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EUROCONTROL

012

MAASTRICHT UPPER AREA CONTROL CENTRE ANNUAL REPORT

SAFE, EFFICIENT AND INNOVATIVE

FAST FACTS

	2008	2009	2010	2011	2012	Trend 2011/ 2012
SAFETY INDICATORS						
Category A and B infringements (caused by MUAC)	4	2	2	7	2	
FINANCIAL INDICATORS						
Total fixed-assets at year end (1) (Net book value) (€ M)	87.5	82.3	76.1	76.0	75.2	– 1.1 %
Capital expenditure at year end (€ M)	16.4	10.6	10.6	7.3	9.8	+ 34.2 %
Total costs (€ M)	128.4	134.6	138.8	116.3	141.2	(7) + 9.4 %
Staff (remunerations)	97.9	103.9	110.0	104.8	118.1	+ 12.7 %
Operating	14.9	14.9	12.3	12.6	12.7	+ 0.8 %
Depreciation	13	14.1	15.5	10.5	9.7	– 7.6 %
Interest	2.6	1.8	1	1.2	0.7	– 42 %
Exceptional reduction				– 12.8		
COST-EFFICIENCY INDICATORS (2)						
Total economic cost/flight-hour(€) (3)	296	261	266	238	261	+ 9.6 %
Financial cost/flight-hour (€) (4)	221	254	255	229	252	+ 10.1 %
Cost/km controlled (EUR 2005) (5)	0.26	0.28	0.29	0.26	0.28	+ 6.7 %
MUAC-equivalent unit rate (€) (6)	21.8	23.4	23.8	21.1	23.3	+ 10.2 %
PRODUCTIVITY (composite flight-hour per air traffic controller-hour on duty)	1.90	1.82	1.85	1.95	1.94	
MOVEMENTS	1 534 825	1 429 271	1 447 872	1 547 325	1 529 356	– 1.2 %
SERVICE UNITS	5 959 032	5 740 556	5 822 523	6 115 411	6 070 939	– 0.7 %
PUNCTUALITY (% of unimpeded flights)	97 %	99.7 %	99.7 %	99.8 %	99.7 %	
AVERAGE DELAY/FLIGHT (minutes)	0.5	0.05	0.05	0.04	0.04	
NUMBER OF EMPLOYEES (31 December)	671	697	686	684	672	– 1.8 %

(1) **Total fixed assets** including work in progress.

(2) **Cost efficiency indicators** are calculated on the basis of the cost-base.

(3) **Total economic cost per flight-hour**: key performance indicator used for ATM cost-effectiveness (ACE) benchmarking. It is the sum of ATM/CNS provision costs and ATFM delay costs per composite flight-hour. This indicator enables the trade-offs between cost and capacity performance to be measured.

(4) **Financial cost per flight-hour**: ATM/CNS service provision cost per composite flight-hour.

(5) **Cost per km controlled**: the ratio of the financial cost to the number of kilometres flown through the delegated airspace expressed in real terms (EUR 2005).

(6) The key performance indicator for cost effectiveness defined in the Single European Sky (SES) II Performance Regulation is the unit rate. Since the unit rate is calculated on the basis of consolidated costs and production at national level, the concept of a **MUAC-equivalent unit rate** has been introduced as a performance indicator. This indicator takes into account the specific MUAC costs and production. "Equivalent" indicates that the calculation does not take the full cost of MUAC service provision into account; EUROCONTROL support costs and the cost of using CNS infrastructure, which is made available free of charge by the Four States, are not included.

(7) Delta calculated disregarding the exceptional reduction due to the implementation of accrual accounting and revalorisation of fixed assets on 2011 costs.

CONTENTS

MUAC PROFILE

EUROCONTROL's Maastricht Upper Area Control Centre (MUAC) provides safe and effective air traffic management to one of Europe's busiest airspace regions. Not only is it a leading provider of air navigation services, it is also Europe's first multinational, cross-border air navigation service provider. MUAC is uniquely positioned to provide sustainable air navigation services in a large airspace block, satisfying today's customer expectations and the growing demands for the future.

CONSOLIDATING AIRSPACE ACROSS NATIONAL BORDERS

For more than 40 years, MUAC has played a pivotal role in integrating European airspace on a functional basis, driven not by national boundaries, but by the operational requirements of international traffic flows.

MUAC enjoys a leading position in the core area of Europe thanks to its provision of seamless air navigation services to the upper airspace (above 24,500 feet) of Belgium, North-West Germany, Luxembourg and the Netherlands. In order to maintain this position, it continuously strives to deliver safe, efficient and cost-effective cross-border air navigation services in a dynamic air transport marketplace.

By co-locating a Deutsche Flugsicherung (DFS) unit (Lippe Radar) which controls military operations over North-West Germany on MUAC's premises, the States have ensured the highest levels of cooperation and coordination between civil and military air traffic. In addition, although air navigation services for military aircraft flying in Belgium and the Netherlands are provided from the respective military control centres in both countries, there is an automatic exchange of flight plan and radar data between MUAC and Belgium's Belga Radar Air Traffic Control Centre at Semmerzake and, to further improve safety and efficiency, the MUAC air traffic control system is being deployed across the different Royal Netherlands Air Force sites. The Shared ATS System (SAS) aims to ensure that all parties have a clear and up-to-date picture of the air situation in the Netherlands, and that synergies are exploited to the maximum extent to improve safety and efficiency.

One of MUAC's flagship activities is the development and implementation of leading-edge infrastructure and technology solutions to ensure that customers and stakeholders benefit from the highest levels of performance. MUAC's active involvement in SESAR (Single European Sky ATM Research) is instrumental in meeting this objective.

EACH AIR TRAFFIC CONTROLLER IN MAASTRICHT WATCHES OVER THE SAFETY OF MORE THAN 400,000 PASSENGERS A YEAR. IN TOTAL, SOME 130 MILLION PASSENGERS PER YEAR FLY THROUGH MUAC AIRSPACE - A NUMBER WHICH IS EQUIVALENT TO THE COMBINED POPULATIONS OF GERMANY AND SPAIN.

MISSION AND VISION

MUAC's mission is to provide cross-border Air Traffic Management to civil and military airspace users and develop, integrate and provide state-of-the-art systems and services.

Its vision is to be recognised as an outstanding Air Traffic Management service provider and to drive the future of European ATM.

MUAC's priority is to offer customer-oriented, innovative and tailored services founded on safety, quality and cost efficiency. Its challenge is to explore partnerships which support a diversification of its advanced systems and services. Its strength is the engagement and passion for performance of its staff.

GEOGRAPHICAL SCOPE

The area of responsibility of MUAC in Belgium, Germany, Luxembourg and the Netherlands consists of the Brussels UIR, the Amsterdam FIR and the Hannover UIR from flight level 245 to flight level 660.

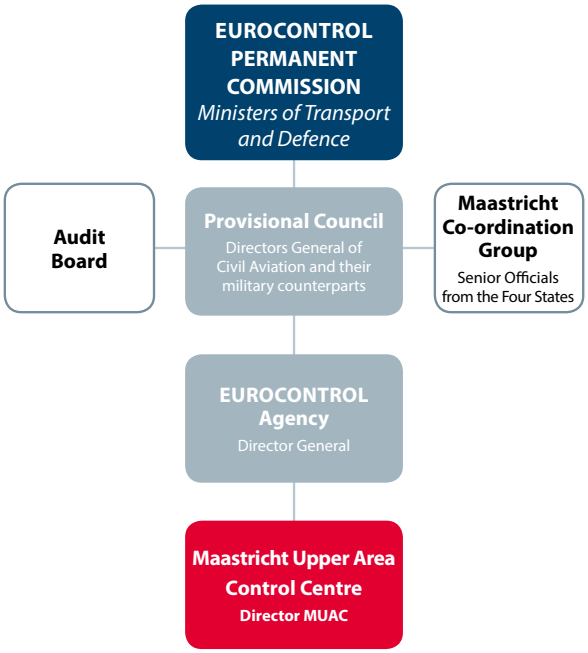
The MUAC area of responsibility is surrounded by the London UIR, Copenhagen UIR, Rhein UIR and France UIR.

CORPORATE GOVERNANCE

MUAC is operated by EUROCONTROL on behalf of Belgium, Germany, Luxembourg and the Netherlands on the basis of the Agreement relating to the Provision and Operation of Air Traffic Services and Facilities by EUROCONTROL at the Maastricht Upper Area Control Centre (the "Maastricht Agreement"), signed on 25 November 1986. EUROCONTROL is an international organisation established under the EUROCONTROL Convention of 13 December 1960, subsequently amended on 12 February 1981.

In line with Article 15 of the EUROCONTROL Amended Convention, air traffic services at MUAC are undertaken in accordance with the national regulations in force in the respective territories and airspaces concerned.

The Maastricht Co-ordination Group was established to facilitate decision making by determining a common position for the Four States (Belgium, Germany, Luxembourg and the Netherlands) in all matters relating to the operation of Air Traffic Services at MUAC. Day-to-day responsibility for operations has been delegated to the Director of MUAC by EUROCONTROL's Director General. Each of the Four States retains its own regulatory competence.



REGULATION

In addition to the international regulatory regime, air navigation service provision at MUAC is subject to four national regulatory regimes, each specifically defining applicable rules and regulations. Over recent years, regulation and oversight of MUAC have been exercised in a coordinated manner by the Four States.

SUPERVISION AND OVERSIGHT

Further to the adoption of Regulation (EC) No 549/2004 of the European Parliament and of the Council of 10 March 2004 laying down the framework for the creation of the Single European Sky (the framework Regulation), each of the Four States has established National Supervisory Authorities (NSAs). In Belgium it is the Belgian Supervisory Authority for Air Navigation Services (BSA-ANS); in Germany, the Federal Supervisory Authority for Air Navigation Services (BAF); in Luxembourg, the Civil Aviation Authority (CAA Luxembourg) and in the Netherlands, the Human Environment and Transport Inspectorate (ILT) of the Ministry of Infrastructure and the Environment.

The Four States' NSAs have created two bodies to support the oversight of MUAC: the **NSA Committee**, representing all four NSAs, and having a coordination and advisory role for the relevant national decision-making authorities on oversight issues; and the **Common Supervisory Team**, composed of personnel from the cooperating NSAs, who have an executive role in performing document examinations, audits and inspections.

DESIGNATION OF MUAC AS AN AIR TRAFFIC SERVICE PROVIDER

In accordance with Article 8 of the Regulation (EC) No 550/2004 of the European Parliament and of the Council of 10 March 2004 on the provision of air navigation services in the Single European Sky (the service provision Regulation), EUROCONTROL was designated as an air traffic service provider in the Netherlands, by amendment to the Aviation Act in October 2007. Belgium, Germany and the Netherlands maintain the designation of EUROCONTROL as an air traffic service provider as per the Maastricht Agreement and the relevant national laws.

CERTIFICATES

In line with Single European Sky legislation, MUAC holds the certificate for the provision of air navigation services in the European Community. The certificate was granted in 2006 by the Netherlands' Transport and Water Management Inspectorate and Directorate General for Civil Aviation and Freight Transport.

In March 2010, the Belgian National Supervisory Authority certified MUAC and the Institute of Air Navigation Services in Luxembourg for the provision of unit and initial training for air traffic controllers.

MUAC also holds ISO 9001:2008 certification for the provision of air traffic services, the procurement and maintenance of technical systems and the provision of air traffic control training.

CONTROLLER LICENSING

Since March 2010, the Belgian Civil Aviation Authority has been the licence-issuing authority for air traffic controllers and student air traffic controllers at MUAC. MUAC controllers hold a Belgian ATC licence for the delivery of services in Belgian, Dutch, German and Luxembourg airspace. The licences are issued in accordance with Commission Regulation (EU) No 805/2011 of 10 August 2011, which lays down detailed rules for air traffic controllers' licences and certain certificates pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council.

MAASTRICHT COORDINATION GROUP

BELGIUM

Maurits DE CLIPPEL	Federal Public Service for Mobility and Transport
Lt-Col. Tom VAN HEUVERSWYN	Belgian Armed Forces – Air Component
Martial MALCHAIR	Belgocontrol
Patrick VANHEYSTE	Federal Public Service for Mobility and Transport **Representing the Four-State NSA Committee**

GERMANY

Dirk NITSCHKE	Federal Ministry for Transport, Building and Urban Affairs **Chairman of the Maastricht Coordination Group during 2012**
Prof. Dr. Nikolaus HERRMANN	Director of the National Supervisory Authority
Nancy SICKERT	Ministry of Transport, Building and Urban Affairs
Col. Hans-Dieter POTH	Federal Ministry of Defence
Lt-Col. Ulrich GRIEWEL	Federal Ministry of Defence (until November 2012)
Lt-Col. Heinrich WOELPERN	Federal Ministry of Defence (from November 2012)
Robert SCHICKLING	Deutsche Flugsicherung (until November 2012)
Andreas PÖTZSCH	Deutsche Flugsicherung (from November 2012)

LUXEMBOURG

Claude LUJA	Ministry of Transport, Directorate of Civil Aviation
Romain KOHL	Ministry of Transport, Directorate of Civil Aviation
Albert ZIGRAND	Ministry of Transport, Directorate of Civil Aviation
Ender ULCUN	Administration de la navigation aérienne Luxembourg

NETHERLANDS

Jacqueline PRINS	Ministry of Infrastructure and the Environment
Eric DE VRIES	Ministry of Infrastructure and the Environment
Lt-Col. John VAN BOMMEL	Royal Netherlands Air Force
Bert ROLVINK	Luchtverkeersleiding Nederland

MANAGEMENT

MUAC EXECUTIVE MANAGEMENT

FRANK BRENNER
DIRECTOR GENERAL OF EUROCONTROL

JAC JANSEN
DIRECTOR

IAN MIDDLETON
HEAD OF OPERATIONS

PETER NAETS
HEAD OF ENGINEERING

HERMAN BARET
HEAD OF ATM-CNS STRATEGY AND DEVELOPMENT

ONNO REITSMA
HEAD OF STRATEGIC DEVELOPMENT AND MANAGEMENT

MCG CHAIRMAN AND DIRECTOR GENERAL'S STATEMENT

DIRK NITSCHKE

FRANK BRENNER

In the course of 2012, MUAC continued to provide safe, efficient and innovative air navigation services. But as was the case for all other air navigation service providers in the European ATM network, 2012 was also marked by the setting of distinct regulatory targets within the framework of the Single European Sky. Given the need to apply an exemption rule for Reference Period 1 (RP1), it was clear that the period 2012-2014 would bring new types of challenges.

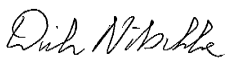
Many advances were made in various operational and technical domains, in many cases as part of the SESAR programme, and this has laid the foundations for successfully meeting the challenges ahead in the forthcoming reference periods together with FABEC (Functional Airspace Block Europe Central) partners.

The first year of RP1 was marked by a volatile economy in the eurozone, bringing a downturn in traffic which, like other FABEC air navigation service providers, had an impact on MUAC's financial results. Nevertheless, the services provided by MUAC remain among the most effective in Europe. Since the targets of Reference Period 2 (RP2) are under preparation for the next five-year period, MUAC is gearing up, through a number of key programmes, to working even more effectively, making optimum use of resources. Having been exempt from bearing a share of the traffic risk during RP1, MUAC will have to accommodate full application of the regulatory requirements during RP2. Modalities are being analysed for the setting-up of a traffic fund to cover the traffic risk over RP2.

By drawing up a common FABEC Performance Plan which spans RP1, the seven FABEC air navigation service providers have demonstrated that they are adopting a perspective which is based on the network rather than on national considerations. Yet, although important steps forward were made during 2012, deliverables to increase FABEC performance progressed at a slower pace than expected, and this drew a good deal of criticism from the commercial airline industry. However, military aviation remains an important airspace user, as military air navigation services continue to work with us as our professional partners. In addition to the longstanding co-location of Germany's military services, the Shared ATS System (SAS) is currently being implemented between MUAC and the Royal Netherlands Air Force facilities, representing another excellent example of cooperation between civil and military ATS providers and laying the groundwork for similar developments in the area, generating synergies and enhancing safety and efficiency.

During the reporting period, a study on a new institutional model for MUAC produced the so-called Leuven Conclusions. These recommended a legal/institutional scenario for the future of MUAC outside the EUROCONTROL organisation. The Four States, with the active support of the EUROCONTROL Agency, carried out this work together with key stakeholders, MUAC staff and civil and military airspace users. The Four States and the EUROCONTROL Agency are currently cooperating on a more detailed follow-up study, which will analyse such matters as the full transparency of MUAC costs within the EUROCONTROL budget.

We welcome the good work carried out by MUAC management and its highly professional employees over 2012 and have every confidence that the necessary steps are being undertaken now to ensure sustained performance in the years to come.



Dirk Nitschke
Chairman of the Maastricht Co-ordination Group during 2012

Frank Brenner
Director General of EUROCONTROL

DIRECTOR'S STATEMENT

JAC JANSEN

I am pleased to present the overall results achieved at MUAC over the 2012 business cycle.

In the area of safety, we continued to perform well. In preparation for the introduction of future SES and FABEC performance developments, safety occurrence indicators were complemented with a Safety Management System (SMS) maturity indicator across several study areas. Over the reporting period, the objective of achieving at least 80% in each of the identified SMS study areas was met and many significant improvements were accomplished. The total number of Severity A and B separation infringements (two) was half the ceiling defined in the Business Plan (four).

The operating environment remained challenging throughout the entire year. Even taking into account major sporting events and the leap year, traffic in the MUAC area decreased by 1.2%, resulting in over 1.5 million flights handled in total, which is lower than that recorded back in 2008. We managed to record very high punctuality levels with 99.7% of flights unimpeded, and the final average ATFM delay per flight (0.04 minutes) helped us retain our best-in-class level. Controller productivity remained at very high levels, with 1.94 composite flight-hours per air traffic controller-hour. Even though this punctuality level meets EU performance targets, we are currently operating above the optimum cost operating point due to a surplus of capacity and staff. We are, therefore, addressing this surplus via a number of measures as set out in this report.

In spite of very high levels of punctuality and productivity, the decline in traffic has impacted our cost efficiency. The 2012 cost base amounted to €141.2 million which is 5% greater than the 2009 baseline. This increase is however lower than the rate of inflation. The cost of maintaining high quality service provision rose by 9.4% in 2012 following exceptionally low expenditure in 2011. This gave a total economic cost per flight-hour of €261 - a 9.6% increase on 2011 levels but still well below the target of €289, published in the 2012-2016 Business Plan, and well below the European average.

On the environmental front, the implementation of free route airspace and the continued use of direct routes at tactical level generated a total route extension reduction of over 7.3 million NM. This resulted in 44,000 t of fuel and 147,000 t of CO_2 saved.

This report details other initiatives that contributed to the strategy, developed to streamline airspace design and usage through greater levels of cooperation between the various stakeholders and partners. Safety, environmental and flight efficiency performance together with capacity levels and cost-effectiveness were all maintained at very high levels thanks to numerous technical upgrades to the infrastructure.

After many months of hard work by all those involved in the project, the very first test flight using the initial fourth dimension – time - transited MUAC airspace. This momentous success took place as part of our activities within SESAR. In addition, activities in the domain of air-ground interoperability were complemented, over the course of the year, by other advances in the area of ground-ground interoperability and complexity management.

Declining traffic and rising costs remain a concern. As it was in 2012, the focus of the coming years will be on the enhancement of efficiencies within the organisation with

a view to reducing expenses, while at the same time, not only maintaining, but also seeking to further increase safety and performance standards as well as appropriate investments levels. Efforts aimed at streamlining our organisational structure and operating methods are expected to impact favourably on future performance within RP2.

A productive working relationship with staff representatives continued to further support our common objectives throughout the year. This valuable and cooperative dialogue addressed miscellaneous issues as detailed in this report and regular meetings were also organised and conducted on behalf of the Four States, concerning the study of future institutional options for MUAC.

This annual report clearly shows that MUAC delivered a tangible contribution to the overall FABEC performance in 2012. Notably, the extension of free route airspace and the successful integration with neighbouring airspaces ensured that, together with our partners, we continued to push forward a key element of the FABEC airspace strategy of achieving greater operational efficiency. This is vital as flight efficiency is the overriding factor that is expected to deliver the most notable benefits to customers and stakeholders. However, I recognise that, in spite of the continued commitment of MUAC experts within the different FABEC work areas, progress remains far too slow to achieve SES performance objectives, and there is, undoubtedly, much work still to be done.

That said, I am proud to report that due to the hard work and professionalism of MUAC employees, these results retain our market-leading position in the core European area. I would like to thank everybody, who helped achieve these encouraging results, for their unfailing commitment and enduring efforts and I look forward to equally favourable results in the future.

Jac Janssen

Director, MUAC

Economic downturn affects traffic levels but efforts continue to be deployed to secure performance

JANUARY

The new Safety Management System Maturity Key Performance Indicator is formally introduced.

JANUARY

AENA, EUROCONTROL's Directorate of SESAR Research and MUAC complete the first series of SESAR complexity management validation exercises.

FEBRUARY

Airbus, Honeywell, Indra, MUAC, Noracon and Thales collaborate on the world's very first flight trial to test Initial 4D (I-4D), which took place as part of SESAR validations.

FEBRUARY

1972-2012: MUAC celebrates 40 years of vision.

JUNE

The Enhanced Mode S parameter Final State Selected Altitude (FSSA) is used in Short-Term Conflict Alert (STCA) warnings. This is the first time that FSSA is used for STCA anywhere in the world.

JUNE

MUAC starts to use the LARA system operationally within the Belgian cluster. This is the first large-scale common civil and military deployment of LARA in Europe.

JULY - AUGUST

A dedicated FABEC Olympic Cell operates at MUAC from 24 July to 13 August 2012 in collaboration with FABEC civil and military partners, the UK NATS and the Network Manager. The Olympic Cell's task was to optimise performance delivery through collaborative Air Traffic Flow and Capacity Management (ATFCM) and civil/military Airspace Management (ASM).

NOVEMBER

The MUAC Transition Implementation Programme is launched. The purpose is to identify ways to improve performance further and meet the targets expected under SES Reference Period 2.

MARCH

The Ministry of Defence of the Netherlands and EUROCONTROL sign a Cooperation Agreement for the provision, by MUAC, of air traffic data services to the Royal Netherlands Air Force (RNLAF). This marks the start of the Shared ATS System (SAS) project.

MARCH

Airbus, MUAC and Noracon receive the prestigious Jane's Enabling Technology Award for I-4D trajectory management operations.

APRIL

Jac Jansen takes up duties as MUAC director.

APRIL

The Belgian Air Force starts operational use of LARA, via a server located at MUAC, as the preferred replacement for its local airspace planning tool.

APRIL

The new Holstein High sector is implemented in the Delta/ Coastal Sector Group.

MAY

For the ninth consecutive year, the ATM Cost-Effectiveness (ACE) 2010 Benchmarking Report confirms MUAC as one of Europe's best-performing air navigation service providers with the highest controller productivity.

2012

DECEMBER

As part of SESAR's FRAMaK (Free Route Airspace Maastricht and Karlsruhe) project, DFS, Lufthansa and MUAC pioneer large-scale free routing. Additional direct cross-border routes are introduced in MUAC and Karlsruhe UAC airspaces. In the MUAC airspace a large number of direct routes, including routes available on a 24-hour basis, are introduced.

DECEMBER

The operational MUAC air traffic control system is extended to the RNLAF Air Operations Control Centre at Nieuw Milligen. The system goes live with two Radar Approach Control Sectors and four arrival sectors. This Initial Operational Capability is the first major milestone of the Shared ATS System project.

DECEMBER

During a SESAR live trial, MUAC proves the feasibility of integrating air traffic control and airspace management. The LARA system, which was also used in support of the FABEC Olympics Cell, delivers real-time feeds to the MUAC operational flight data processing system and its advanced human-machine interface.

DECEMBER

The year 2012 is characterised by outstanding punctuality. 99.7% of flights in the MUAC airspace are unimpeded.

DECEMBER

The MUAC ATC system scores 100% system availability.

MANAGEMENT REPORT

Key results

Key results vs. Business Plan performance targets at a glance

	Target met	2012 result	2011 target (2012-2016 Business Plan)
SAFETY			
In preparation for the SES and FABEC performance developments, the leading indicator describes MUAC's Safety Management System (SMS) maturity. The SMS maturity key performance indicator covers the development of safety management processes across 11 study areas, ranging from safety culture to safety performance monitoring. This new indicator defines and measures targeted improvements in selected individual study areas. MUAC's objective is to achieve and maintain at least an 80% score in each study area, with targeted improvements in selected study areas.			
SMS MATURITY	√	80% in all study areas	80% in all study areas
	Partially	Some targeted improvements were not completed	Over 80% in selected study areas
ENVIRONMENT			
Direct route extension	Not applicable at single ANSP level	–1.03%, equating to 7.3 million NM saved	Network target: reduce direct route extension by 5% by the end of 2014 (vs. 2011)
CAPACITY/PUNCTUALITY			
Average delay/flight	√	0.04 min	0.2 min
COST-EFFICIENCY			
Total economic cost/flight-hour	√	€ 261	< € 289
MUAC equivalent unit rate (EUR 2009) [1]	No [2]	€ 21.9	€ 21.5

[1] EUR 2009 is used as reference value in the performance plans, hence this value is also used for the MUAC-equivalent unit rate in this table.

[2] During Reference Period 1, MUAC has been exempted from the traffic volume risk.

The overall results achieved over 2012 in the areas of safety, capacity, the environment and cost-effectiveness were encouraging. However in spite of top punctuality and controller productivity, traffic downturn impacted cost-efficiency.

ECONOMIC WEAKNESS IMPACTS AIR TRAFFIC TRENDS

Air traffic in 2012 was impacted by the economic instability in the eurozone and elsewhere. Consequently, traffic figures in MUAC airspace, as in many other regions in Europe, fell below 2011 levels, but remained above 2010 figures. Punctuality was maintained at very high levels, with 99.7% of flights unimpeded.

TRAFFIC TRENDS

As anticipated, in spite of the leap year and major sporting events, the aviation industry's operating environment remained volatile throughout 2012, with traffic decreasing by 1.2%. This was mainly due to high fuel prices, the slow economic recovery in the eurozone, the streamlining of routes and load factors by operators as well as the growing number of larger aircraft being flown.

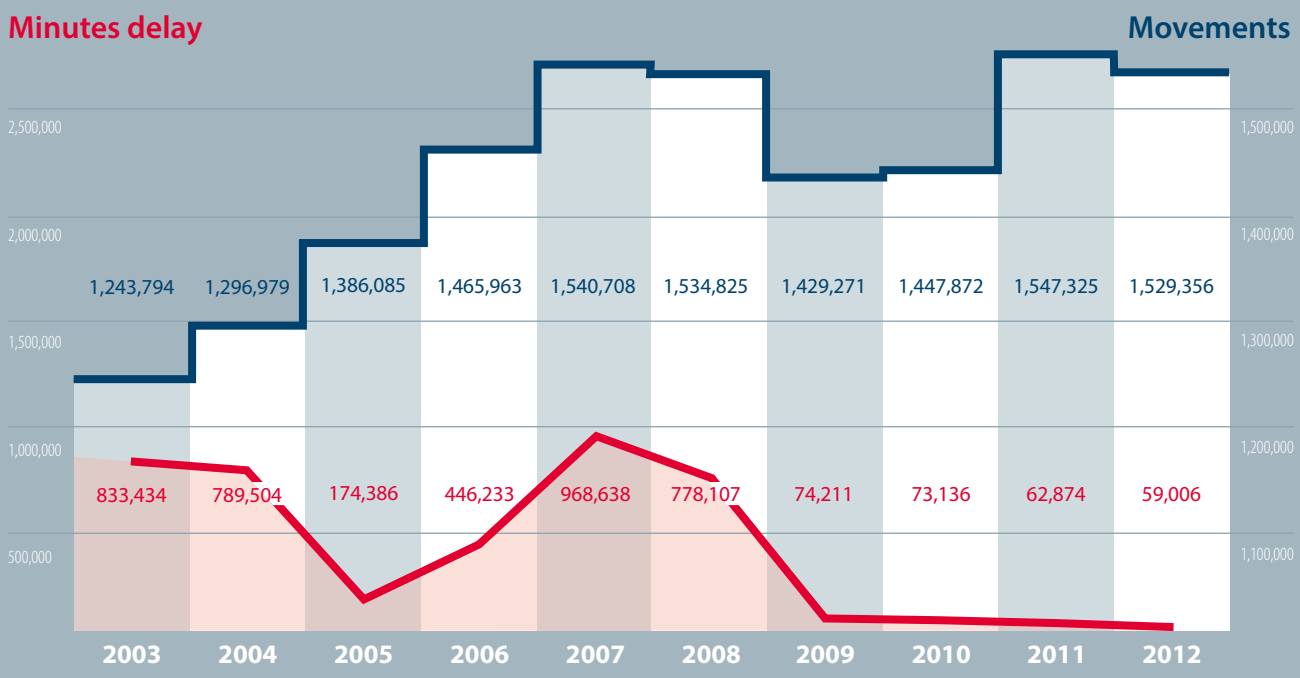
Total yearly traffic amounted to 1,529,356 flights, which is lower than the levels last seen in 2008. The busiest day was 29 June 2012 with 5,049 flights. The average daily traffic volume for the year reached 4,178 flights, while the average daily traffic volume over the key summer months (May-October) amounted to 4,576 flights. Significantly, the summer months saw a 0.9% decrease in traffic compared to 2011. Over the entire year, the largest decreases in traffic were recorded in January, May and December, with -2.2%, -2.6% and -2.6% respectively.

PUNCTUALITY

With 99.7% of flights unimpeded, 2012 was yet another year in which MUAC recorded very high punctuality levels. This helped to maintain a best-in-class level of performance with an average ATFM delay per flight of only 0.04 minutes. While this optimum punctuality performance meets the EU performance targets and is highly appreciated by passengers and operators, MUAC nevertheless currently operates above the optimum cost operating point due to a capacity and staff surplus. This imbalance is being addressed through numerous cost-effectiveness activities.

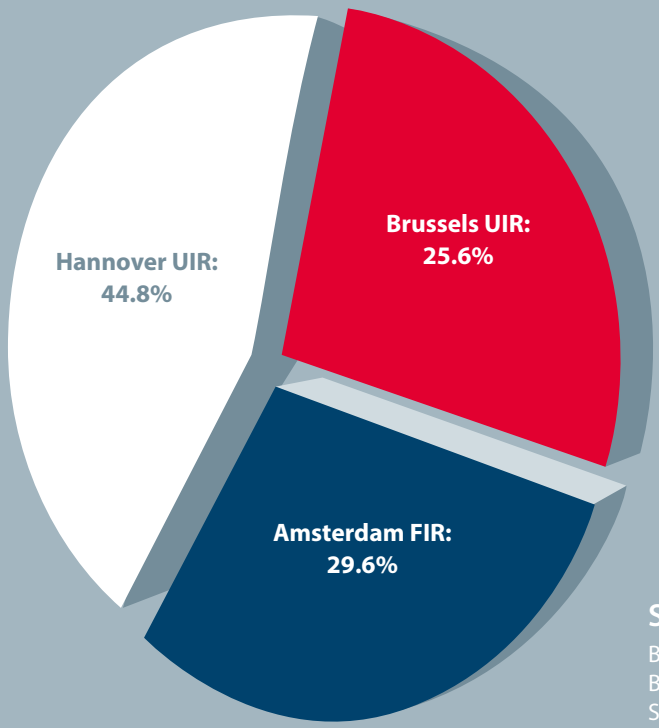
AIR TRAFFIC CONTROLLER PRODUCTIVITY

With 1.94 composite flight-hours per air traffic controller-hour, MUAC maintained very high levels of air traffic controller productivity throughout the 2012 business cycle.



Traffic and ATFM delay trends 2003-2012

2012 saw a downturn in yearly traffic of 1.2%. Since 2003, traffic has grown by 23%, whilst ATFM delays remained exceptionally low with 99.7% of flights unimpeded. It is worth noting that no linear correlation seems to exist between traffic and delay trends over the 2003-2012 period.



Service units in 2012

Breakdown of service units in the Amsterdam FIR, the Brussels UIR and the Hannover UIR respectively. Service units decreased by 0.7 % over 2011.

MUAC'S CONTRIBUTION TO FABEC PERFORMANCE

The FABEC performance plan was drawn up to cover RP1 (2012-2014). It covers the key performance areas of: safety, environment, capacity and military mission effectiveness for the whole area. Cost-efficiency targets were addressed at national level and the MUAC cost-efficiency targets were agreed by the Four States. In 2012, the service quality, provided by the seven FABEC air navigation service providers (ANSPs): ANA (Luxembourg), Belgocontrol (Belgium), DFS (Germany), DSNA (France), LVNL (Netherlands), MUAC and skyguide (Switzerland), was satisfactory, as set out in the first FABEC performance report available via **www.fabec.eu**. In the light of the changed demand from the airlines, figures show that in 2012 safety remained at a high level, punctuality improved substantially and overall horizontal flight efficiency received very good scores. In parallel, progress was made in all key performance areas defined in the FABEC performance plan.

The results set out in this annual report bear witness to the fact that MUAC made a positive contribution to the FABEC overall performance in 2012. In particular, with the extension of free route airspace and the connection to neighbouring airspaces, MUAC and its partners continued to push forward a key element of the FABEC airspace strategy aimed at achieving greater operational efficiency. This is significant as flight efficiency is the fundamental factor which is expected to bring the most notable benefits to customers and stakeholders.

However, despite this positive result, FABEC ANSPs are concerned about stagnating traffic demand and its consequences on the financing of air navigation services. The current regulatory framework, which is mainly based on the principle of determined unit cost, traffic risk-sharing and long-term traffic forecasts, endangers the sustainability of the business. For RP1, traffic in the FABEC area is 7 % below the planned figures, which means that FABEC ANSPs will have to compensate for an expected loss of income of about €226 million for the period from 2012 to 2014 alone.

TOP PUNCTUALITY AND PRODUCTIVITY BUT TRAFFIC DOWNTURN IMPACTS COST EFFICIENCY

In 2012, MUAC's cost base amounted to €141.2 million. In nominal terms, costs were up by 5% compared to the 2009 baseline - which is lower than the inflation rate. After the exceptionally low costs recorded in 2011, maintaining high-quality service provision in 2012 led to a 9.4% increase in expenditure. This resulted in a total economic cost per flight-hour of €261 - a 9.6% increase on 2011 levels but still well below the target of €289, published in the 2012-2016 Business Plan and securing MUAC's position as one of the most competitive ANSPs in Europe.

CHALLENGING MACRO-ECONOMIC CIRCUMSTANCES

The total economic cost per flight-hour is used as the main indicator of overall performance as it incorporates both cost of delay and the financial cost of ATM/CNS service provision.

During 2012, traffic levels were held back as a result of the continuing financial downturn, and the number of flight movements decreased by 1.2%. The decline in traffic therefore impacted on MUAC's overall cost efficiency as the income from route charges decreased.

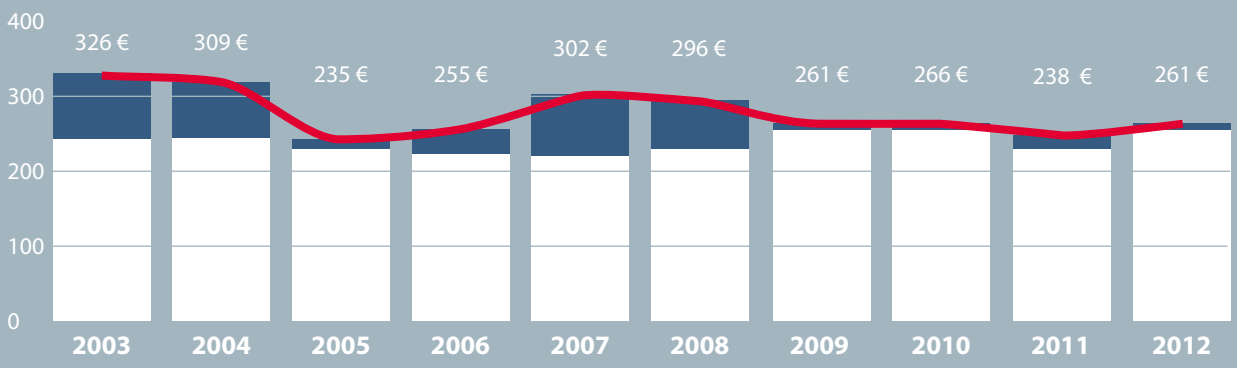
In order to secure and enhance its capability to cope with the expected challenges in RP2 (2015-2019), MUAC engaged in further cost-effectiveness measures and launched a Transition Implementation Programme. An incentive scheme for staff was agreed, which will foster future structural changes. Furthermore, new revenue-generating agreements were concluded, which contributed to the reduction of the 2012 cost-base by some €4.8 million. This amount will be returned to airspace users.

Overall, these measures resulted in an actual cost for service provision of €141.2 million against a planned €144.5 million, while high quality service continued to be provided at an average delay level of 0.04 minutes per flight.

	2008	2009	2010	2011	2012	Trend 2011/2012
Staff (remunerations)	97.9	103.9	110	104.8	118.1	**+ 12.7 %**
Operating	14.9	14.9	12.3	12.6	12.7	**+ 0.8 %**
Depreciation	13	14.1	15.5	10.5	9.7	**– 7.6 %**
Interest	2.6	1.8	1	1.2	0.7	**– 42 %**
Total costs (€ M)	**128.4**	**134.6**	**138.8**	**129.1**	**141.2**	**+ 9.4 %**
Exceptional reduction				–12.8		
Total costs (€ M)	**128.4**	**134.6**	**138.8**	**116.3**	**141.2**	

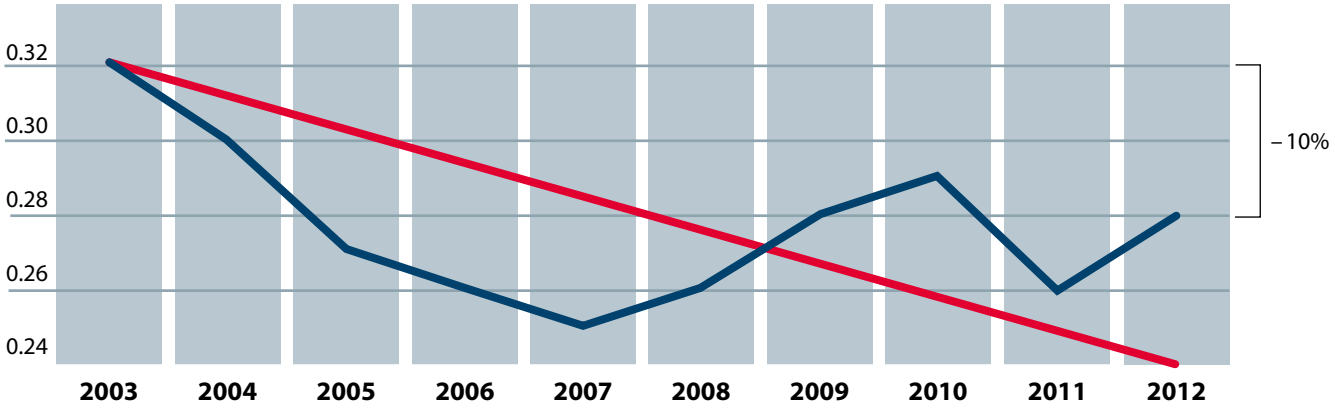
GAT cost-base 2008 – 2012 (M€)

In 2012, staff costs increased by 12.7% - mainly driven by the incentive scheme provisions and salary indexations. Total costs were up by 9.4 % (Delta calculated disregarding the exceptional reduction due to the implementation of accrual accounting and revalorisation of fixed assets on 2011 costs).



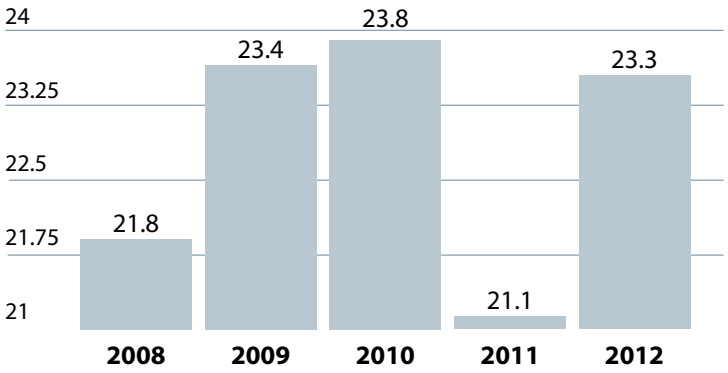
Total economic cost per flight-hour (€) – Trend 2003-2012

From 2003 to 2012, the total economic cost per flight-hour controlled went down by 20% and delays reduced by 93%. Since 2009, the average delay per flight is at minimal levels. The total economic cost per flight-hour controlled is a standard key performance indicator used in the ATM Cost-Effectiveness (ACE) benchmarking reports, produced by the Performance Review Commission. It is the sum of ATM/CNS costs (or financial cost) and air traffic flow management delay costs per composite flight-hour.



Cost per kilometre controlled (€) – Trend 2003-2012 (EUR 2005)

With a sharp drop in traffic in 2009, marginal growth in 2010 and another traffic drop in 2012, the long-term target, set by the EUROCONTROL Provisional Council (PC), could not be met. The cost per km controlled is 10% below that of 2003.



MUAC-equivalent unit rate – Trend 2008-2012 (€)

The key performance indicator for cost effectiveness defined in the SES II Performance Regulation is the unit rate. Since the unit rate is calculated on the basis of consolidated costs and production at national level, the concept of a MUAC-equivalent unit rate has been introduced as a performance indicator. This indicator takes into account the specific MUAC costs and production. "Equivalent" indicates that the calculation does not take the full cost of MUAC service provision into account; EUROCONTROL support costs and the cost of using CNS infrastructure, which is made available free of charge by the Four States, are not included.

ACE REPORT: EXCEPTIONAL CONTROLLER PRODUCTIVITY AND GOOD COST-EFFICIENCY

In May 2012, for the ninth consecutive year, the ATM Cost-Effectiveness (ACE) 2010 benchmarking report confirmed MUAC's ranking among the top-performing ANSPs in Europe. The economic gate-to-gate cost-effectiveness indicator for MUAC amounted to €266 per composite flight-hour while the European system average stood at €544. The cost-effectiveness indicator in Europe ranged from €849 to €179. High levels of performance are predominantly driven by high air traffic controller productivity, high-performing technology as well as efficient management of resources and operational procedures. Moreover, the ACE 2010 report confirmed that MUAC's support costs per composite flight-hour were among the lowest in Europe. This cost-effective performance has been reconfirmed for the years 2011 (ACE 2011, April 2013) and 2012 as outlined in this report.

SAFETY

A number of indicators are used to measure safety performance. Moreover, in order to ensure continuous safety improvement, the annual safety key performance indicator is revised each year on the basis of the performance over the preceding five years.

SAFETY MANAGEMENT ACTIVITIES

In preparation for the introduction of future SES and FABEC performance developments, safety occurrence indicators have been complemented with a leading indicator which describes MUAC's Safety Management System (SMS) maturity. The SMS key performance indicator covers the development of safety management processes across 11 study areas, ranging from safety culture to safety performance monitoring. As all of these study areas are aimed at minimising MUAC's contribution to the risk of an aircraft accident, this new indicator defines and measures targeted improvements in selected individual study areas.

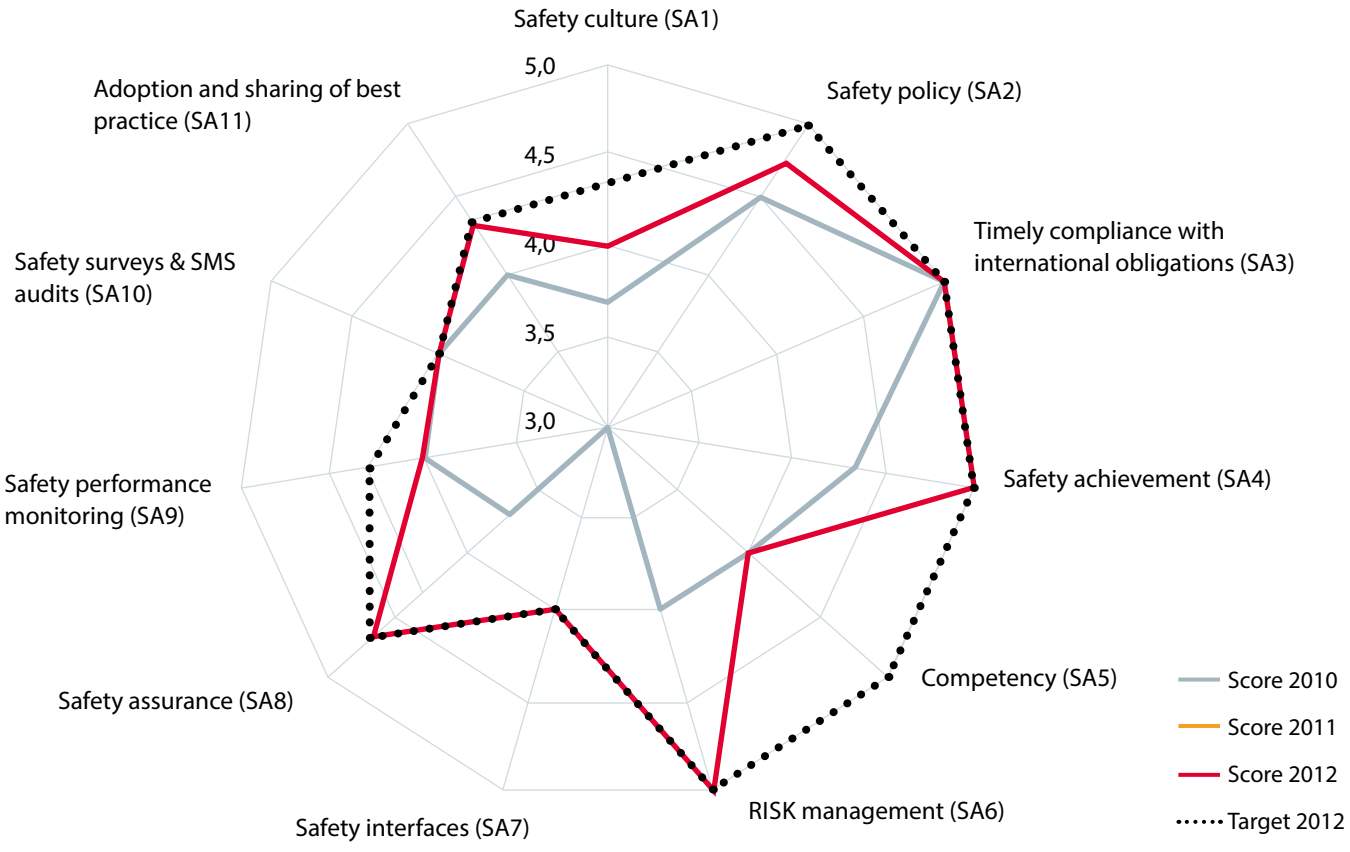
In 2012, MUAC set itself a target to achieve at least 80% in each of the 11 SMS maturity study areas. Improvements above 80% were also targeted in a number of selected areas. Although the overall objective of 80% was achieved, the targeted improvements in the specific areas were not achieved by the end of 2012. The SMS maturity scores for 2012 therefore remain the same as for 2011.

It should be noted however, that a number of significant improvements were achieved in 2012. The following are highlights of some of them.

SA1 - Safety culture

The Just Culture working group has continued to assess what needs to be done to implement Just Culture improvements. An action plan will be published in 2013 describing the actions needed to formalise the administrative arrangements for Just Culture within MUAC.

A second safety culture survey was initiated in late 2012, and the results of this survey, and the subsequent action plan, will be developed in the course of 2013.



SA2 - Safety Policy

The safety organisation accountabilities and responsibilities in the Safety Management Manual have been revised so that they are easier to understand and offer a clearer account of the improvements in safety culture over the last few years.

SA3 - Compliance with International Obligations

In order to demonstrate MUAC compliance with Commission Regulation (EC) No 482/2008 the Software Safety Assurance System was published in the Safety Management Manual.

SA4 - Safety achievement

Steps have been taken to improve the efficiency of MUAC safety processes. These included the simplification of the safety assessment methods used in projects and the implementation of changes. Safety assessments have also been better aligned with project and change deliverables.

SA8 - Safety assurance

The STOP Campaign developed and implemented actions aimed at reducing the use of incorrect techniques and the occurrence of misjudgement errors.

SA9 - Safety Performance monitoring

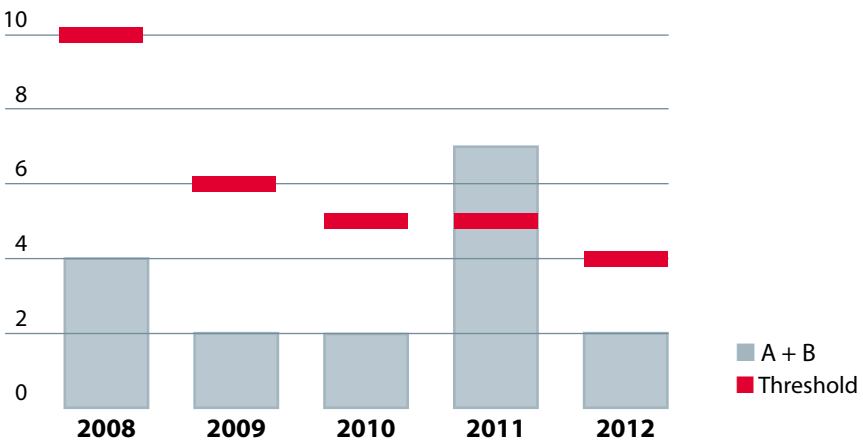
The Integration of the SES safety performance indicators within the MUAC Safety Management System was completed.

OCCURRENCE REPORTING

The overriding safety goal at MUAC is to contribute to zero accidents, and zero separation infringements within its area of responsibility. However, to take account of the variability of the different factors which impact safety performance, a ceiling of four Severity A and B incidents was set in the 2012 Business Plan.

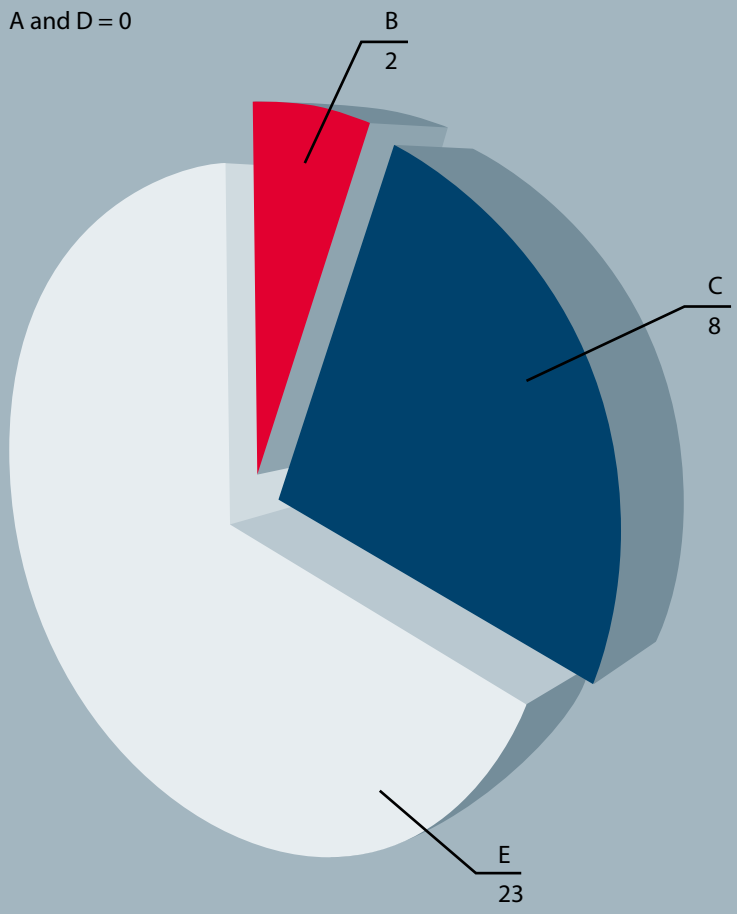
The total number of separation infringements in 2012 with a MUAC contribution was 33 out of a total of 55 reported in the MUAC area of responsibility, equating to a 60% MUAC contribution. Analysis, using automated reporting data, has confirmed that the reporting culture in MUAC is consistent and remains very mature.

The total number of Severity A and B separation infringements (two) did not exceed the ceiling defined in the Business Plan (four). Moreover, the results from incident analysis show that misjudgment errors are the most common causal factor for these incidents but also that these incidents are very marginal as most of them classify as severity E, which has no safety impact.



Separation infringements (severity A and B) attributable to MUAC (2008-2012)

Severity A and B incidents refer to serious and major incidents respectively. Severity A (serious) refers to an incident where an aircraft proximity occurred in which there was a serious risk of collision. Severity B (major) denotes the occurrence of an aircraft proximity in which the safety of the aircraft may have been compromised.



Separation infringements (Severity A, B, C, D and E) attributable to MUAC in 2012

ENVIRONMENT

Just as aircraft manufacturers and operators are making great strides to reduce their impact on the environment, the air traffic management sector is also introducing a vast array of procedures and methods to improve its own environmental credentials. The focus on reducing aviation's environmental footprint is now formalised in European legislation with a targeted improvement of the European flight efficiency indicator for RP1 of 0.75% in 2014 compared to 2011.

In 2012, the total route extension in the MUAC airspace was reduced by 1.03%, equating to over 7.3 million NM. This resulted in 44,000 t of fuel and therefore 147,000 t of CO_2 saved.

FREE ROUTE AIRSPACE MAASTRICHT (FRAM)

A flagship activity, which began in March 2011, and continues to deliver substantial benefits to airspace users and ANSPs in terms of reduced fuel burn, flight/engine-run time, gas emissions and costs is the successful phased deployment of Free Route Airspace Maastricht (FRAM) in the MUAC area. FRAM has been expanded to incorporate the airspace controlled by the DFS' Karlsruhe UAC to form the FRAMaK (Free Route Airspace Maastricht and Karlsruhe) project. This SESAR programme between MUAC, Lufthansa and DFS, aims to offer additional direct cross-border routes in the core area of Europe. Momentum gathered speed in 2012 with the introduction of additional direct routes in this joint airspace over Belgium, most of Germany, Luxembourg and the Netherlands. With almost one third of the entire FABEC airspace now covered by FRAMaK, this successful expansion is a major catalyst for the FABEC free route airspace aimed at the progressive deployment of free routes in the entire FABEC airspace.

On top of the 182 FRAM routes which were already available every night from 00:00 to 8:00 local time, MUAC extended its service to include weekends – from 00:00 Fridays to 8:00 am on Monday mornings. In December 2012, a large number of direct routes, including routes available on a 24-hour basis, were introduced bringing the total of flight-plannable direct routes to 405.

Also in 2012, free route airspace was connected to similar initiatives in the Nordic countries, in the UK/Ireland and in FABCE.

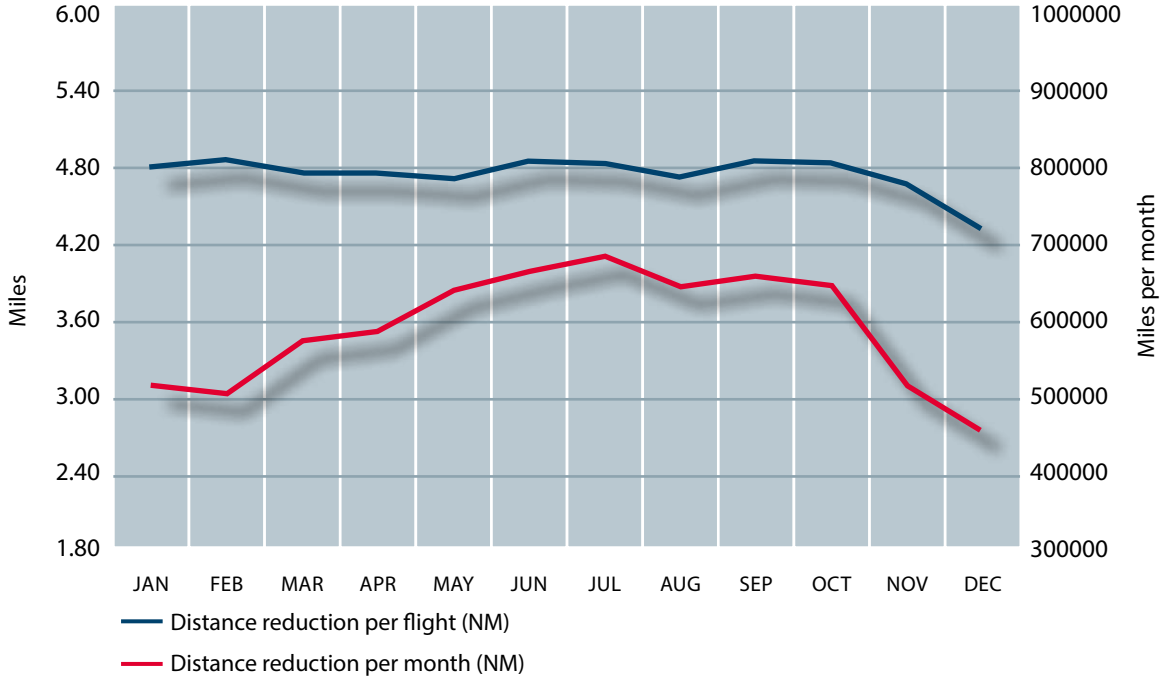
Throughout the year, the use of free routes has been actively promoted with aircraft operators by means of bilateral meetings and briefings. Data analysis for 2012 reveals that FRAM-route usage amounted to 30.8% and that the total number of NM saved by operators amounted to 237,093. In 2012, FRAM generated savings of the order of 1,420 t of fuel and 4,740 t of CO2 compared to the previous fixed route network.

Direct routes which can be flight planned under free route airspace operations offer major advantages for both the operators and the overall ATM network. Some of the main benefits are achieved through more accurate traffic prediction and improved sector workload, and include lower fuel carriage, less engine-running time, better network and flight predictability, improved flight efficiency, greater cost-effectiveness, reduced environmental impact and enhanced air traffic management performance.

USE OF DIRECT ROUTES AT TACTICAL LEVEL

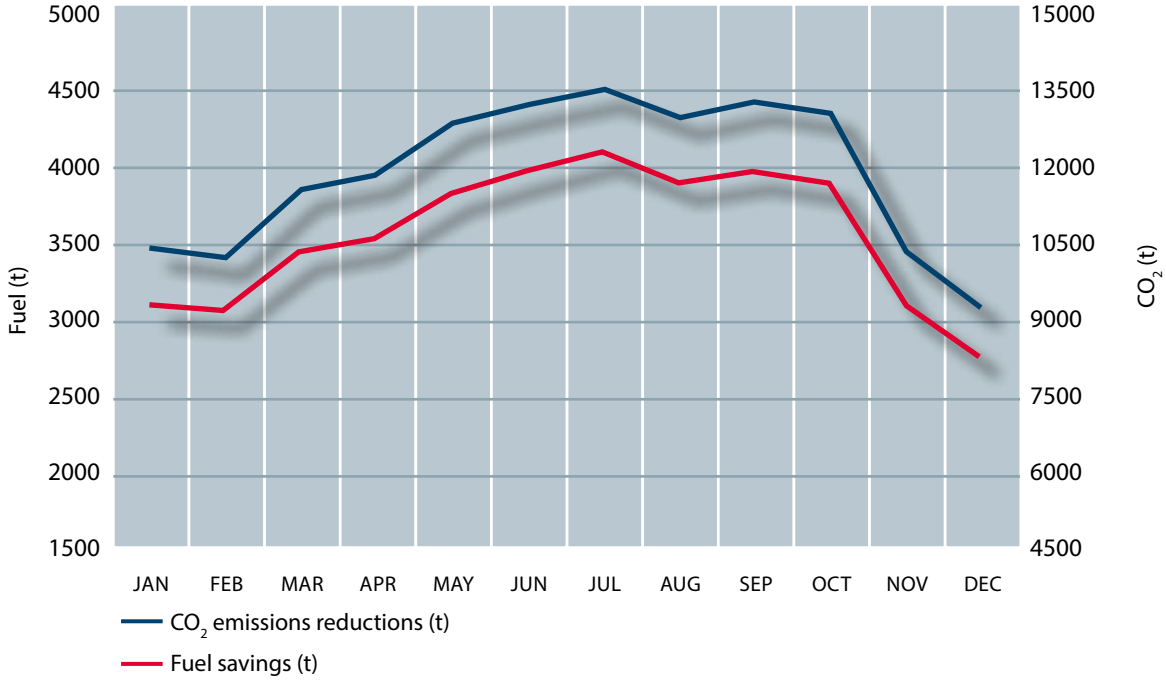
Operational staff recognise the benefits of providing direct routings to customers on a daily basis. On top of flight-plannable direct routes, MUAC also contributed to reducing fuel and CO2 emissions by proposing as many direct routes to aircraft operators at the tactical level as possible.

IN 2012, THE TOTAL ROUTE EXTENSION IN THE MUAC AIRSPACE WAS REDUCED BY 1.03%, EQUATING TO OVER 7.3 MILLION NM. THIS RESULTED IN 44,000 T OF FUEL AND THEREFORE 147,000 T OF CO_2 SAVED.



MUAC contribution towards reducing fuel and CO_2 emissions in 2012 – Total distance reductions

The total distance reductions generated in 2012 by direct routings offered at tactical level amounted to 7,096,428 NM.



MUAC contribution towards reducing fuel and CO_2 emissions in 2012

The total fuel and CO_2 reductions generated by direct routings offered at tactical level amounted to 42,600 t and 142,000 t respectively.

ATLANTIC INTEROPERABILITY INITIATIVE TO REDUCE EMISSIONS - AIRE II

Over the past years MUAC has participated in the AIRE-II project, piloted by KLM, LVNL and NLR, to demonstrate a system innovation during night-time operations which aims to reduce emissions. Following the procedures defined in the context of AIRE-II, inbound traffic can fly undisturbed Continuous Descent Arrivals/Approaches (CDA) at Schiphol Airport, with ATC using their downlinked trajectory to assess the arrival sequence and propose planned arrival times to the aircraft. A plan to lift level restriction during night operations in 2012 had to be dropped because of the need for further evaluation of the data that had been acquired as well as the tendency for aircraft to bunch up. Therefore, MUAC's contribution concentrated on the assistance in writing the final report of March 2012, which highlighted general concerns about the expanding planning horizons of arrival management systems and extending the planning phase into the en-route domain.

ARRIVAL MANAGEMENT MESSAGE (AMA)

In early 2012, LVNL and MUAC implemented the Arrival Management Message (AMA). In this process, an AMA message is sent electronically from Amsterdam to MUAC containing essential information for managing air traffic inbound to Schiphol. The data received enable en-route air traffic controllers to issue speed instructions at an early stage during the descent to destination, resulting in a streamlined flow of traffic and thereby improved flight efficiency. The AMA process can realise savings of up to 110 kg of fuel per flight.

SUPPORTING TELECONFERENCING AND TELEWORK

In order to eliminate non-essential travel, MUAC has acquired teleconferencing/Webex equipment so that employees are able to conduct a significant amount of their business activities without the need to travel off-site for meetings. Where appropriate, some 11% of staff also telework from home. In parallel with other infrastructure improvements, these telework and business travel arrangements contribute to the reduction of MUAC's carbon footprint.

INFRASTRUCTURE ENERGY-SAVING INITIATIVES

In compliance with environmental legislation in force in the Netherlands, the local authorities are provided with an evaluation of MUAC's annual energy consumption.

Over 2012, several energy saving initiatives, including the replacement of lighting infrastructure, the installation of central heating pumps in various parts of the building and a new roof covering, generated a minimum total estimated electricity consumption reduction of close to 20,000 KWh/year as well as a CO_2 reduction of more than 12 t/year.

RISK MANAGEMENT

Since 2012, activities have been undertaken to further improve the MUAC Risk Management Process. In the context of improving the corporate EUROCONTROL Risk Management Process, the MUAC risk management process was assessed as mature. Furthermore, additional activities to link the MUAC process with the corporate one were deployed in 2012. This link reinforces both the corporate and MUAC processes and creates opportunities to build on best practice.

During the year, MUAC acted as the pilot Directorate in the EUROCONTROL initiative to apply the COSO (Committee of Sponsoring Organisations of the Treadway Commission) framework as a method for managing risk. Following this methodology, MUAC was assessed as mature in internally managing its controls. The continued application of COSO will become a more integral part of MUAC operations.

MUAC classifies four categories of risk, namely business, processes, safety and projects.

In 2012, a managerial process identified new business risks requiring immediate mitigation. Lack of traffic growth and the resultant overcapacity that required an immediate and specific response to control the associated cost implications were identified as particular risks.

Although MUAC has consistently met its targets, the risk that it might not meet the SES RP2 objectives was identified as a new risk requiring urgent attention. This risk has been addressed by not only concentrating on manpower planning and reviewing the project portfolio, but also by revamping organisational structures and strategy. These remedial activities will begin to show results in 2013 and will enable more accurate identification of risks, thus enabling the introduction of mitigating measures.

Customers

During 2012, improved customer service was ensured thanks to optimised airspace design and usage, enhanced civil and military cooperation, better customer relationship management and the introduction of new technology. Focus on SESAR programmes continued with several ground-breaking developments, in particular the world's first I-4D (initial four dimensional) flight.

Over the reporting period, there were many developments aimed at improving customer service. The activities and projects set out below are the key highlights of the year and are by no means an exhaustive list of the entire work carried out in the different business areas.

CUSTOMER RELATIONS

CUSTOMER CONSULTATION

Engagement with aircraft operators at the operational, airspace design or strategic levels of the business helps to assess customer satisfaction and identify how service quality can be improved on a continuous basis. In particular, it has the added benefit of involving customers at the very beginning of any service enhancement. It also allows to promote ATM initiatives, such as more frequent usage of direct, flight-plannable routes which benefit customer operations.

Dedicated meetings with a selection of key account customers were held throughout the year during which MUAC provided detailed reports containing comprehensive analysis of vital areas including delays, flight efficiency, cost-efficiency and new programmes. These meetings served as a means to discuss the potential for future improvements and to spotlight the areas in which MUAC can deliver most benefits to customers for their daily operations.

In September 2012, the plenary MUAC Customer Consultation was held back to back with the NAM-EUR North American/European Air Traffic Flow Management Task Force conference. Customers appreciated this dovetailed scheduling as it cut down on their travel and associated costs. The plenary consultation meeting covered topics such as operational and financial performance, capacity and manpower planning, future programmes and customer relationship management at MUAC. Some 20 representatives from aircraft operators, airline associations and air forces participated in the meeting.

COLLABORATIVE CUSTOMER INTERFACE LAUNCHED

In 2012, work to develop eurSky, the online MUAC customer forum which enables aircraft operators to share a live desk with the MUAC Operations and Planning departments was started. This new and free direct service channel enables aircraft operators' requirements to be coherently and seamlessly integrated within the strategies and tactics of MUAC's business at every level. The eurSky customer interface, built upon the secure Yammer business network from Microsoft, provides not just information management solutions but also the benefits of dynamic decision-making, in the customer's interest, within the pre-tactical and tactical timeframes. The eurSky forum is becoming increasingly popular, with over 30 partners joining since it went live in January 2013.

CUSTOMER SATISFACTION SURVEYS

In order to ensure greater synergies across the different FABEC customer relationship management departments, a common customer satisfaction survey for the whole FABEC area was conducted in 2012. This joint approach aims to streamline efforts invested within the different ANSPs and reduce overall costs wherever possible. The results of the FABEC customer satisfaction survey will be communicated in the course of 2013. It will also be complemented by bespoke MUAC surveys, as and when necessary, to clearly identify customer requirements with regard to MUAC services.

OPTIMISING AIRSPACE DESIGN AND USAGE FOR SUSTAINED PERFORMANCE

FREE ROUTE AIRSPACE MAASTRICHT AND KARLSRUHE (FRAMAK)

The further development of free route airspace over Belgium, most of Germany, Luxembourg and the Netherlands (see the previous chapter) as part of the FRAMaK project was one of the highlights of the year. A joint project between Lufthansa, MUAC and DFS, resulting from a call for tender issued by the SESAR Joint Undertaking, FRAMaK enables aircraft operators to freely plan their flights on preferred business trajectories, thereby contributing to achieving flight efficiency targets. To maximise benefits, MUAC and its adjacent partners are closely coordinating the implementation of free route airspace. Alignment with the Danish and Swedish free route projects is achieved via the North Sea Regional Focus Group (NSFRG), an ad-hoc coordination group under the Route Network Development Sub-Group (RNDSG). In 2012, work started on the programme to extend free route operations to aircraft operators across the FABEC area.

POINT MERGE

In order to evaluate a new methodology for sequencing arrival flows in extended terminal areas (TMAs) Belgocontrol, DSNA Paris ACC, MUAC and several airlines conducted live trials for all north-eastern traffic to Paris Charles De Gaulle airport as part of the SESAR Point Merge

System (PMS) project. The concept assessment aims to fulfil an operational improvement defined in the European ATM Master Plan by employing the Point Merge System developed by EUROCONTROL. MUAC was also involved in a series of Point Merge live trial procedures for traffic in-bound to the Paris airports in the last quarter of 2012 and participated in the safety assessment related to this SESAR project.

FABEC OLYMPICS CELL OPERATES FROM MUAC

In preparation for increased traffic to and from UK airports during the London 2012 Olympics, pro-active coordination was maintained between the UK's NATS, the Network Manager and FABEC members. New flight profiles, coordination procedures and off-load scenarios were agreed and put in place in order to better facilitate traffic handling by London ACC. In addition, special new direct routes were introduced between Karlsruhe UAC and MUAC in collaboration with the military partners. Arrangements were also made with the military partners for reduced military usage of airspace on request.

A dedicated FABEC Olympic Cell was operated at MUAC from 24 July to 13 August 2012 in collaboration with civil and military partners. The Olympic Cell's task was to optimise performance delivery through collaborative Air Traffic Flow and Capacity Management (ATFCM) and civil/military Airspace Management (ASM). This large-scale operational solution, based in one single location, reduced the number of interfaces and so ensured optimum coordination with the airlines and the military airspace users. It added a new dimension to what already exists and was a concrete example of the added value that synergies between FABEC civil and military organisations can bring to the network.

FABEC IMPLEMENTATION PACKAGE SOUTH EAST

In April 2012, MUAC conducted a real-time simulation to assess the feasibility and impact of an airspace re-design at the interface with Reims UAC. The SWAP – Northern interface project is a swap of two major European ATS routes aimed at removing two cross-overs between MUAC and Switzerland. The trials were conducted in the context of the airspace design performed in the FABEC Implementation Package South East - an improved interface between Geneva ACC, Reims UAC, Brussels ACC and MUAC.

FABEC CROSS-BORDER AREA (CBA) LAND-CENTRAL WEST

The FABEC CBA Land (Step 1) and Central West (Step 2) airspace design continued throughout 2012 with the completion of the airspace design for the CBA Land and the execution of a prototype real-time simulation in October 2012. The simulation led to a redesign of the CBA Land and a finalisation of the design process for Step 1. The validation of Step 1 via a real-time simulation required for implementation took place at the beginning of 2013. The Central West (Step 2) airspace design is still in progress, first simulations are planned for the fourth quarter of 2013. Step 1 implementation is foreseen for October 2015 and Step 2 for December 2016.

NEW SECTORISATION

New airspace management configurations optimise airspace usage and efficiency in order to deal with future traffic growth. The new Holstein High sector was implemented in the Delta/Coastal Sector Group on 5 April 2012. Reduced capacity (75% of the normal operating capacity) was kept to a minimum and normal traffic values with minimal delays were achieved again within a week on 12 April 2012.

At the same time, work continued throughout the reporting period on the implementation of a new Luxembourg High sector in the Brussels Sector Group. It was successfully implemented in April 2013 and offers increased options for ensuring a good workload balance for the traffic pattern.

MAASTRICHT AIRSPACE RE-STRUCTURING - MARS-2

During the reporting period, considerable effort was invested in the MARS-2 project. MARS-2 aims to improve safety, flight efficiency and capacity by implementing a new concept for a more dynamic sector configuration that is not only optimal for free routes, but which also balances workload for all levels of traffic demand. MARS-2 will feature a mix of predefined static sectors that are better adapted to high traffic loads together with more dynamic sectors which are better able to balance capacity and demand. As a result, horizontal and vertical sector boundaries will become highly variable. The MARS-2 project implements conceptual elements in small digestible and feasible steps. The first milestone will be the implementation of variable division flight levels (VDFL) in the Hannover sector group at the end of 2013; the full rollout of VDFL is then planned for 2014, together with the preparation of other conceptual elements.

CIVIL AND MILITARY COOPERATION

CENTRALISED DATA SERVICES - SHARED ATS SYSTEM (SAS) WITH THE ROYAL NETHERLANDS AIR FORCE

As part of the Cooperation Agreement, signed on 9 March 2012 between the Dutch Ministry of Defence and EUROCONTROL for the provision of air traffic data services to the Royal Netherlands Air Force (RNLAF), the operational MUAC air traffic control system was extended to the RNLAF Air Operations Control Centre at Nieuw Milligen (AOCS NM). The system went live on 12 December 2012 with two Radar Approach Control Sectors (RAPCON) and four arrival sectors. This Initial Operational Capability is the first major milestone of the Shared ATS System (SAS) project.

The third RAPCON sector was moved to the SAS system on 4 March 2013. The last step, referred to as Full Operational Capability, is planned for Autumn 2013, when the SAS system will be further extended to seven RNLAF air bases and will thereafter be used by all RNLAF sectors - en-route, approach (RAPCON) and Tower. The previously used RNLAF systems (PHAROS and AUTOTRAC) will then be decommissioned.

The primary benefit of the shared traffic view between RNLAF and MUAC is increased safety, due to a closer understanding between military and civil controllers. Where previously verbal coordination procedures ensured synchronisation of views, this will now be automated, bringing with it a significant reduction in workload for both supervisors and controllers at both sites. The SAS project will also provide important efficiency gains as civil controllers will be aware of the status of the military areas and the intentions of the military aircraft operating in these areas, enabling more effective capacity management. Also, in terms of cost-efficiency, the benefits of the SAS are considerable. Furthermore, as MUAC facilities are upgraded and/or developed to SESAR standards, the improvements will automatically flow to the RNLAF virtual military centre served from MUAC.

COOPERATION BETWEEN MUAC AND THE DFS LIPPE RADAR UNIT STREAMLINED

With the introduction of free route airspace during times of military activity the changes to the route network necessitated the adaptation of OAT-GAT operating principles between MUAC and the DFS Lippe Radar Unit which is responsible for military traffic in the North-West of Germany. Working practices that have evolved during many years of close cooperation were simplified, improving communication and optimising procedures for the benefit of both civil and military airspace users. An improved Concept of Operations was introduced in October 2012 on a trial basis to test the renewed procedures with a view to implementing the revised Concept of Operations before summer 2013.

CENTRE MILITAIRE DE COORDINATION ET DE CONTRÔLE TRIAL

The Centre Militaire de Coordination et de Contrôle (CMCC) trial, initiated in November 2011, was successfully completed in April 2012. The CMCC consists of military control sectors located in the civil control room at Reims UAC and provides air traffic services to en-route military traffic operating around the LF-TSA-200 military area as well as in areas under the responsibility of MUAC. The concept of CMCC will be further tested and expanded in 2013. The CMCC will be permanently operated as from 2014.

MITIGATING THE EFFECTS OF FRISIAN FLAG

The annual NATO Frisian Flag exercise presents many challenges for both MUAC and aircraft operators. During the exercise, conducted in April 2012, considerable work was done to mitigate the effects of the exercise and ensure safe and efficient operations.

Under the auspices of the Dutch Ministries of Transport and Defence the preparations for FF3013 were conducted together with LVNL, RNLAF and Scottish ACC. Special ATC procedures and FUA/ASM Level 1 and Level 2 agreements were made to ensure safe and efficient operations. Due to the extension of military airspace delays, route extension could not be avoided. However these were greatly reduced by the close cooperation between the Network Manager, aircraft operators and MUAC flow management staff.

TECHNOLOGY

In a bid to constantly improve performance and customer service MUAC has continued throughout the reporting period to work closely with customers and partners to design and develop the most technologically advanced and innovative solutions.

MODE S

Over the last three years, the introduction of Enhanced Mode S (EHS) in the MUAC ATC system has begun to offer controllers better situational awareness, more accurate conflict detection and has freed up additional radio frequency time. Above all, EHS has resulted in a marked reduction in errors and losses of separation. Since June 2012, the EHS parameter Final State Selected Altitude (FSSA) has also been used in Short-Term Conflict Alert (STCA) warnings. This eliminates nuisance STCAs for unknown traffic, and at the same time flags up valid STCA warnings earlier than before. For known traffic, valid conflicts caused by an FSSA which is "worse" than the CFL (Cleared Flight Level) are flagged up immediately. This means that an STCA conflict can now be identified by the pilot selecting the FSSA in the airborne Flight Management System. This is the first time that FSSA has been used for STCA anywhere in the world.

PREPARATION FOR THE AIR GROUND DATA LINK IMPLEMENTING RULE

Over the business cycle, MUAC continued work to ensure that airline operators were provided with the best data link services ahead of the Implementing Rule for air navigation service providers in 2013. Significantly, this included dropping the requirement for voice read-back of profile changing messages. At the beginning of the year, several new users were added to the list of approved operators. Following that, and in coordination with the Link 2000+ Programme and MUAC's German partner DFS, MUAC moved away from an approved list so that all interested operators could log on with MUAC. In December 2012, DFS started providing data link services themselves and MUAC worked closely with them to assist in making their transition a success. MUAC also worked with the Link 2000+ team, sharing its 10 years of operational experience in order to standardise procedures across the Link area. This collaborative effort ensured that aircraft were now flying in an homogenous environment regardless of whether they were ATN or FANS equipped. Data link communications in the MUAC airspace have been steadily increasing over recent years. Currently, some 670 data link messages are exchanged on average every day, with 77 participating airlines participating. In all, there were some 105,000 logons in 2012.

ATFCM/ASM TOOLS PORTFOLIO

Air Traffic Flow and Capacity Management/Airspace Management (ATFCM/ASM) tools aim to streamline efforts to increase traffic flows and the capacity to handle them. As part of this portfolio, systems such as LARA have already been rolled out while other developments such as the New Duty Assigner or the Airspace Design and Validation Tool Suite are under development.

LARA (Local And sub-Regional ASM)

Collaborative decision-making and flexible use of airspace are important high level concepts in the vision for a Single European Sky. Much of this effort is covered by the incremental development and adoption of the LARA system with the support of the European Commission.

On 2 April, 2012, the Belgian Air Force (BAF) started operational use of LARA as the preferred replacement to its legacy local airspace planning tool in collaboration with MUAC which offered to host the BAF server. On 27 June 2012, MUAC became the initial civil user in a first ever LARA cluster that consists of a number of workstations located in ACC Brussels, ATCC Semmerzake, Belgian military airbases, the Belgian Airspace Management Cell, CRC Glons and MUAC. All the LARA workstations are connected over a network to the central LARA server at MUAC. By moving a cursor along a LARA time-line to see what is booked and what will be available, MUAC supervisors can view the status of military airspace planning, the current and soon-to-be active status of the airspace and the predicted status of the airspace at specific times in the future. They are also able to exchange data with the military counterparts in real-time via LARA.

During a SESAR live trial, that took place from 17 to 19 December 2012, MUAC proved the feasibility of integrating air traffic control and airspace management. The LARA system which was also used in support of the FABEC Olympics Cell (see above) fed in real time the MUAC operational flight data processing system and its advanced human-machine interface, thereby ensuring the visibility of airspace status to all controllers on their radar display without the need to perform phone coordination and manually input data into the system. Operational implementation of LARA is planned for the end of 2013.

The next steps for LARA implementation at MUAC cover integration with the Dutch cluster, including stand-alone clients' deployment, real-time feed of statuses to the flight data processing system and inter-cluster connectivity. The LARA software is developed by the UK-based company

GRAFFICA under the supervision of EUROCONTROL's Directorate Single Sky/Civil-Military ATM Coordination Division (DSS/CMAC).

New Duty Assigner

The New Duty Assigner project aims to deliver a novel automatic duty assignment logic for the operational roster tool. This will allow the roster office to deal with controllers' individual preferences while balancing shifts in a fair way. This will help to maximize the number of assigned shift requirements according to the assignment rules agreed with social partners. The system is composed of an assignment logic module, a human-machine interface module and an interface with the operational roster tool database. A first workable prototype was delivered in December 2012, and is currently undergoing validation and fine-tuning before operational deployment which is planned for 2013.

Airspace Design and Validation Tool Suite

The use of analytical studies and simulations has become mandatory during all early phases of airspace enhancement projects. Not only do they help with early scoping and cost-benefit analysis, they are also extremely useful for the verification of the benefits achieved by the design enhancement during post project analysis. With this in mind, a new project was launched in 2012 to develop the Airspace Design and Validation Tools Suite. The aim is to develop a set of tools to simplify and improve the airspace design processes at MUAC to support on-going projects such as MARS-2 as well as future airspace design improvements. The enhancements concentrate on capacity-related functions, especially workload-related measures.

An initial prototype of the new human-machine interface was delivered in May 2012, following thorough analysis of the integration of existing software components, and the development of new ones. The project's primary focus is to fill the gap between specific MUAC requirements which aim to support enhanced performance and existing generic tools, developed by the Network Manager, such as SAAM (System for traffic Assignment and Analysis at a Macroscopic level), NEST (Network Strategic Tool) and NEVAC (Network Estimation & Visualisation of ACC).

TRAFFIC MANAGEMENT SYSTEM

One of the most promising technical accomplishments in the field of controller workload prediction and traffic management is the impending installation of a traffic management system (TMS), which is due for operational validation in 2013, followed by operational use in 2014. Using trajectory predictions from the flight data processing system, it anticipates the traffic situation according to occupancy and entry rates as well as controller workload. The TMS also contains a sector optimiser that can identify the best sectorisation whilst investigating alternatives. In order to improve traffic situation awareness, this information is added to a geographical display of expected traffic flows using the TMS Air Situation Prediction (ASP) system.

The TMS-ASP was introduced for operational usage in the MUAC control room in 2011. The tool displays the estimated position of expected traffic along with flight details up to 10 hours in advance. This information is based on Enhanced Tactical Flow Management System (ETFMS) flight-data messages received from the Network Manager. By varying the look-ahead time, the predicted evolution of traffic can be precisely visualised. It also displays an overview of the weather situation at major airports with the capability of accessing in real-time the latest relevant information.

Over the reporting period, a new system architectural step was defined to provide an integrated FMP (iFMP) position. The aim is to develop a state-of-the-art human-machine interface for tactical capacity management and flow management controllers that contains all the functions of the TMS. The iFMP will also be integrated with external systems like LARA, TimeZone and the Network Manager's B2B services.

FABEC - DSNA AND MUAC JOINTLY PROCURE VOICE COMMUNICATION SYSTEM

In 2011, MUAC and the French Direction des Services de la Navigation Aérienne (DSNA) signed a contract with Austrian equipment supplier, Frequentis, for the development, deployment and maintenance of a new-generation Voice Communications System (VCS), which meets the FABEC concept of operations and the latest EUROCAE standards. The new VCS system will be deployed at MUAC in 2014, and in the following years across French air traffic control facilities. This new voice system will in the first place perpetuate safe controller-pilot and controller-controller voice communications. In addition it will incorporate the foundation for flexible and dynamic operational concepts supporting remote users and involving multiple centres.

SESAR DEVELOPMENT PHASE - VALIDATIONS OF SYSTEMS AND OPERATIONAL CONCEPTS

With its constantly upgraded Industry Based Platform (IBP), MUAC has been active in the SESAR Programme for the past years. A series of pre-operational validations have been conducted in areas deemed important performance enablers for the future. These activities will allow the deployment, as early as 2013, of operational concepts and technology validated in the SESAR development phase, contributing not only to a reduction of the costs related to the development and deployment of leading-edge solutions, but also to the operating costs of MUAC. MUAC validations concentrate on air-ground interoperability, ground-ground interoperability, complexity management and network related activities.

AIR-GROUND INTEROPERABILITY - PREPARING FOR INITIAL FOUR-DIMENSIONAL (I-4D) FLIGHTS

The world's very first flight trial to test the initial fourth dimension (I-4D) – time - took place on 10 February 2012 as part of the SESAR validations. Other validations were executed in MUAC's SESAR Industry Based Platform (IBP) as a mix of 'stand-alone' validations and validations where the I-4D compliant Airbus Cockpit Simulator was integrated. I-4D will improve air traffic predictability and flight efficiency, contribute to reducing emissions as well as facilitate Continuous Descent Operations (CDO) into airports. Following this first campaign of validations, the involved systems (flight data processing system, human-machine interface and data link front-end processor) were upgraded using lessons learnt during the initial trials. By the end of 2012, further preparations were completed on the upgraded IBP, to get it ready to execute the second set of validations planned for early 2013.

I-4D validations will continue up to 2014 and are organised in collaboration with several SESAR partners: aircraft manufacturer Airbus, avionics producers Honeywell and Thales Avionics, ground equipment manufacturers Indra and Thales ATM, and ANSPs LFV and Naviair. I-4D is a key element of the SESAR programme towards 4D trajectory management.

GROUND-GROUND INTEROPERABILITY

During 2012, work concentrated on developing and testing the first releases of the IOP (interoperability) systems, which are based on System Wide Information Management (SWIM) technology and which introduce the concept of Flight Objects to replace the legacy OLDI technology. A number of technical activities were also executed in 2012 to prepare a first bi-lateral DFS-MUAC validation which was successfully conducted in January 2013. Simultaneously, work was undertaken to get ready for a demonstration of interoperability with DFS and DSNA in 2013.

COMPLEXITY MANAGEMENT

In January 2012, AENA, EUROCONTROL's Directorate of SESAR Research and MUAC completed the first series of SESAR complexity management validation exercises. This activity was aimed at predicting individual controller workload in order to optimise the use of available capacity and reduce safety risks related to workload variations. One of the innovative elements in the validation was the use of real-time Medium-Term Conflict Detection (MTCD) information in an algorithm to predict complexity.

A second series of validation exercises took place in the March to May timeframe. These validations included the whole decision-making chain with the objective of assessing how the prediction of controller workload – as opposed to 'only' a prediction of occupancy - impacts on the capacity management decision-making process. In order to do this, air traffic controller and complexity managers participated in a fully integrated simulation. This has given insight into the required accuracy of workload predictions and how these predictions can be used to improve decision-making.

MUAC's Traffic Management System (TMS) tool was extensively used to support the validations. As a bi-product, the validations also provided end-user feedback on the use of the tool, scheduled for operational release in 2014.

People

As a consequence of the impact of the economic crisis on the aviation industry, and in a bid to identify further internal efficiency gains, it was decided to temporarily discontinue new air traffic controller training. In parallel, numerous targeted strategies were implemented to address air traffic controller overstaffing whilst retaining sufficient flexibility to react rapidly to a return to traffic growth. During the business year, training synergies with FABEC progressed.

IMPROVING ORGANISATION AND PERFORMANCE – MUAC TRANSITION IMPLEMENTATION PROGRAMME LAUNCHED

In 2012, a comprehensive management review was undertaken, including a staff satisfaction survey to identify improvements in the MUAC managerial structure and process management. The purpose of the review was to identify ways to improve performance and meet the targets expected under RP2. As a result, the Transition Implementation Programme was launched at the end of the year. Its objectives are to make of MUAC a lean and agile organisation with a clear strategy together with streamlined objectives to support that strategy. In order to implement the transition objectives, the organisational structure will be reviewed and a matrix organisation will subsequently be introduced. In parallel, the programme will also look into enhanced communications, improved management information systems and competency development for greater business and financial effectiveness.

OPTIMISING HUMAN RESOURCES

The SES cost efficiency target of reducing the determined unit rate by 3.5% annually during RP1 has put the cost of human resources at MUAC in a new perspective. Optimising resources for greater business and financial effectiveness has accordingly been identified as a key enabler for meeting those targets.

ADDRESSING AIR TRAFFIC CONTROLLER SURPLUS

As a result of the persistent traffic demand volatility, MUAC has accrued a surplus of controllers. Currently several avenues are being pursued to address this surplus. Some of the measures which have either been implemented or are being considered in order to reduce expenditure are: the limited-term lease contract for air traffic controllers to Austro Control, secondment or side-tracking for controllers as well as temporary measures to promote part-time work or time off on personal grounds.

AIR TRAFFIC CONTROLLER TRAINING STREAMLINED

In November 2012, the last class of future air traffic controllers finished their initial training at EUROCONTROL's Institute of Air Navigation Services (IANS) in Luxembourg. This was the final course of future air traffic controllers, recruited for MUAC for the coming years. It was also the last course ever to be provided for MUAC ATC students by IANS.

All future controller initial training will be provided under a FABEC cooperation agreement at the Ecole Nationale de l'Aviation Civile (ENAC), located in Toulouse where MUAC students will be trained together with their French DSNA colleagues. However, considering current controller overstaffing levels, the restart of training for MUAC is not foreseen until the end of this decade.

Over the business cycle, discussions took place concerning future training arrangements within FABEC. In the near future, the new FABEC basic course will be run for the first time by DFS. Thereafter, the course, which is common to all FABEC member states – including training material and documentation, will be provided to all FABEC ANSPs. This new common course will generate significant cost savings by allowing the FABEC partners to jointly update the course material, which in itself provides a first step towards harmonising the training for the profession. In 2012, FABEC re-orientated projects on a bi- and tri-lateral basis to make progress easier and speed up the convergence process. Accordingly, MUAC is now engaged with France's ENAC for its new initial training, and with LVNL and Belgocontrol in the area of selection and competence assessment. Moreover, a series of common development training courses were executed with DFS and skyguide.

Towards the end of 2012, EASA presented its proposal for a new EU Implementing Regulation on controller licensing and training. While this EU-wide consistent ruling will allow and also foster the further standardisation and harmonisation, it comes along with additional requirements as well as additional training costs. FABEC working arrangements have allowed for a joint approach for the provision of comments to this EASA draft.

MANAGING DAILY OPERATIONS MORE EFFECTIVELY – CENTRAL SUPERVISORY SECTION PROJECT

The Central Supervisory Section project was initiated to ensure that operations are undertaken in the safest, most efficient and flexible way possible. Under the project, the harmonised and integrated processes in the operations room are now managed from a centralised position by a team composed of an executive duty supervisor, a tactical and a capacity supervisor, a tactical capacity manager and an assistant to the duty supervisor. In March 2012, the project team assumed, for the first time, centralised management responsibilities, reducing the number of supervisory functions from 54 to 45. Although the new team has bedded in well, and the transition can be said to have taken place smoothly, further improvement will be

necessary to prepare sufficiently for a return to the levels of daily activity that existed before the financial crisis took hold.

PEOPLE AND LINE MANAGEMENT

In parallel to the Central Supervisory Section implementation, new line management structures in the control room were developed in the course of the business year. All controllers have been organised into smaller teams with a room supervisor as their line manager. A pool of six duty supervisors (Focus Area Personnel) manages a pool of five room supervisors. The duty supervisors in their turn report to the Operations Manager Personnel. Recognising the challenges that go with shift-working, one of the main objectives in this reorganisation is to increase the level of interaction and communication from the top-down as well as bottom-up.

PRO-TEAM - MERGING AND COACHING STAFF FOR GREATER EFFICIENCY

Following the implementation of the Operational Staff Planning Review, the entire planning lifecycle was further improved in 2012. This entailed a team merger between the roster office that is responsible for building the roster, and the planning office that oversees the maintenance of the roster and the daily deliverable of the position plans. A planning and coordination manager, undertaken by one of the duty supervisors, ensures effective and efficient workflow organisation. The planning and roster office team was coached by an external company in a process which took them from a 'collection of individuals' through to a 'group demonstrating solidarity' and finally through to a 'performing team'. The achieved cohesion was based on clear objectives, agreed rules and mutual trust. The PRO-Team completed the coaching in a 24-hour pit-stop in December 2012, focusing on defined roles, motivation and talent.

IMPLEMENTING NEW ROSTERS

Following the last phase of the implementation of the enhanced working conditions in 2012, control room staff rosters were gradually adapted, and implementation of the end-state provisions was finalised at the beginning of 2013. The new rosters ensure greater flexibility in matching human resources with traffic demand at tactical and pre-tactical levels.

OPTIMISING SHIFT WORK

A number of teams in the maintenance and support areas ceased shift work in the course of 2012 thanks to improved technical system reliability. This development has reduced remuneration expenditure for these tasks. Additional investigations into further shift reductions are ongoing and will continue in 2013.

CRITICAL INCIDENT STRESS MANAGEMENT - CISM

In 2012, the Critical Incident Stress Management (CISM) Team continued to build on the work carried out over the past 10 years. The team is composed of volunteers from the control room, trained on an annual basis to be ready to intervene with their expert support following incidents that have had a high impact on the individual professional. The CISM programme has been well accepted by staff and there is a continuing and growing willingness to make use of it. The support of both the professional association (EGATS) and MUAC management has been instrumental in this positive development.

Gender distribution (31 December 2012)

Female employees 128 = 19 %

Male employees 558 = 81 %

SOCIAL DIALOGUE

Throughout 2012, MUAC management, Staff Committee representatives and the trade unions continued their positive discussions on a number of important themes. In particular, these cooperative exchanges addressed FABEC, the reorganisation of the Engineering Division, the MUAC staff satisfaction survey, the incentive scheme, the provisions for the last phase of control–room staff enhanced working conditions and the promotion process rules. In addition, regular meetings were organised and conducted on behalf of the Four States, concerning the study of future institutional options for MUAC.

INCENTIVE SCHEME

A performance-based incentive scheme for MUAC staff, for RP1 was developed and negotiated in 2012, and subsequently agreed by Member States early in 2013. This incentive scheme has been introduced to recognise MUAC's outstanding operational performance and its high levels of cost-efficiency. It will allow further performance increases to be assessed and appropriately rewarded on the proviso that defined performance targets in the areas of delay, cost-efficiency and the environment are met. The incentive scheme will also allow greater managerial flexibility, which is also expected to generate performance improvements. It will be financed within the foreseen budgetary envelope by savings reached through managerial measures and adaptations to the General Conditions of Employment for MUAC staff.

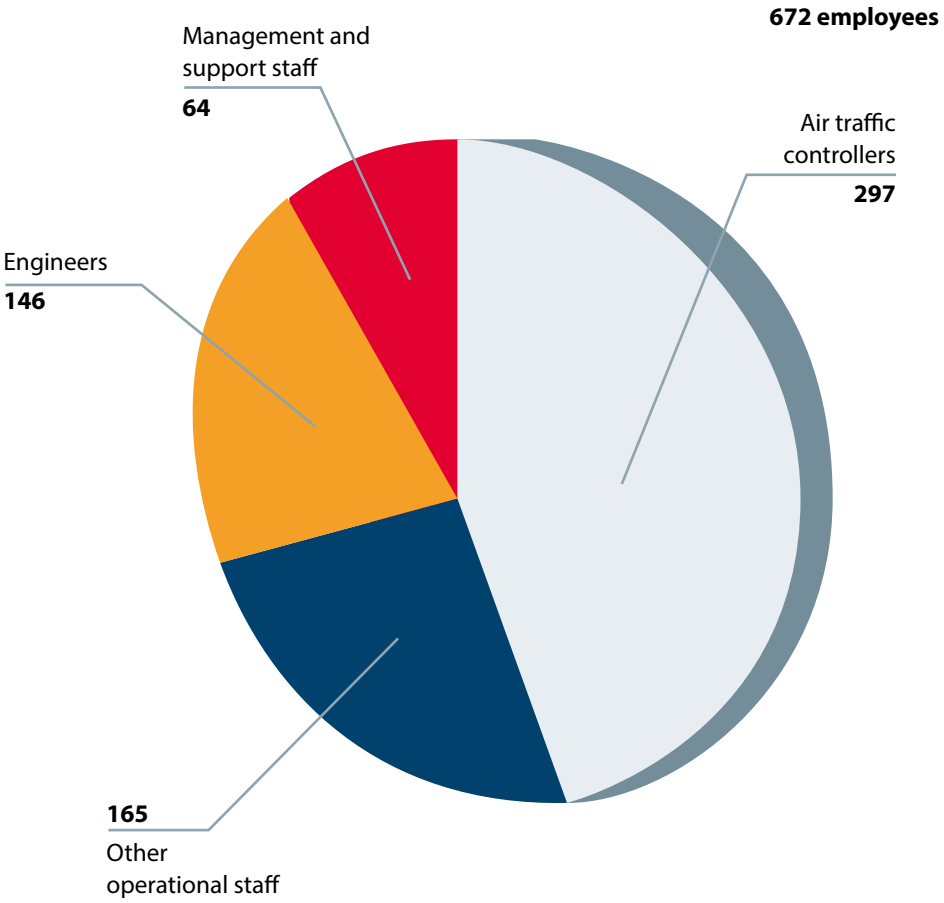
31 December	**2008**	**2009**	**2010**	**2011**	**2012**
Breakdown of staff in the different core business units					
Directorate	11	11	23*	20	22
Operational staff	205	222	190	178	165
Air traffic controllers	258	266	280	290	297
Engineering	152	152	156	158	151
ATM/CNS Strategy and Development	5	4	6	8	9
Directorate of Resources/MUAC	40	42	26	25	24
Strategic Development and Management			5	5	4
TOTAL	**671**	**697**	**686**	**684**	**672**

* Additional employees result from the transfer of security staff from the former Human Resources, Finance and General Services department following the re-organisation of January 2010.

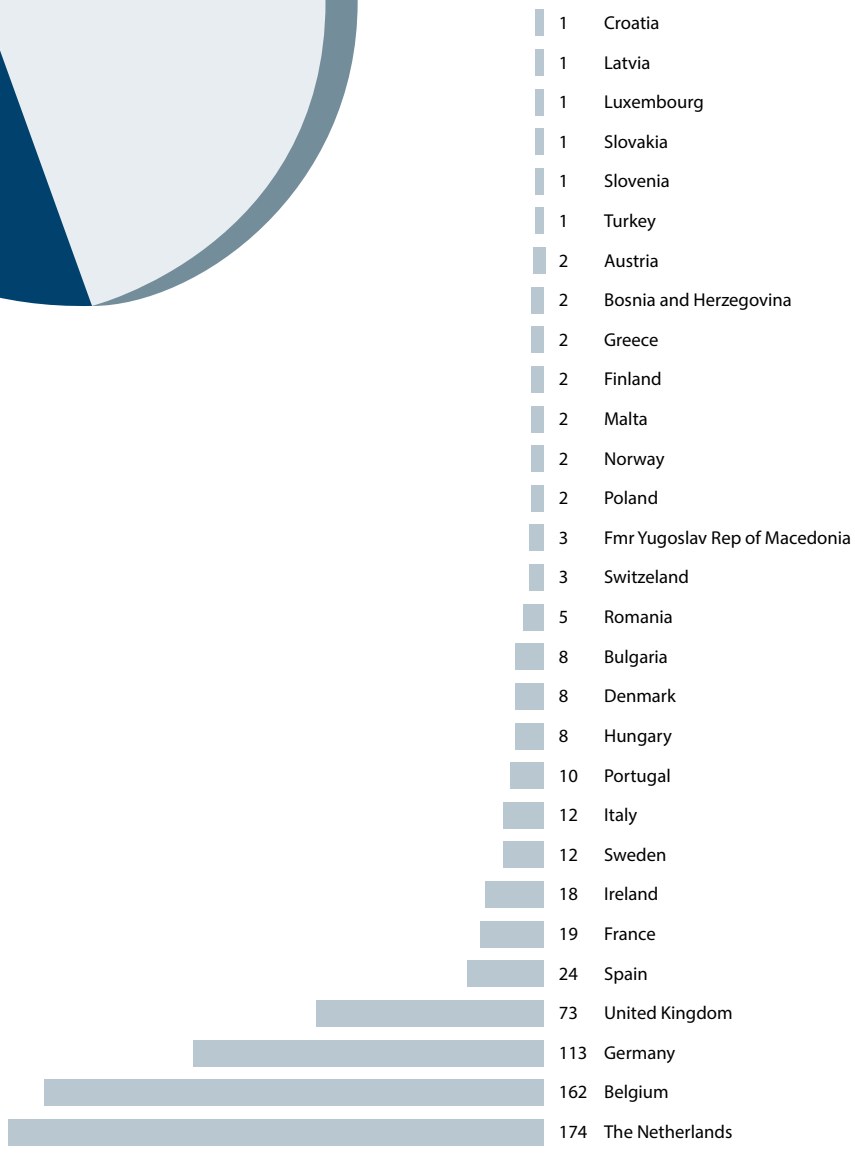
Air traffic controllers per sector group					
Delta/Coastal	73	75	80	84	91
Hannover	97	99	100	103	100
Brussels	88	92	100	103	106
TOTAL	**258**	**266**	**280**	**290**	**297**
Newly qualified air traffic controllers	**13**	**10**	**17**	**10**	**7**
Staff in- and outflow					
Retirements	10	5	10	5	6
Other outflow*	19	31	31	29	14
Recruitment (except air traffic controllers)	31	31	13	9	5
Student air traffic controllers (ab initio and conversion)	36	31	16	16	8

* Other outflow refers to student air traffic controller dismissals, resignations, early terminations of service, transfers to other EUROCONTROL units, unpaid leave, invalidity, end of contract, contract terminations or death in service.

Breakdown of staff in the different core business units (2012)



Staff nationalities in 2012



Business outlook

The eurozone entered into recession at the end of 2012 and a persistently weak economy is anticipated as the real GDP growth rate for the EU 27 area is forecast to fall by 0.1% in 2013.

Therefore, it is expected that air traffic in the MUAC area will decrease by between 0.4% and 1.8% (reference STATFOR baseline and low forecasts) in 2013. Any major economic recovery is not expected in the medium term, and experience has shown that it is difficult to precisely predict air traffic trends. However, the fact that MUAC currently has some overcapacity means that few capacity enhancements will be required in the medium term.

In the current volatile market conditions, and in anticipation of RP2, MUAC will remain focused on increasing its performance further while responding to new challenges arising from SES II regulations.

To meet customers' key requirements, MUAC will remain focused on flight efficiency via the free route airspace programme and optimum flight profiles, improved monitoring and reporting of flight efficiency within MUAC airspace and maintaining delays at very low levels. In addition, improvements to air traffic management through technology, decision-support tools, tailored routes, dynamic sectorisation and variable division flight levels will allow more aircraft to fly optimal routes with lower fuel burn. Flexible manpower planning and resource allocation will be key to further improving performance. Targeted operational enhancements will continue to be explored with every key customer with a view to increasing customer satisfaction and supporting the recovery of the industry.

Cost-effectiveness will remain under scrutiny as enhanced synergies will be sought within the organisation to reduce expenditure while improving safety, maintaining investments, developing further cutting edge technology and participating in key SESAR validations. Activities will, however, be prioritised according to precise decision-making criteria.

MUAC aims to sustain its positive contribution to the achievement of the EU-wide performance targets as well as FABEC performance targets.

Another pillar of the MUAC's strategy - within the Four States and FABEC - is increased coordination and collaboration with the military. In particular, a strategically crucial development is the delivery of data services to the Dutch Air Force as this will generate not only cost savings, but also improved safety for commercial and military operators alike. We believe this collaborative effort can be more widely adopted throughout the ATM community to achieve even greater benefits.

The MUAC Executive Management Team

Financial accounts

ANNUAL ACCOUNTS

EUROCONTROL produces annual accounts which provide a consolidated view of the Agency's financial performance. In line with the applicable financial regulations, the specific performance of MUAC is identified in Part III of the Agency's accounts. This report includes an excerpt of the data available in the Agency's Annual Accounts in order to present a reference Balance Sheet and Statement of Financial Performance for MUAC. The Agency's Annual Accounts are produced in accordance with the principle of a true and fair view.

The Agency's accounts, including Part III, which relates to MUAC, are audited by the Audit Board with the assistance of external consultant auditors. The Annual Accounts, including the auditor's opinion, are subsequently submitted to the Commission via the Provisional Council. The Commission gives a final ruling on the Accounts and decides on the discharge to be given to the Director General in respect of his financial and accounting management.

The figures presented in this report are, therefore, subject to the approval of the Audit Board and the Provisional Council, which is expected in the summer of 2013.

ACCOUNTING PRINCIPLES AND GENERAL NOTES ON ACCOUNTING MATTERS

The main accounting principles, underlying the present financial statements, are set out below.

Since 2011, the financial statements with regard to expenditure and receipts are prepared on the basis of the International Financial reporting Standards (IFRS), and based on the provisions of the Financial Regulations of the Agency and their Rules of Application.

The Agency's policy regarding fixed assets is based on the revised Director General Decision XI/7(2011), dated 17/10/2011. Fixed assets are entered at their historic value and amortised over their useful lifetimes, in accordance with amortisation rates, which apply equally to the calculation of the investment costs to be recovered from the airspace users through the EUROCONTROL part of the cost-base (based on ICAO rules adopted by the Permanent Commission).

Following a decision by the Provisional Council in November 2004, the Agency applies IAS 38 and, as of 1 January 2006, capitalises only intangible assets that fully comply with this standard. Following this principle, only computer software for which EUROCONTROL owns intellectual property rights are capitalised.

Concerning operating expenditure, contributions from the Four Member States participating in MUAC are calculated on the basis of an agreed cost-sharing formula. At year end, the over/under payment of contributions is calculated by comparing the level of expenditure to the level of contributions paid.

Concerning investments, a mechanism for pre-financing investments by the Agency is in place, ensuring that investments are fully financed with bank loans. Therefore, in the Balance Sheet, the residual value of fixed assets is fully compensated by an equivalent amount of loans. In the Statement of Financial Performance, the amortisation charge for the year is balanced by contributions from the Four States.

In accordance with Article 23 of the Financial Regulations, any over/under payments of contributions are deducted from/added to contributions for the subsequent year

In accordance with Article 29 of the Financial Regulations, and, as approved by the Permanent Commission, the Annual Accounts incorporate both the Budgetary and the Financial Accounts.

The 2012 Budgetary Accounts, which determine the amount of contributions due from the Member States in 2012, are based on the IFRS principles (with some exceptions). Similarly, the 2012 EUROCONTROL cost-base, which has been charged to the users through the route charges recovery cost mechanism, is also based on the IFRS principles (with some exceptions).

The exceptions to IFRS are listed in Article 6 of the Rule of Applications to the Financial Regulations in the areas of contributions to social security schemes, compensations of national taxes and provisions.

BALANCE SHEET

ASSETS		€ 2011	€ 2012
FIXED ASSETS	Buildings & installations	22,650,515.75	25,058,209.68
	Equipment & software	50,306,813.87	43,549,108.53
	Vehicles	39,261.00	16,143.00
	Work in progress	2,961,181.51	6,584,991.25
	TOTAL FIXED ASSETS	75,957,772.13	75,208,452.46
CURRENT ASSETS	Contributions to be received	29,679,373.75	31,110,406.51
	Intercompany receivables	6,186,733.51	5,208,239.39
	Deferred charge	7,718,593.41	7,817,478.66
	Other debtors	5,057,317.14	1,330,204.96
	TOTAL CURRENT ASSETS	48,642,017.81	45,466,329.52
	OVERALL TOTAL	**124,599,789.94**	**120,674,781.98**
LIABILITIES			
CURRENT LIABILITIES	Contributions to be reimbursed to Member States	16,357,262.73	8,222,067.18
	Deferred income	31,132,193.22	30,981,743.50
	Other creditors	1,152,561.86	6,262,518.84
	TOTAL CURRENT LIABILITIES	48,642,017.81	45,466,329.52
OTHER LIABILITIES	Loans > 1 year	75,957,772.13	75,208,452.46
	TOTAL OTHER LIABILITIES	75,957,772.13	75,208,452.46
FINANCIAL POSITION			
	TOTAL FINANCIAL POSITION	0.00	0.00
	OVERALL TOTAL	**124,599,789.94**	**120,674,781.98**

STATEMENT OF FINANCIAL PERFORMANCE

	2011			2012		
INCOME	**GAT**	**OAT**	**Total €**	**GAT**	**OAT**	**Total €**
Member State contributions			93,502,724.34			110,928,710.82
Member State contributions PBO			362,369.00			366,717.00
Internal Tax			26,497,658.60			35,118,555.13
TOTAL INCOME			**120,362,751.94**			**146,413,982.95**
COSTS						
Remunerations	-107,032,991.40	-3,299,606.68	-110,332,598.08	-123,333,474.06	-4,080,430.29	-127,413,904.35
Remunerations – accrual budgeting	8,983,850.52	197,359.29	9,181,209.81			
Receipts related to remunerations	786,154.33	24,235.52	810,389.85	924,726.24	30,594.13	955,320.37
Receipts related to outsourcing Austrocontrol	1,810,878.35	55,825.65	1,866,704.00	1,450,153.96	47,977.66	1,498,131.62
Receipts related to KLU Project				3,249,756.68	107,516.68	3,357,273.36
STAFF COSTS	-95,452,108.20	-3,022,186.22	-98,474,294.42	-117,708,837.19	-3,894,341.81	-121,603,179.00
PENSIONS PBO	-354,580.00	-7,789.00	-362,369.00	-358,058.00	-8,659.00	-366,717.00
Staff-related costs: training and travel costs	-1,735,259.76	-53,494.48	-1,788,754.24	-1,361,011.35	-45,028.52	-1,406,039.77
External assistance	-2,967,755,46	-91,489.79	-3,059,245.25	-3,086,428.63	-102,113.05	-3,188,541.68
Accommodation	-2,487,790,80	-76,693.47	-2,564,484.27	-2,570,923.72	-85,057.81	-2,655,981.53
Communications	-1,475,683.06	-45,492.27	-1,521,175.33	-1,388,913.19	-45,951.54	-1,434,864.73
Data processing	-3,466,338.37	-106,860.07	-3,573,198.44	-3,841,105.10	-127,081.16	-3,968,186.26
General administration	-158,640.91	-4,890.57	-163,531.48	-168,959.70	-5,589.95	-174,549.65
Finance & insurance	-304,528.74	-9,387.99	-313,916.73	-395,717.17	-13,092.12	-408,809.29
Unrecoverable VAT	-8,559.10	-263.86	-8,822.96	-7,012.63	-232.01	-7,244.64
Sale of goods	0.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous receipts	22,866.46	704.92	23,571.38	22,482.21	743.81	23,226.02
Miscellaneous receipts – revalorisation buildings	3,788,012.04		3,788,012.04			
OPERATING COSTS	-8,793,677.69	-387,867.59	-9,181,545.28	-12,797,589.27	-423,402.26	-13,220,991.53
DEPRECIATION COSTS	-10,489,715.77	-647,597.08	-11,137,312.85	-9,669,331.75	-852,398.51	-10,521,730.26
INTEREST PAID	-1,207,230.39	0,00	-1,207,230.39	-701,365.16	0,00	-701,365.16
TOTAL COSTS	**-116,297,312.05**	**-4,065,439.89**	**-120,362,751.94**	**-141,235,181.37**	**-5,178,801.58**	**-146,413,982.95**

GLOSSARY OF ACRONYMS

A

ACC	Area Control Centre
ACE	ATM Cost-Effectiveness
AENA	Aeropuertos Españoles y Navegación Aérea/Spanish Airport and Air Navigation Administration
AIRE	Atlantic Interoperability Initiative to Reduce Emissions
AMA	Arrival Management Message
ANA	Administration de la navigation aérienne (Luxembourg)
ANSP	Air Navigation Service Provider
AOCS NM	Air Operations Control Centre Nieuw Milligen
ASM	Airspace Management
ATC	Air Traffic Control
ATCC	Air Traffic Control Centre
ATFCM/ASM	Air Traffic Flow and Capacity Management/Airspace Management
ATFM	Air Traffic Flow Management
ATM	Air Traffic Management
ATM/CNS	Air Traffic Management/ Communications, Navigation and Surveillance
ATN	Aeronautical Telecommunications Network
ATS	Air Traffic Services

B

BAF	Bundesaufsichtsamt für Flugsicherung/Federal Supervisory Authority for Air Navigation Services
BSA-ANS	Belgian Supervisory Authority for Air Navigation Services

C

CAA	Civil Aviation Authority
CBA	Cross-Border Area
CCMC	Centre militaire de coordination et de contrôle
CDA	Continuous Descent Arrival
CDO	Continuous Descent Operations
CFL	Cleared Flight Level
CISM	Critical Incident Stress Management
CNS	Communication, Navigation & Surveillance
COSO	Committee of Sponsoring Organisations of the Treadway Commission
CPDLC	Controller-Pilot Data Link Communications

D

DFS	Deutsche Flugsicherung
DSNA	Direction des services de la navigation aérienne

E

EASA	European Aviation Safety Agency
EGATS	EUROCONTROL Guild of Air Traffic Services
EHS	Enhanced Mode S
ENAC	Ecole Nationale de l'Aviation Civile
ETFMS	Enhanced Tactical Flow Management System
EU	European Union
EUROCAE	European Organisation for Civil Aviation Equipment

F

FABEC	Functional Airspace Block Europe Central
FABCE	Functional Airspace Block Central Europe
FANS	Future Air Navigation Systems
FIR	Flight Information Region
FMP	Flow Management Position
FRAM	Free Route Airspace Maastricht
FRAMaK	Free Route Airspace Maastricht and Karlsruhe
FSSA	Final State Selected Altitude
FUA/ASM	Flexible Use of Airspace/Airspace Management

G

GAT	General Air Traffic
GDP	Gross Domestic Product

I

IANS	EUROCONTROL Institute of Air Navigation Services
IBP	Industry Based Platform
ICAO	International Civil Aviation Organization
IFMP	Integrated Flow Management Position
IFRS	International Financial Reporting Standards
ISO	International Organization for Standardization
ITL	Inspectie Leefomgeving en Transport /Human Environment and Transport Inspectorate
I-4D	Initial Four-Dimensional

K

KLM	Royal Dutch Airlines
KLU	Koninklijke Luchtmacht/Royal Netherlands Air Force
KWh	Kilowatt hour

L

LARA	Local And Regional Airspace
LFV	Swedish Air Navigation Services
LVNL	Luchtverkeersleiding Nederland

M

MARS	Maastricht Airspace Re-structuring
MCG	Maastricht Co-ordination Group
MTCD	Medium-Term Conflict Detection
MUAC	EUROCONTROL Maastricht Upper Area Control Centre

N

NATS	National Air Traffic Services, UK
NLR	Nationaal Lucht- en Ruimtevaartlaboratorium
NM	Nautical Miles
NORACON	NORth European and Austrian CONsortium
NSA	National Supervisory Authority

O

OAT	Operational Air Traffic
OLDI	On-Line Data Interchange

P

PMS	Point Merge System
PBO	Projected Benefit Obligations

R

RNLAF	Royal Netherlands Air Force
RP1	Reference Period 1 (2012-2014)
RP2	Reference Period 2 (2015-2019)

S

SAS	Shared ATS System
SES	Single European Sky
SESAR	Single European Sky ATM Research
SMS	Safety Management System
STCA	Short-Term Conflict Alert

T

t	Tonnes
TMA	Terminal Manoeuvring Area
TMS	Traffic Management System
TMS-ASP	Traffic Management System - Air Situation Prediction
TSA	Temporary Segregated Area

U

UAC	Upper Area Control Centre
UIR	Upper Information Region
UK	United Kingdom

V

VAT	Value Added Tax
VCS	Voice Communications System

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