts et Chaussées Luxembourg
PI	Performance Indicator (local/ national)
PIA	Plan d'Intervention Aeroportuaire
PIB	Pre-flight Information Bulletin
PIU	Plan d'Intervention d'Urgence
PMG	Performance Management Group (FABEC)
PMO	ANA Programme Management Office
PPP	Portfolio-Program-Project structure
PTO	Procédures Technique et Opérationnelles
QM	Quality Management
RAT	Risk Assessment Tool
RI	Runway Incursion
RDP	Radar Data Processor
RMCDE	SuRveillance Message Conversion and Distribution Equipment
RP	(SES Performance Scheme) Reference Period (RP1 = 2012 - 2014; RP2 = 2015 - 2019)
RWY	Runway



SAF	KPI - Safety
SDDS	Surveillance Data Distribution System
SES	Single European Sky (EC)
SIG	Système d'Information Géographique
SIS	ANA Fire brigade and rescue service (Service Incendie et Sauvetage)
SLA	Service Level Agreement
SMI	Separation Minima Infringement
SMR	Surface Movement Radar
SMS	Safety Management System
SMT	Strategic Management Team (ANA)
SMU	ANA Safety Management Unit
SNOWTAM	special series NOTAM indicating snow or slush conditions on airports
SPI	Surveillance Performance and Interoperability
SSAS	Software Safety Assurance System
SUR	Surveillance
SURNET	Surveillance Network
TAF	Terminal Aerodrome Forecast (MET)
TAR	Terminal Radar
TMA	Terminal Control Area
TNC	Terminal Costs
TOD	Terrain and Obstacle Data
ToR	Terms of Reference
TOT	Taxi Out Time
TWR	Tower Service
TWY	Taxiway
UPS	Un-interruptible Power Supply
VoIP	Voice over Internet Protocol
WMO	World Meteorological Organisation
WP	Work Package



## ANNEX 2 – ANA SAFETY PLAN 2014 – 2015 – STATUS OF ACHIEVEMENTS AGAINST OBJECTIVES & ACTIONS

FOCUS AREA 1: UNION-WIDE PERFORMANCE TARGETS FOR SAFETY KEY PERFORMANCE AREAS						
REF. #	OBJECTIVES	ACTION ITEMS	2014	2015	Owner	STATUS June 2015
1.1	<b>Effectiveness of safety management (EoSM)</b>				ANA/SMU	Done - assessed EoSM 5 Mgmt Obj.
1.1.3	<b>Safety standards and procedures</b>	Verify that all primary systems have redundant capabilities Develop and document emergency/contingency procedures	Q4 Q4		ANA/SMU ANA/SMU	On-going Plan developed and ATC clear the sky procedure simulated - ongoing.
		Distribute procedures to all appropriate staff	Q4		ANA/SMU	On-going
		Coordinate emergency/contingency plans with all interfaces	Q4		ANA/SMU	Late
		Review / update safety standards and procedures on a regular basis		Q1	IMS	On-going
1.1.3	<b>Adoption and sharing of best practices</b>	Establish a structure to identify safety best practices	Q4		SMU	Done - ongoing
		Share best practices with industry stakeholders as required by regulation	Q4		SMU	Done - ongoing
		Re-implement runway safety team (RST)	Q4		ANA	Done - ongoing
		Participate to IntACT audits within other FABEC ANSP's	Q4		SMU	ANA joined the IntACT team
		Attend industry workshops on safety and SMS best practices		Q2	SMU	Done - ongoing
		Systematically share safety lessons across the organisation		Q1	SMU	Done - ongoing
		Publish a policy to encourage proactive sharing of safety practices and lessons		Q1	SMU	Done
		Make safety performance info available to public (info not governed by applicable requirements)		Q1		Done
1.1.3	<b>Integrated safety planning process</b>	Publish organization safety plan on periodic basis	Q2	Q2	SMU	Late
		Include goals, targets and responsibilities in safety plan	Q2			Late
1.1.3	<b>Safety-related interfaces</b>	Develop, coordinate and manage safety-related interfaces		Q2	ANA/SMU	On-going
		Document interfaces through contractual agreements		Q2	ANA/SMU	Done - ongoing
		Review / update these agreements on a regular basis		Q2	IMS	On-going
1.1.3	<b>Competency</b>	Set up a process for feedback on training effectiveness		Q2	TRU	Done
1.1.3	<b>Safety reporting, invest. &amp; improvement</b>	Systematically share lessons learned across the organisation		Q2	SMU	Done - ongoing
		Publish a clear policy to encourage proactive reporting		Q1	ANA/SMU	Done
1.1.3	<b>Safety performance monitoring</b>	Make safety performance info available to public (not governed by requirements)		Q1	ANA/SMU	Done
1.2	<b>Risk Assessment Tool (RAT)</b>	Apply RAT to all SMI's and RI's (regardless whether ANA has a contribution)		Continuing activity	ATC S.O.	Done - ongoing
		Apply RAT to 80% of ATM-Specific Events (awaiting Eurocontrol definition)		Continuing activity	CNS S.O.	Done - ongoing
1.3	<b>Just culture implementation</b>	Develop a Just Culture policy	Q4		SMU	Policy developed and published
		Document that no impact on pay of the staff member until end of investigation	Q4		ANA	Done
		Include just culture principles in all training curricula (ab-initio and recurrent)	Q4		TRU	Done
		Define qualifications and training requirements for safety investigators	Q4		TRU	On-going
		Provide legal support for to staff in case of prosecution / legal action	Q4		ANA	Done
		Procedure enabling staff concerned to comment investigation findings	Q4		SMU	Done
		Involve experts in decision "honest mistake" vs. "unacceptable behavior"	Q4		ANA	Done



FOCUS AREA 2: EU SAFETY KEY PERFORMANCE INDICATORS (SMIs, Ris, AIs and ATM SEs)						
REF. #	OBJECTIVES	ACTION ITEMS	2014	2015	Owner	STATUS June 2015
2.1	SMI's with ANA contribution	Monitor number of incidents, severity and trends on a monthly basis Present lessons learned during ATC APP safety meetings	Continuing activity	Continuing activity	SMU	Done
2.2	Runway incursions with ANA contribution	Monitor number of incidents, severity and trends on a monthly basis Present lessons learned during ATC TWR safety meetings	Continuing activity	Continuing activity	SMU	Done
2.3	Airspace infringements	Monitor number of incidents, severity and trends on a monthly basis Present lessons learned during ATC safety meetings	Continuing activity	Continuing activity	SMU	Done
2.4	ATM Technical Specific Events (ATM-SE)	Monitor number of incidents, severity and trends on a monthly basis Present lessons learned during safety meetings	Continuing activity	Continuing activity	SMU	Done

FOCUS AREA 3: ANA INTERNAL SAFETY KEY PERFORMANCE INDICATORS						
REF. #	OBJECTIVES	ACTION ITEMS	2014	2015	Owner	STATUS June 2015
3.1	ATM incidents with ANA contribution	Monitor number of incidents, severity and trends on a monthly basis Present lessons learned during safety meetings	Continuing activity	Continuing activity	SMU	Done
3.2	CNS-MET incidents with ANA contribution	Redefine CNS-MET direct contribution incidents KPIs (according to RAT) Monitor number of incidents, severity and trends on a monthly basis Present lessons learned during safety meetings	Continuing activity Q3	Continuing activity	SMU	Foreseen for end of 2015
3.3	ELE incidents with ANA contribution	Monitor number of incidents, severity and trends on a monthly basis Present lessons learned during safety meetings	Continuing activity	Continuing activity	SMU	Done
3.4	Availability of CNS/MET safety equipment	Monitor monthly the availability of the CNS/MET, severity and trends Identify root cause when availability figure is not met provide remedial actions	Continuing activity	Continuing activity	SMU	Done



FOCUS AREA 4: AUDITS / SURVEYS / RECOMMENDATIONS						
REF. #	OBJECTIVES	ACTION ITEMS	2014	2015	Owner	STATUS June 2015
4.1	NSA audit : (2012)	Implement audit corrective action plan.	Continuing activity		SMU	On-going NC ANA-2012-CERT-06 (absence of contingency plan) closed April 15 OBS ANA-2012-SMS-03 (improvement of occurrence reporting) closed May 15
4.2	- NC : Software safety assurance system	Apply SSAS process to ALCMS, AMHS, NDB, DIK-DVOR Apply SSAS to LEWDU NDB, FDP, AWOS/ATIS, A-SMGCS, IOP G., RVR, SDDS	Q3	Q3	CNS CNS	Done On-going
4.3	- NC : Stakeholders	Further develop SLA's with external and internal stakeholders	Q4		ANA/SMU	Late / on-going
4.4	- OBS : Risk assessment & mit. for change	Conduct risk assessments until post implementation of changes	Completed		ANA/SMU	Completed
4.5	- OBS : Occurr. reporting improvement	Implement proactive voluntary reporting	Completed		SMU	Completed
4.6	- OBS : Procedures in Saf. Mgmt Manual	Safety Management Manual to be completed / finalized	Continuing activity		SMU	On-going
4.7	- OBS : Scope of the SMS	Define scope of SMS and add into Safety Management Manual	Q3		SMU	Done
4.8	- OBS : External Services and Supplies	Define safety requirements to be fulfilled by subcontracted personnel	Q4		SMU	Done
4.9	NSA audit : minor changes (2013)	Implement audit corrective action plan	Continuing activity		SMU	On-going
4.10	- NC : Change methodology not followed	Revise change management procedure	Q2		SMU	Done
4.11	- NC: Admin. procedures inconsistency	Revise change management procedure	Q2		SMU	Done
4.12	- NC : Use of different methodology	Revise change management procedure	Q2		SMU	Done
4.13	- OBS : Safety assessment terminology	Revise change management procedure	Q2		SMU	Done
4.14	- OBS : Criteria to define type of change	Revise change management procedure	Q2		SMU	Done
4.15	EASA audit : UNC's	Implement audit corrective action plan	Continuing activity		SMU	Done All EASA UNCs have been closed
4.16	IntACT audits	Participate in audits at other ANSP's	Q4	Q2	SMU	On-going
4.17	ISO certification audit	(No safety-related findings during last audit in March 2014)	Continuing activity		IMS	No safety-related findings during last audit in May 2015
4.18	Eurocontrol safety culture survey	Implement corrective action plan	Continuing activity		SMU	On-going
4.19	AET recommendations	Follow up on recommendations		Q4	ANA/SMU	Ongoing
4.20	Internal audits and surveys	Implement remedial actions	Continuing activity		ANA/SMU	Done for all 2014-15 audits



**FOCUS AREA 5: Execution of recurrent safety activities as per EU regulation 1035/2011 and ACCORDING to EC 482/2008**

REF. #	OBJECTIVES / AREAS FOR IMPROVEMENT	ACTION ITEMS	2014	2015	Owner	STATUS June 2015
5.1	Staff competency	Verify that personnel is adequately trained, competent, licensed (if applicable)	Continuing activity		TRU	On-going
5.2	External Services and Supplies	Review adequate justification of the safety of externally provided services	Continuing activity		ANA Depts	Done / on-going
5.3	Risk assessment & mitigation (current ops)	Verify that ext. staff have knowledge and understanding of services supported	Continuing activity		ANA Depts	Done / on-going
5.4	Safety investigation (ATM and technical)	Perform risk assessment and mitigation of ANA units current operations	Continuing activity		ANA Depts	Done for all upcoming cases
5.5	Remedial actions	Perform safety investigations	Continuing activity		ANA Depts	Done / On-going
5.6	Lessons learned	Derive remedial action for all significant ATM and technical occurrences	Continuing activity		ANA Depts	Done for all significant occurrences
5.7	Safety surveys	Disseminate safety practices and lessons learnt within the organization	Continuing activity		SMU	Done for all cases
5.8	Safety monitoring	Carry out departmental routine safety surveys	Continuing activity		SMU	Done / On-going
5.9	Safety records	Continuously analyze incident number, severity and trends	Continuing activity		SMU	Done / On-going
5.10	Software safety assurance system (SSAS)	Maintain all safety documentation complete and up-to-date	Continuing activity		CNS	Done according the SSAS corrective action plan
5.11	Change management	Apply software safety assurance system	Continuing activity		ANA Depts	Done for all cases
		Safety assessment and mitigation with regard to change	Continuing activity			

**FOCUS AREA 6: FABEC IMPLEMENTATION**

REF. #	OBJECTIVES / AREAS FOR IMPROVEMENT	ACTION ITEMS	2014	2015	Owner	STATUS June 2015
6.1	FABEC implementation	Continue participation in all FABEC safety activities	Continuing activity		ANA/SMU	Done - all relevant activities followed

**FOCUS AREA 7: NATIONAL STATE SAFETY PROGRAM**

REF. #	OBJECTIVES / AREAS FOR IMPROVEMENT	ACTION ITEMS	2014	2015	Owner	STATUS June 2015
7.1	National State Safety Plan	Comply with National (State) Safety Plan (once published)	TBD	TBD	ANA/SMU	Late - National SAF Plan not yet available







## ANNEX 3 - ANA STRATEGIC INITIATIVES STATUS OF PROGRESS IN 2014-2015

### Strategic Developments

In early 2014 work started on a new vision and strategy for ANA's future ('ANAFuture') at CEO level and in consultation at MDDI level.

The strategic initiative concentrated on service and subject areas across ANA with a clear focus on the Key Performance Areas cost efficiency, safety, environment and capacity for service provision in line with future business demands: from a legislative and regulatory, social and human resources, technical and operational perspective.

The results were shared and coordinated at high (ministerial) level and with all State stakeholders.

Major decisions taken at State level in the second quarter of 2014 enabled ANA, after being officially nominated to act as the Aerodrome Operator in Luxembourg, to establish a new strategic vision and roadmap.

The nomination as Aerodrome Operator in addition to the role as the ANSP demanded an even more focused view at the business requirements for the future.

The strategy was documented in a separate communication document and presented at all levels and is included in a condensed form in the Annual Plan 2014-15.

In autumn 2014 the strategic plan was presented to a General Assembly of ANA staff in the presence of the Minister.

The new vision was developed with the contribution from the entire management chain with the scope objective to satisfy the performance requirements set up by the governmental programme and the performance objectives and targets of the SES regulation requirements for the RP2 period.

### Status of strategic initiatives 2014-15

The roll-out of the plan started immediately afterwards with a number of consultations internally and externally at FABEC level.

The status of achievements is reported in this report in respective separate chapters and in the Table below.

The following major assessment projects in the ANAFuture strategy were started or finished (summary; for details see Table below):

- ANA - airport partners; Aerodrome certification preparation project; status: ongoing;
- ANA - Belgocontrol Synergy assessment project on the options for Approach services; (similar: ANA - DFS APP Syn study); status: ongoing;
- ANA - Belgocontrol radar coverage and contingency study / tests (contingency for TAR 2 in case of maintenance or failure); status: finalised;
- ANA - Belgocontrol 'Clear the sky' contingency study (ATC) and validation tests (related to the ANA contingency plan and LoA); status: finalised;
- ANA - SELEX - SUR Chain - establishment and verification of technical requirements for the upgrade of the existing SUR chain in line with interoperability and safety requirements; status: ongoing;
- ANA - Belgocontrol procedure design study for the implementation of CDO in Luxembourg airspace; final revision and agreement on implementation steps; status: finalised; pending availability of obstacle data;

The work in these activities is continuing.

Details on the further developments planned are in the ANA Annual Plan 2015 - 2016.



Table – Status of achievement and ongoing activities in regard to proposed strategic initiatives in the 2014 – 2015 reporting period<sup>40</sup>

Service	Description - Current Situation	Strategic Vision & Direction	Considered Options for Change	Envisaged Advantages / Gains	KPI / PI Areas	Status of Projects / Activities in the period July 2014-June 2015
ATC	Provision of ATS in LU airspace En route (with Belgocontrol and MUAC), Terminal (ANA PP) and at the airport (ANA TWR)	Reduce service provision and service maintenance costs: <ul style="list-style-type: none"> <li>– personnel costs, training costs;</li> <li>– investment costs (ATM systems, housing, contingency)</li> <li>– certification related costs</li> </ul>	<ul style="list-style-type: none"> <li>– Implementation of a contingency solution for APP services through a FABEC partner</li> <li>– Delegation of entire Luxembourg airspace to a FABEC partner</li> <li>– Creation of a ground control function (including parking, apron service) and exploitation of ground radar A-SMGCS capabilities</li> <li>– Successive complete delegation of the LU airspace to a FABEC partner to provide APP</li> </ul>	<ul style="list-style-type: none"> <li>– Reduction of the number of controllers (non-replacement of retiring controllers)</li> <li>– Long-term cost reduction in staff related costs, maintenance costs, investment costs</li> <li>– Increased efficiency in use of available ATS personnel through integrated services (TWR and ground)</li> <li>– Use of existing traffic handling capacity of FABEC partners</li> </ul>	<ul style="list-style-type: none"> <li>– Cost efficiency</li> <li>– Safety</li> <li>– Security</li> <li>– Capacity</li> </ul>	<ul style="list-style-type: none"> <li>– ANA Contingency Plan finished, presented to DAC; NC 2012 closed;</li> <li>– Project ANA-Belgocontrol on 'Clear the Sky' procedure test and validation established; simulated and analysed; project successfully closed;</li> <li>– Assessment Project ANA – Belgocontrol (APP Syn) on legal, technical, operational, financial feasibility, CBA of a delegation of service provision to Belgocontrol started; ongoing and due to finalise by end 2015</li> <li>– Assessment project ANA – DFS with the same scope and aim as above started, ongoing and planned to finalise by end 2015.</li> </ul>

<sup>40</sup> This table refers to Table 3 in the Annual Plan 2014-2015.



Service	Description - Current Situation	Strategic Vision & Direction	Considered Options for Change	Envisaged Advantages / Gains	KPI / PI Areas	Status of Projects / Activities in the period July 2014-June 2015
<b>CNS</b>	<p>Monolithic air traffic system based on UNIX platform and not corresponding to systems of FABEC partners.</p> <p>ANA surveillance system (2 terminal radar sensors) works in full autonomy; limited capability to guarantee coverage during radar preventive/corrective maintenance / outage</p>	<p>CNS system infrastructure to correspond to technical standards in use in FABEC:</p> <ul style="list-style-type: none"> <li>- ensure IOP</li> <li>- enable radar data / communication exchange for contingency</li> <li>- reduce INV costs</li> <li>- improve (augment, adapt) skills</li> <li>- delegation of CNS tasks and obligations</li> </ul>	<ul style="list-style-type: none"> <li>- SUR chain upgrade in compliance with IOP requirements and open standard architecture</li> <li>- SUR chain upgrade to be done in line with the finally chosen strategic direction (on service provision and available / technical solutions from FABEC partners)</li> </ul>	<ul style="list-style-type: none"> <li>- Implementation of full radar contingency solution without implementing 3rd radar integration and exchange of radar data with FABEC partners</li> <li>- update of current SUR system at reduced investment costs as a common purchasing with FABEC partners</li> <li>- reduced maintenance, SSAS (SW), SW licensing and system upkeep costs</li> <li>- Reduced Hardware (HW) maintenance and upkeep costs</li> </ul>	<ul style="list-style-type: none"> <li>- Cost efficiency</li> <li>- Safety</li> <li>- Security</li> <li>- Other: Interoperability</li> <li>- Open system architecture</li> <li>- Contingency solution</li> </ul>	<ul style="list-style-type: none"> <li>- ANA - Belgocontrol radar coverage study and tests with integration CANAC / ARTAS solutions agreed, executed and successfully closed;</li> <li>- No need for TAR 3 - project closed;</li> <li>- Implementation of SURNET capabilities (SDDS, IOP gateway) ongoing;</li> <li>- Development of a customised and minimum SUR Chain upgrade implementation concept ongoing;</li> <li>- Assessment of technical options for SUR and data exchange with FABEC partners in the frame of the APP Syn projects ongoing</li> <li>- New HW (virtual server) and network topology implementation ongoing</li> </ul>
<b>MET</b>	<p>MeteoLux is the certified MET provider in LU delivering its services to aeronautical and other, non-aeronautical users.</p> <p>MeteoLux has already started and advanced in restructuring its services</p>	<p>Proper accounting of costs for common infrastructure used provisions; and costs for operations and personnel for aeronautical and other than aeronautical MET service in MeteoLux budget.</p>	<ul style="list-style-type: none"> <li>- Total budget cost split at a 50% rate for aeronautical / non-aeronautical services.</li> <li>- Ensure State budget provision for non-aeronautical services.</li> </ul>	<ul style="list-style-type: none"> <li>- Reduce costs for aeronautical users;</li> <li>- Provide cost-efficient services to both aeronautical and non-aeronautical users of MeteoLux services through synergies in equipment use and service provision;</li> <li>- Increase safety;</li> <li>- By taking over State responsibilities improve protection of citizens from dangerous weather phenomena.</li> </ul>	<ul style="list-style-type: none"> <li>- Cost efficiency</li> <li>- Service integrity and reliability</li> <li>- Safety</li> </ul>	<ul style="list-style-type: none"> <li>- Agreement with State on MeteoLux extreme weather alert (as part of the non-aeronautical services) achieved and officially endorsed.</li> <li>- Budget provision for non-aeronautical service provision postponed and due to start in 2016.</li> <li>- AWOS /ATIS system implementation and operational date delayed to autumn 2015.</li> </ul>



Service	Description - Current Situation	Strategic Vision & Direction	Considered Options for Change	Envisaged Advantages / Gains	KPI / PI Areas	Status of Projects / Activities in the period July 2014-June 2015
AER	Currently AER coordinates already part of the aerodrome services and infrastructure maintenance with other ANA departments and external partners but not as the leading party.	<ul style="list-style-type: none"> <li>- Aerodrome certification (EU Reg 139/2014 / ICAO (by end 2017)</li> <li>- Integration of aerodrome services, including AIS into one AER entity and management structure</li> <li>- Coordination, planning and management of entire aerodrome infrastructure, RWY / TWY maintenance in close cooperation with external parties i.e. PCH, luxAirport and Airlines</li> </ul>	<ul style="list-style-type: none"> <li>- Clear accountability and responsibility for all aerodrome services</li> <li>- Clear, visible and effective management structures, procedures and processes and responsibilities.</li> <li>- Agree Service Level Agreements (SLAs) and working arrangements with business partners and customers.</li> <li>- Adaptation of PCH working procedures, intervention / maintenance processes with EASA certification requirements.</li> </ul>	<ul style="list-style-type: none"> <li>- Effective and cost-efficient planning and implementation of common aerodrome projects.</li> <li>- Appropriate accounting and budgeting of costs of aerodrome service delivery.</li> <li>- Increase aerodrome safety and service integrity / reliability.</li> <li>- Increase of airport competitiveness.</li> </ul>	<ul style="list-style-type: none"> <li>- Cost efficiency</li> <li>- Service integrity</li> <li>- Aerodrome safety</li> <li>- Aerodrome capacity (through effective management of maintenance and infrastructure projects, integrated service provision)</li> </ul> <p><u>Other:</u></p> <ul style="list-style-type: none"> <li>- Competitiveness</li> </ul>	<ul style="list-style-type: none"> <li>- Aerodrome certification preparatory work ongoing with airport partners, project support partner (Aéroport de Paris) and in coordination with MDDI and DAC.</li> <li>- NSA involvement pending.</li> <li>- Legal establishment of a new ANA entity "Aerodrome Administration" launched (planned end 2015) (FP).</li> <li>- Investigation of business needs and requirements with airport partners and users</li> <li>- PCH aerodrome service functions in line with EASA certification requirements pending.</li> </ul>



Service	Description - Current Situation	Strategic Vision & Direction	Considered Options for Change	Envisaged Advantages / Gains	KPI / PI Areas	Status of Projects / Activities in the period July 2014-June 2015
AIS	ANA AIS is not a certified service but cooperates with Belgocontrol AIS as the publisher of the common BE / LU AIP and other aeronautical data and information released by ANA.	<ul style="list-style-type: none"> <li>Integration of AIS into Aerodrome Services (AER)</li> <li>AIS service provision in line with applicable ICAO / EU regulation requirement</li> <li>AIS as a full aerodrome information and data management broker &amp; provider</li> </ul>	<ul style="list-style-type: none"> <li>Assign clear accountability and responsibility to AIS</li> <li>Agreed SLAs and working arrangements (conventions) with business partners and customers</li> </ul>	<ul style="list-style-type: none"> <li>Use of further synergies in use of AIS competences in AER (i.e. aerodrome related aeronautical data and info management in line with ICAO / EU regulation requirements (EC 73/2010, ADQ) (including TOD for all pending PANS-OPS, CDOs and aerodrome obstacles).</li> <li>Cost-efficient and integrated data and info management</li> </ul>	<ul style="list-style-type: none"> <li>Cost efficiency</li> <li>Service integrity</li> <li>Aerodrome safety</li> </ul>	<ul style="list-style-type: none"> <li>Process and proposal established and sent to MDDI for a national policy / regulatory framework for aeronautical data and information handling in line with ADQ Rule - still pending, new law for ANA in preparation which is expected to cover also aeronautical data provision and handling responsibilities..</li> <li>Electronic Terrain and Obstacle Data (eTOD) tender action and supporting technical requirement doc and regulatory and proposed State policy prepared and provided to MDDI. Decision pending (see above).</li> <li>Charging of obstacle information and clearance in regard to urgent pending PANS OPS, aerodrome certification and FABEC (SWAP<sup>41</sup> project) cases and to implement the developed CDO operation procedures in Luxembourg airspace.</li> </ul>

<sup>41</sup> SWAP = South-West Airspace Project (FABEC project) route changing requiring the development and implementation of new Departure / Arrival (SID/ STAR) routes to / from Luxembourg airport.



Service	Description - Current Situation	Strategic Vision & Direction	Considered Options for Change	Envisaged Advantages / Gains	KPI / PI Areas	Status of Projects / Activities in the period July 2014-June 2015
<b>ELE</b>	ELE is responsible currently for the installation and maintenance of the availability and integrity of the aerodrome lighting system / infrastructure and aerodrome geodetic database.	<ul style="list-style-type: none"> <li>- Closer alignment of ELE services with AER services in major projects (i.e. RWY / TWY refurbishment)</li> <li>- Inclusion of the entire aerodrome electrical infrastructure not yet part of ELE services</li> </ul>	<ul style="list-style-type: none"> <li>- Integration and alignment of electrical services in a cohesive service package</li> <li>- Clear responsibility and accountability of ELE services</li> <li>- Agreed SLAs and working arrangements with business partners and customers</li> </ul>	<ul style="list-style-type: none"> <li>- Increased service effectiveness through use of synergies and integration of related services.</li> <li>- Potential for cost-efficiency in project management and service provision.</li> <li>- Reduced closure / unavailability of aerodrome infrastructure during interventions due to better planning and preparation.</li> <li>- Increased safety.</li> </ul>	<ul style="list-style-type: none"> <li>- Service integrity and reliability</li> <li>- Availability of important / safety critical electrical infrastructure</li> <li>- Cost-efficiency</li> <li>- Aerodrome safety</li> </ul>	<ul style="list-style-type: none"> <li>- ELE is involved in RWY / TWY maintenance planning, preparation and implementation (with PCH) and other major infrastructure projects on the aerodrome.</li> <li>- SLA drafted and sent to PCH for endorsement – action is pending.</li> <li>- Contracts or SLAs closed with a number of suppliers ensuring service integrity.</li> <li>- Advanced system (MALMS) use in monitoring current conditions of RWY AGL (Airfield Ground Lighting)</li> <li>- Spare parts management improvement actions started with purchase manager</li> </ul>
<b>SIS</b>	SIS provides a 24/24 hrs fire and rescue service on the airport and close vicinity of the airport.	<ul style="list-style-type: none"> <li>- Closer alignment and re-organisation of SIS as part of a national fire and rescue service re-organisation</li> <li>- Study of potential for better alignment of SIS services with operational requirements of the airport</li> <li>- Improve skills / competence</li> </ul>	<ul style="list-style-type: none"> <li>- Integration of SIS and other national services in a cohesive and workable service package</li> <li>- Agreed service categorisation / SLAs and working arrangements with airport users</li> <li>- Formalisation / standardisation of training</li> <li>- Initial training of fire fighters Ville de Luxembourg / SIS</li> </ul>	<ul style="list-style-type: none"> <li>- Increased service effectiveness through use of synergies and integration of external services</li> <li>- Potential for cost-efficiency in service provision in line with requirements</li> <li>- Reduced risk of closure / unavailability of aerodrome during contingency situations</li> <li>- Increased / maintained aerodrome safety</li> <li>- Cost savings through using synergies in common training and operations</li> </ul>	<ul style="list-style-type: none"> <li>- Aerodrome safety</li> <li>- Service integrity and reliability</li> <li>- Contingency provision</li> <li>- Cost-efficiency</li> <li>- SIS services are subject in the EU reg 139/2014 and related EASA AMCs.</li> </ul>	<ul style="list-style-type: none"> <li>- Coordination between SIS / ANA mgmt. and stakeholders at State level on the integration of SIS in the national policy and plan for the provision of an integrated fire and rescue service for Luxembourg has started.</li> <li>- SIS involved and contributes to service manual / POS updates in the frame of the preparation for aerodrome certification.</li> </ul>



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