

AIR NAVIGATION SERVICE PROVIDER AND STATE AIRPORTS AUTHORITY of TÜRKİYE

# ANNUAL 2015



### DHMI

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# ANNUAL REPORT 2015

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The future is in the skies. S. Atativk

### WELCOME

Dear Colleagues,

We have accomplished a new year of service full of important developments both on global and national scale. We are proceeding towards the goal of opening DHMI to the world to become a game changer in air navigation services and airport management.

DHMI has achieved an astounding success in the last 13 years, not only in air navigation services through modernisation of national airspace control facilities and systems but also in management activities with investments implemented through PPP projects.

Besides, we have been sustaining to put a great emphasis on constructing environment friendly terminal buildings. Today, we have the world's most advanced airports in terms of design, technology and safety.

We expect the number of passengers and air traffic will continue to grow and hence estimate that overall passenger traffic will exceed 195 million in 2016. This stable development has made Turkey

the focus of global aviation and caused our rankings soar up to top within the European airspace as well. According to 2015 ACI statistics, Istanbul Ataturk Airport was in the European top five in terms of airport movements and number of passengers.

Turkey has completed the transition phase of the SMART (Systematic Modernization of ATM Resources in Turkey) Project and implementations of new ATM systems were realized before the end of 2015. The en-route sectors from Istanbul and Izmir ACCs have been transferred to Ankara ACC on 18 November 2015. Since then Istanbul and Izmir Approach Units provide approach control services for Istanbul and Izmir TMAs.

Turkey will have a breakthrough in 2018 when the new Istanbul Airport will begin its operations with an overall capacity outperforming the one in Ataturk Airport. Then, as predicted by global renowned civil aviation assessment authorities, Turkey will become a new mega stopover hub and transit center in between the continents from north to south and from Far East towards Europe and Africa. In this sense Turkey is taking firm steps to reach the goal of being a global brand.

Wishing You A Safe Journey...

Serdar Hüseyin YILDIRIM Director General Chairman of the Board



### Board of Directors\*



SERDAR HÜSEYİN YILDIRIM Chairman of the Board Director General



FUNDA M. OCAK Member of the Board and Deputy Director General



MEHMET ATEŞ Member of the Board and Deputy Director General



SAADETTIN PARMAKSIZ Member of the Board





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#### HISTORY

DHMI started its long journey as an airmen school and the first aeronautical state enterprise in Turkey, back in 1912. The State Airlines Enterprise, created with the advent of the Republic, was followed by the Directorate General for State Airlines. The spectacular development of civil aviation made it necessary to separate the functions of air transport and the operation of aerodromes, which were entrusted to Turkish Airlines and the Directorate-General of the State Airports Enterprise respectively. After having operated as the Airport Management Company, on 8 November 1984 with its brand new legal status the State Airports Authority was founded and began its operations on 1 December 1984.

#### LEGAL STATUTE AND OBJECTIVES

The DHMI is a public-enterprise company deemed to be privileged in view of the public service that it renders, the capital which is entirely paid by the state, and which is associated with the Ministry of Transport. It is governed, as regards its objective, its activities and its administration, by Decree-Law No. 233 and the amendments thereto, and by its Statutes which came into force on the basis of the aforementioned Decree; by Law No. 2920 (Civil Aviation Code); by Law No. 2677

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on the execution of functions and services at commercial airports, ports and border posts and by Law No. 3832 on Defense and the Security of certain bodies and organizations. The objectives of the DHMI are to provide air transport, to manage aerodromes, to provide ground services at airports and air traffic control services, to install and set up air navigation systems and facilities and other related systems, and to maintain them at the level required for modern aviation standards.



#### **MISSION AND VISION**

#### Mission

To provide air navigation and airport operating services at international standards in the aviation sector, leaning on high quality, safe, human and environment friendly high technology infrastructure and systems with qualified expertise.

#### Vision

To become one of the leading companies in the World having a global competitive power in the field of air traffic management and airport operations.

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dine .

#### **Major Principles and Values**

- » Expertise and Scientific Methodology
- » Comprehensiveness
- » Attachment to Occupational Principles
- » High Quality and Seamless Service
- » Productivity
- » Safety and Reliability
- » Transparency
- » Environment and Passenger friendly
- » Innovation and Progress
- » Domestic Production of Aviation Equipment





Turkey has a huge and strategically important airspace with totally 66708 kilometres of controlled air routes and 982.286 square kilometres of controlled airspace over Europe and Asia continents. Due to its special geographical location Turkish airspace includes crossroads with north-south and east-west traffic flows between Europe, Asia and the Middle East.

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Devlet Hava Meydanları İsletmesi (DHMI) is responsible for Air Navigation Services in the Turkish airspace. Civil aviation in Turkey is the responsibility of the Ministry of Transport, Maritime Affairs and Communications. The Directorate General of Civil Aviation (DGCA) a certified entity designated by the Minister of Transport is the Turkish Regulatory Authority. DHMI Air Navigation Department of Directorate General of State Airports of Turkey is the unique provider of Civil Air Navigation Services for Turkey. The DHMI is an Autonomous State Enterprise and provides all the Air Traffic Services within civil airspace (Controlled Airspace, TMA and CTRs).

One of the main objectives of DHMI is "to provide air navigation Services for all users in a qualified, balanced, safe, environmental friendly, fair and economic manner and the development of the air traffic".

DHMI's strategy has two primary focuses:

- » to maintain its level of performance and strives to continuously improve the quality of its services.
- » to steadily develop its position in Europe

and to achieve a leading position in the provision of air navigation services in the region.

Realization of DHMI's strategic principles is premised on reaching the following strategic goals:

#### Maintaining high-level air traffic safety,

- » Ensuring competent and highly qualified staff
- » Maintaining top quality services
- » Keeping air traffic delays to a minimum
- » Maintaining the economic efficiency at an acceptable level
- » DHMI also works to achieve Turkish transport policy goals.

#### ATC UNITS

#### DHMİ's main ATC units are as follows:

- Ankara ACC: Ankara Area Control Centre provides area control services within Ankara and İstanbul Flight Information Region. It also provides approach control services in Ankara TMA. (The en-route sectors from İstanbul and İzmir ACCs have been transferred to Ankara ACC on 18 November 2015. Since then İstanbul and İzmir Approach Units provide approach control services for İstanbul and İzmir TMA's )
- 37 Aerodrome Control Towers provides both approach control and aerodrome control services (Istanbul Atatürk, Ankara



Esenboğa, Izmir Adnan Menderes, Antalya, Muğla Dalaman, Trabzon, Kapadokya, Ağrı, Bursa Yenişehir, Çanakkale, Denizli Çardak, Elazığ, Erzincan, Hatay, Kahramanmaraş, Kars, Muş, Samsun Çarşamba, Siirt, Sinop, Sivas Nuri Demirağ, Şanlıurfa Gap, Tokat, Uşak, Van Ferit Melen, Bingöl, Kastamonu, Şırnak Şerafettin Elçi, Zafer, Iğdır, Erzurum, Gaziantep, Hakkari Yüksekova, Muğla Milas-Bodrum, Çanakkale Gökçeada, Ordu Giresun, Z.Çaycuma)

» 9 Aerodrome Control Towers provides only aerodrome control services (Tekirdağ Çorlu, Istanbul S.Gökçen, Antalya Gazipaşa, Isparta S.Demirel, Adıyaman, Balıkesir Koca Seyit, Mardin, Aydın Çıldır, Adana)

The DHMI provides air navigation services by means of its approach control units and aerodrome control towers at 46 Turkish airports; and en-route air navigation services throughout Turkish airspace are managed by ACC (Area Control Centers located in Ankara. The DHMI takes all measures to provide a high quality service in a safe ATM environment.

DHMI Air Traffic Control Services in Turkey

DHMI came into existence on 1933, taking the responsibilities of the safety of air navigation within the civil airspace in Turkey. Its zone of activities extends from ground level to flight level 450. Air traffic control, Aeronautical information service, alerting service, planning air traffic flow above Turkey, training services, publishing and updating aviation publications are just some of numerous DHMI's activity spheres.

The main services provided by DHMI Air Navigation Department are:

#### Air Traffic Management:

- » Air Space Management
- » Air Traffic Services
- » ATM occurrence investigation
- » Participation in EUROCONTROL and ICAO activities / projects,
- » Airspace design (Designing instrument approach, departure and landing procedures, ATS routes, sectorisation)



#### Aeronautical Information Management:

- Preparing, publishing and distributing all aeronautical information/data concerning Turkish Airspace and Aerodromes via Turkish AIP,
- Publishing Aeronautical Information Circulars and Pre-flight bulletins,
- Producing and distributing aeronautical charts,
- Receiving, issuing and distributing NOTAMs,
- » Controlling the Flight Permission of A/C using the Turkish Airspace and Aerodromes
- Controlling, distributing and supervising the Flight Plans (FPL)
- » Coordinating SAR activities

#### Flight Inspection Services:

- » Participating in the design and development process of instrument flight procedures
- » Approving instrument procedures,
- » Calibrating and validating the signal quality and reliability of facilities (Radars, NDB, VOR, DME and ILS with its two Flight Inspection aircraft flying for an average of 900 hours per year.

#### Helicopter Services:

- » providing transportation to the maintenance personnel and/or spare parts in order to achieve in-place repair of a malfunction of radars, navigation aids and communication systems.
- » participating in reconnaissance and evaluation works on the locations of the new navigation aids



» conducting individual trainings for air traffic controllers on VFR flight patterns and procedures of their aerodromes.

#### The Eurocontrol Management;

- Stablishment of the national cost base for en-route charges taking into account all economic developments,
- Collection, validation and exchange to the CRCO of flight data in line with our reporting responsibilities,
- » Coordination and follow-up of financial and operational route charges related issues

#### System Project Development and Assessment

Solve the problems or the bottlenecks occur in the current air navigation infrastructures

- » Research new technologies to improve the ATM services
- » Follow the latest aviation technology and the projects and participate where available
- » Cooperate with national and international research organizations for R&D issues

#### Air Navigation SMS & QMS Management

- » manage the SMS implementation plan
- facilitate the risk management process that should include hazard identification, risk assessment and risk mitigation;
- » monitor any corrective action required in order to ensure accomplishment;
- » maintain safety documentation;
- » plan and organise staff safety training;

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#### **MOVEMENTS IN THE AIRSPACE AND AT AIRPORTS IN TURKEY**

DHMİ handled a sizeable amount of traffic in a very complex situation in 2015. As in previous years, Turkey was the main driver of growth in Europe adding some 170 daily flights in 2015. DHMİ managed a total of 1.814.958 movements, which represents a 8.1 % increase compared to the previous year. Between 2006 and 2015, the air traffic volume has strong growth and DHMİ registered 191% overall increase in its movement volumes.

Domestic	832.958
International	623.715
Overflight	358.285
Overflight 20% 34%	Domestic

Istanbul Atatürk Airport was the 5th airport in Europe in terms of airport movements. Istanbul Sabiha Gökçen and Atatürk airports continued their remarkable growth also in 2015 with an increase in average daily traffic of 91 and 67 movements respectively. Over the past 10 years, Istanbul Sabiha Gökçen airport grew at an impressive average annual rate of +29.8% and Istanbul Atatürk at an average rate of 8.2% per year. Turkey shows a substantial growth in all segments (domestic, international, overflights). 46 % of the flights in Turkey were domestic flights, 34 % were international flights and the remaining 20% were overflights in 2015. The greatest growth was in domestic air traffic movements increased by 10.4 per cent and in overflights through Turkish airspace with 5.3 per cent. In addition, there was a total of 623.715 international traffics.

The effects of last year's crisis in Ukraine caused disruption initially but the effects are gradually fading. Four routes over the Black Sea airspace have been opened; however, there are still extra overflights over Bulgaria, the Czech Republic, Hungary, Slovakia and Turkey.

The EUROCONTROL Seven-Year Forecast predicts an average annual increase between 4.5% and 7.1% for Turkey during the 5 year planning cycle, with a baseline growth of 6.1%.

The geo-political location of states or airspaces has direct impacts for providing ATM services. Due to geographical location and the neighboring states surrounding Turkey, there are some difficulties of providing ATM services in Turkey, the political crisis in Iraq, Ukraine and Syria effected our traffic numbers and flows during 2015.

Overall crisis situation in Ukraine that led a significant number of flights to avoid the entire Ukrainian airspace moving to neighbouring



countries especially Turkey, as a result of the Ukrainian crisis adjacent ACCs/ UACs were on-loaded by Far Eastern traffic avoiding the Ukraine airspace leading to increased route extensions.

Avoidance of Syrian and Iraqi airspace due to the security situation impacting flight efficiency for traffic between Europe and Middle East and Asia re-routed via Turkey, with additional impacts on the flows from the Ukrainian crisis situation.

However, through the great efforts of the staff and management in Turkey, this unexpected flow of traffic was handled effectively and we did not reflect these difficulties to the west, Europe. So, West and Central European regions never faced with the domino effects of these crises.

To cope with the continuous increase in the number of air traffic and closure of airspaces as a result of political unrests in our region, DHMİ has taken necessary measures to ensure the system has the capacity and the redundancy to work in a safe and reliable way.

In this context, civil / military coordination,

communications infrastructure and surveillance infrastructure were improved, ATC route structure was developed and additional controllers were recruited.

The flight movements is expected to be 1948675 in 2016, 2.066.841 flight movements is expected to rise for 2017 and it is estimated to be 2.066.841 for 2017. Accordingly, the flight movements in 2017 will increase by 14 percent compared to 2015.

#### Recruiting

The total number of ATCOs employed by the DHMI was 1413 for 2015. DHMIs controller recruitment plan continue. Sufficient numbers of ATCOs are currently available to meet operational requirements but with no excess.

A major training program of ab-initio ATCOs has been underway since 2004 due to the large increase in traffic and the consequent need to create new sectors to manage this capacity.

In 2015, 70 student ATCOs were recruited. 70 student Air Traffic Controllers started



in Esenboğa on 5th of October 2015. This recruitment campaign started with a press advertisement in June 2015. After the analysis of the applications, 355 applicants were invited to sit a computerised aptitude test, which was held in July 2015. This test is commonly known as the FEAST and was used

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on licence from EUROCONTROL.

The top 150 candidates from FEAST were invited to preliminary interview in Ankara in September 2015 where four preliminary interview boards sat simultaneously. A total of 70 candidates progressed to the final interview board.

#### **TRAINING**

Training means investing in the future. Once again this year, despite the heavy workload, the DHMI kept up this principle and managed to ensure high-quality training for all of its trainees.

The Basic Training for ATCO trainees was conducted at the Training Centre of DHMI, located in Esenboğa Airport, DHMI conducts basic, refreshment and advanced ATC training programmes. The training centre has theoretical training classrooms, laboratories, radar simulator, tower simulator with 3-dimensional and 360 degree monitoring features and pilot control units. The Air Traffic Control Simulator System is consists of tower and approach/en-route control units. The system has the capability of running stand-alone as a tower or radar simulator or in integrated mode which same scenario can run among all sectors (en-route/ approach/ tower) as in the real ATC environment.



Working positions are equipped with ground and approach radar screens, NAV-AID and lighting panels, weather-NOTAM display, strip printers and voice communication systems. The appropriate design of the radar work stations also gives the possibility of nonradar training.

All of the instructors completed EUROCONTROL instructional techniques course at EUROCONTROL Institute of Air Navigation Services in Luxemburg and have full time practical training experience at our training institute.

3 ATC basic training course could be conducted at the same time and the courses are designed in line with EUROCONTROL European Air Traffic Management Programme (EATMP) Common Core Content. Besides, we have also refreshment training for our air traffic controller to cover the present and future needs.

DHMI also conduct some training course for staff other than ATC personnel who are work for Electronic Units, Communication, AIS, Fire Brigade, Special Security and other units. To train these employees the training centre have some facilities, (1 training lab for security staff,1 computer training lab, 2 electronic equipment labs, 1 AFTN/CIDIN lab, 11 classrooms.)

In the Training Centre, there is a meeting hall and a briefing hall. In addition, there are 66 rooms with 128 beds (including bath, TV, refrigerator, etc) for accommodation. There is a restaurant, a café, a vitamin bar, sports halls, a billiards hall, a table tennis hall and a sauna for social activities.

Moreover, 105 ANS personnel participated to ATM related courses at IANS, the Eurocontrol Institute of Air Navigation Services in Luxembourg, in order to increase their knowledge in 2015.

There is also a vigorous and continuous refreshment training plan covering the present and future needs of ATCOs.

Therefore, we can say that a significant output was achieved as a result of all these training activities.





DHMİ's Airspace Design objective is to ensure an efficient, flexible and dynamic airspace structure, based on multi-option routeings supported by adaptable ATC sectorisation, that will accommodate future air traffic demand in terms of capacity and flight efficiency, in a cost-effective manner.

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DHMİ responds also to innovative international instances such as R-NAV and PBN - Performance Based Navigation,

DHMİ has taken necessary measures to ensure the system has the capacity and the redundancy to work in a safe and reliable way. In this context, civil / military coordination, communications infrastructure and surveillance infrastructure were improved, ATC route structure was developed.

Airspace Planning and Design studies also continued during the year 2015;

» RNAV SID and STAR procedures were amended / new procedures have been implemented for the İstanbul/Atatürk and Sabiha Gökçen Airports to utilize the ATC Services

New RNP APCH procedures / Standard Arrival Routes / Standard Instrument Departure Procedures based on RNP 1 were implemented for Gazipaşa, Çarşamba, Gaziantep and Kahramanmaraş Airports have been implemented

Implementation of these procedures for the rest of Turkish Airports will be realized in accordance with our plans.

Also, due to the closures of airpaces of the neighboring Countries of Türkiye, number of traffic increased enormously and flow directions changed a lot in year 2015. To be able to continue to provide ATC Services efficiently, new Airway structure has been studied and implemented together with our neighbors, ICAO and Eurocontrol, new Airways will be operational at 28th of April 2016.



#### QMS&SMS

#### Quality Management System (QMS)

DHMI has the ISO 9001:2000 certificate for its Air Navigation Services since 12 July 2005. With this certificate it was documented that the DHMI meets the requirements to be appointed as the air navigation service provider in Turkish airspace.

DHMİ has been applying as well as maintaining it in compliance with the requirements of the ISO 9001:2008 International Standard. The scope of activities covered by the ISO 9001:2008. The services have been managed in compliance with national and international standards.



A Quality Management System (QMS) has been established, documented,

applied and maintained by DHMİ in compliance with the requirements of the international standard ISO 9001:2008 and certificate was issued to DHMI by Turkish Standards Institution (TSE)

Necessary assessments are carried out annually by the Turkish Standards Institution (TSE) which has been established for the purpose of preparing standards for every kind of item and products together with procedure and service. As a result of the internal assessments made by Quality Management representatives revealed that there were no any deviations from the requirements in 2013 proving the validity and efficiency of our system and indicating that we were able to guarantee the best -use of our resources. This efficient use of manpower and infrastructure meant that throughout 2012 we delivered services effectively and therefore, met most of our business targets.

The management ensures, by means of the Quality Policy, that user requirements are identified and complied with, in order to increase their measurable satisfaction.

Moreover, the DHMI conducts customer appreciation surveys on a regular basis and consults airspace users to ensure a common understanding and to facilitate collaborative decision making.

#### Safety Management

Safety and safety management remain the overriding objective for the DHMI. Safe working conditions have always been a priority at DHMI.

#### Safety Legislation / Regulation

Safety Management System Instructions for ATS document for DHMI in accordance with ICAO Annex 11, Doc 4444, EUROCONTROL ESARR3 and ESARR4 have been published in 2007 and started to use in 2008.

The DHMI Safety Commission which is responsible for all ATM Safety matters has been established in relation with the Safety Management System. Generic Safety Management Manual guidelines were being used for updating Local Guidelines for SMS and QMS adapted to Turkish requirements. The formation of the DHMI Safety Commission enabled the reinforcement and application of Safety Management procedures.



#### Safety Management System (SMS)

Safety management system (SMS), including a safety management function has been in place since 2003. A Safety Committee, which is the highest corporate body responsible for safety issues, consists of representatives from relevant departments in HQ under the chairmanship of Head of ANS. The main component of the SMS is the Safety Management Manual which defines the SMS organisation and processes as well as basic SMS procedures, in order to comply with the SMS requirements laid down in national regulations, EUROCONTROL Safety Regulatory Requirements (ESARRs).

Although elements of the SMS have been in function over the years in ATM division, a SMS division was established in 2013. It is performed by the Safety Manager who works within the Safety and Quality Management Division, reports directly to the head of ANS and manages the SMS at the ANS &CNS level. DHMI's Safety Policy is a statement of the DHMI's fundamental approach to achieve acceptable or tolerable safety levels.

DHMI's Safety policy is defined in accordance with international and national requirements and reflect organizational commitment regarding safety. DHMI's Safety Policy consists of; safety priority, safety responsibility, planning for safety, safety standards, safety achievement, safety assurance and safety promotion.

The main component of the SMS is the Safety Management Manual which defines the SMS organisation and processes as well as basic SMS procedures, in order to comply with the SMS requirements laid down in national regulations, ICAO requirements, EUROCONTROL Safety Regulatory Requirements (ESARRs) setting out European safety standards. In this respect, DHMI Safety Management System Manual concerning ATS (version 2.0) was issued 2014.

Since the establishment of its SMS - Safety Management System DHMI has increased its initiatives to promote a safety culture within the company. This culture is integrated at all levels, so that each employee especially air traffic controllers is aware that he/she can make a difference as far as safety is concerned. That is why in July 2011, DHMI placed ATS SMS Confidential Reporting Form. COREFORM which is electronic reporting system. It is a better reporting of incidents.

DHMİ's Safety Commission comprise of representatives from relevant departments in HQ under the chairmanship of Head of ANS. Regarding safety matters, the head of commission has direct access to Accountable Executive. If necessary the experts from other departments, units or institutions are able to employ within the commission. Similar settlement is constituted in all DHMİ's airports.

20 air navigation services staff participated Safety Management System in ATM at the training centre of DHMI, located in Esenboğa Airport between the dates of 8-12 June 2015. DHMI requested to provide external (onsite) training for SMS from EUROCONTROL and their training expert deliver SAF-SMS

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course is designed as an introduction to all aspects of safety management within air traffic management in Ankara. This course. centred on the practical implementation of an SMS within an ATM service provider, and supported by practical examples and case studies. After that course all staff received certificates of attendance and they improved safety awareness and comprehension of the safety roles and responsibilities within DHMI.

#### **Incident Investigation**

Civil ATM incidents are investigated by the "Investigation and Assessment Commission" which reports incidents and investigation findings to the DGCA. The commission is formed from experts with sufficient qualifications. Where requested by the DHMI and/or if DGCA consider it necessary, experts from DGCA will also join the commission in accordance with SHY 65-02 "Reporting and Assessment of ATM Related Safety Occurrences" which was aligned with the EC directives on investigations of civil aviation accidents.

The Advisory and Steering Committee holds regular (quarterly) meetings with the participation of aviation organisations as coordinated by the DGCA to classify incidents, prepare statistical data, evaluate reports of the "Investigation and Assessment Commission" and to impose actions and/or give recommendations to the aviation community to prevent the re-occurrence of similar incidents. The committee has the authority to include any aviation related issue on its agenda. Members of this Committee are comprised from the following organisations as appropriate:

- » DGCA
- » DHMI
- » Military Authorities
- » School of Civil Aviation (Aviation Experts)
- » Turkish Airline Pilots' Association (TALPA)
- » Air Traffic Controllers Association of Turkey
- » Other related stakeholders.

An investigation team is formed for each incident to investigate the incident, determine the causal factor(s) and propose necessary measures to avoid the repetition of such incidents in the future (e.g. training, new procedures, etc.). The results of the investigations are reported to DGCA. This procedure is realized according to directive SHY 65-02 "Reporting and Assessment of ATM Related Safety Occurrences" which was aligned with the EC directives on investigations of civil aviation accidents.

The causes of occurrences are analysed to identify the areas which should and could be improved and safety recommendations, interventions and





corrective actions are developed to reduce the risk incurred. All appropriate safety data are collected and stored.

There were no accidents in 2015 resulting from DHMI's operations. The objective is zero accidents or incidents. However, there were seven serious incidents that resulted from our operations. Due to the nature of accidents or serious incidents, they can never be eliminated or predicted with 100% certainty. In 2015 there were 275 safety occurrence reports.

While 275 incident reports have been investigated and 89 of which were classified as ATM related in 2015. Actions to be carried out for the implementation of safety nets are underway, like control staff training in the most critical sectors in procedures to avoid or mitigate the main factors detected in incidents.



#### **DHMI's Flight Safety Goals**

The DHMİ has required the goal of a maximum of tolerable probability for ATM direct contribution incidents at classification A,B and C per 100.000 movements in Turkey. DHMI meets safety targets for 2015.

#### Voluntary reporting

Voluntary reporting is encouraged as a best practice in Turkey. DHMI has two main objectives for Voluntary ATM Occurrence Reporting activities, one of them is the fixing of problems within the shortest time possible and the other is promoting a data driven approach to further safety enhancement activities based on low or medium risk bearing incidents, instead on serious risk bearing incidents and accidents. DHMI has been using ATS SMS Confidential Reporting Form for voluntary reporting.

The increase in the number of Safety Related

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Occurrences is due to improved reporting by air traffic controllers, which contributes to an overall improvement in safety. In order to encourage this type of reporting, DHMI has introduced the "just culture". Individuals are not prosecuted except in cases of wilful or criminal negligence. It is therefore considered that a "Just Culture" exists in ATC. Incidents are reported either by pilots or ATCOs (through the local management) to the DHMI Headquarter.

#### **COORDINATION and COOPERATION**

#### **International Cooperation**

DHMI has always given a great importance to International Cooperation and to develop its relations with other countries and associations. In this respect, DHMI is fully aware of the benefits of coordination and cooperation among the stakeholders in aviation community and giving a great emphasize to the global cooperation in ATM. DHMI is regularly participating and following the events of ICAO, ECAC, EUROCONTROL and CANSO.

Turkey, as an integral part of the European ATM network and a candidate country for the accession to the European Union, is actively aligning, wherever possible, its national aviation legislation and aviation environment with the SES policy. With regard to the harmonization to the acquis communautaire, DHMI continued to work with Turkish Civil Aviation Authority and the Ministry of EU Affairs to review the existing aviation legislations and decide the necessary steps that should be taken.

DHMI has been the full member of CANSO since 2005. In 2011 DHMI has become a member of the European CANSO to the idea of strengthening cooperation amongst ANSP's in the European region. Since then Turkish Air Navigation Service Provider has participated CANSO EUR activities

#### **Regional Cooperation**

Turkey maintains very close co-operation/coordination with all neighboring to optimise the performance of Ground-Ground Networks and data exchange.

Turkey has taken on responsibility of some transition tasks in the area and arranging air traffic flow to / from Europe.

It is also considered that, collaborating as closely as we can with our neighboring civil air navigation service providers has a paramount importance in order to optimise the airspace design and management and increase







the regional capacity, safety and quality. Therefore, Turkey undertakes initiatives and efforts to ensure the application of same concepts, standards and projects under the EUROCONTROL umbrella.

On 28 April 2015, Mr. Serdar Hüseyin Yıldırım and Mr. Georgi PEEV signed a Memorandum of Co-operation (MoC) between DHMI and BULATSA in Ankara. The MoC aimed at common understanding or adoptation of ICAO, EUROCONTROL and other international requirements relevant for the ATM domain and cooperation for operational. In the framework of this MoC, the delegations of the DHMI and BULATSA discussed the main aspects of future co-operation, such as ensuring an effective route network, common operational and technical projects, etc

#### **Civil Military Cooperation**

The military authorities also play a major role in managing the Turkish Airspace especially with regard to FUA. Military ATC is entirely separated from Civil ATC, although very good civil/military co-ordination is maintained. Coordination between the military authorities and the DHMI is ensured through a Civil-Military Coordination Group. Some (11) airports/airfields of military origin are jointly used by military and civil aviation. For the eight (8) airports of them, all aircraft are under military ATC control.

Currently, Turkish Military and DHMI have their own alternative FUA concept which is considered more suitable for the local geo-political situation. In order to increase the capacity of Turkish airspace, with implementation of the SMART system, DHMI and the Military Authorities are planning to implement EUROCONTROL Flexible Use of Airspace (FUA) concept to do that necessary legislation has been published at Official Gazette dated 18 April 2014. The studies are going on to establish infrastructure and units.



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#### **AIM SERVICES**

#### Aeronautical Information Publication (AIP) and Aeronautical Information Circular (AIC)

In 2015;

- » 10 AIRAC AIP AMDTs
- » 10 AIP AMDTs
- » 13 AIP SUPPLEMENTs
- » 3 Serie A AlCs, 4 Serie B AlCs

are prepared, published and distributed in accordance with ICAO AIRAC dates in paper based, CD-ROM and WEB (www.ssd.dhmi.gov.tr) versions.

#### NOTAM

Total 24145 NOTAMs published by NOF in year 2015.

- » 13387 NOTAMs published to Domestic purpose
- » 10758 NOTAMs published to International purpose

#### AMHS/AFTN Messages

In 2015, totally 181.705.268 aeronautical messages were received and transmitted over AMHS/AFTN systems.

#### DHMI NOTAM WEB Service/ AIS Portal

In 2015 late of December, test studies of AIS PORTAL Project were conducted and got very succesful results.

Thanks to AIS PORTAL,

Users can see all aeronautical data of Turkish Airspace on the map and all countries' AD PIBs, Area PIBs and single NOTAMs.

Users can get in Turkish Airspace AD METAR/ TAF Info, FIR, TMA, CTR Area Info, PDR Info and ADs info visually.

Users can do map analysis by drawing polygon, polyline, point, circle areas in free drawing section on the map.

### Aerodrome ANNEX-14 Obstacles & ETOD in Digital Format

Those ADs having huge amount of obstacles penetrating Annex-14 obstacle surfaces have been published in digital format such as AIXM 5.1 and electronically files.

Area-1 (Whole country) obstacle data set higher than 100 m above ground was published in Turkish AIP.





#### **ATM R&D PROJECTS**

#### National R&D Projects

DHMI carries on R&D facilities related to ATM with TÜBİTAK since 2009. 4 of these projects have been completed and 7 projects are continues.

These projects are:

- » Aircraft Tracking System R&D Project (HATS)
- » Avian Radar R&D Project (KUŞRAD MGR)
   KUŞRAD Installation
- » ATC Radar And 3D Tower Simulator R&D Project (atcTRsim) – ATC Aerodrome and Approach/Enroute Control Radar Simulator R&D Project (Phase 2) (atcTRsim-2)
- » Air Traffic Controller Selection Tool R&D Project (KONSEY) - Remote Training and Information Sharing Portal R&D Project (KONSEY-2)
- » FOD Detection R&D Project (FODRAD)
- » SSR Signal Processing R&D Project
- » The genuine CWP (Controller Working Position) Development and Implementation R&D Project (Özgün CWP)
- The Modernization of ATM Communication
  Infrastructure in Turkey R&D Project
  (TAMAM)

#### Aircraft Tracking System R&D Project (HATS)

DHMI has 2 helicopters used for multipurposes and DHMI has decided to develop a Project by which it could track its helicopters from take-off to the landing then the specification was prepared accordingly. The system based on transferring the aircraft's position data through GPRS messages and the message transferring is taken over by satellite communication if the GSM signals are not available. In this case the continuous tracking would be possible. It consists of HATC (Aircraft Tracking Device) mounted on helicopters/aircrafts and HATM (Aircraft Tracking Center) land based server system. The completion of the Project is scheduled to 21 months, and acceptance of these systems was made at the end of 2013.

Two of the HATS equipments are installed to the DHMI's helicopters, and the works are going on to generalize the usage of the HATS system in Türkiye with different companies

#### Avian Radar R&D Project (KUŞRAD - MGR)

The Project is aimed to be used in Airports which are located on the way of the birds' migrating routes. The radar will serve as an early alerter to the controller of a possible



migrating flock of birds, so that the controller could provide safety separation between the bird flocks and the aircraft. Bird activity is also recorded continuously for statistical analysis that is used to manage the aircraft approach routes, departure and arrival times. The system consists of two radars; one S Band horizontal surveillance pulse radar and one X band vertically scanning FMCW radar. The system will operate 24/7 detecting and tracking birds, bird flocks and aircrafts, reporting their range, elevation and direction.

In this Project DHMI, with TUBİTAK aimed to have one avian radar system and one PSR (primary surveillance radar) system working on S band for future developments. The acceptance of the avian radar system was made in 2013 and PSR system was made at the end of 2014.

#### KUŞRAD Installation R&D Project

The aim of the project is to make the installation of the systems which completed by the KUŞRAD R&D project. Thus the radar which is developed nationally will be put into operation in a big international airport of our country.

The installation will be finished by the end of May 2016.

### ATC Radar And 3D Tower Simulator R&D Project (atcTRsim)

Following the MOC, the ATC Simulator was the first project to start and scheduled to be completed within 30 months. The property rights of developed software will belong to DHMI. Thus, DHMI will be able to deploy these software tools at any airport in order to enhance the number and quality of basic and/ or refreshment ATC training facilities.

ATC Simulator has complete systems that meet basic and advanced ATC training requirements and gives important cost and time savings. It supports all levels of radar and tower ATC trainings according to international standarts like ICAO and EUROCONTROL. ATC Simulator systems are also interoperable with the other ATM systems. It has fast time performance to manage high traffic loads on multiple exercises.

The project finished at the end of 2013 and the installation of the developed system to Ankara Esenboğa Airport is going on. It's expected to be ready for use by the end of 2016.

#### ATC Aerodrome and Approach/Enroute Control Radar Simulator R&D Project (Phase 2) (atcTRsim-2)

The installation and implementation of the software developed in phase 1 will be done to the Esenboga Airport Simulator and training center. It is intended to use the high fidelity visuals and national training materials provided by the systems in the versatile education and work of both candidates or active air traffic controllers (basic ATC refresher, adaptation to the airspace innovation, airspace capacity to work, etc.).

ATC Training technical infrastructure capacity will be increased at least twice when the installation is complete.

The project will be finished in the middle of 2016.



#### Air Traffic Controller Selection Tool R&D Project (KONSEY)

In line with ICAO and EUROCONTROL's standards and recommended practices, DHMI has developed, in collaboration with TÜBİTAK, a selection tool which will standardise selection of the candidates of air traffic controllers. The selection software through electronically assesses the skills (reflex, three dimensional thinking, quick decision making, memory etc.) in safe that ATC must have. It consists of 12 test applications and personality test which have the ability of measuring 9 different skills

DHMI will be able to upgrade the tool in line with developments and requirements in the future. The acceptence of the system is completed.

#### Remote Training and Information Sharing Portal R&D Project (KONSEY-2)

By the project which will form the phase 2 of the Air Traffic Controller Selection Software R&D project realized between 2010-2012, it is targeted to prepare the training materials in Turkish which were prepared in English in the first stage and verified by testing on more users and preapre in a unique way. However, the software used as Air Traffic Controller's annual degree renewit is intended to be further developed to respond to all needs.

Within this sotware, Air Traffic Control Personnel Management System, Distance Education System, Remote Testing System; AIM Personnel Management System, System, Personnel Management System for ATSEP staff with Distance Learning System, Distance Education System, a remote exam system modules are available separately.

The project will be finished by the end of 2017.

#### FOD Detection R&D Project (FODRAD)

DHMI is aiming to enhance the runway safety by developing FOD Detection Radars, in collaboration with TÜBİTAK, which will provide continuous surveillance in detecting foreign objects on the runways. Currently runway inspections are carried out visually and mostly in a rush manner as the traffic flow allows.

The infrastructure of the FOD radars currently based on radar or optical surveillance or may contain both. DHMI's product will have the both capability.

The Project is started by the end of 2014 and will last 4 years. Once it is developed, DHMI is planning to spread the application nationwide. In 2018 it is planned to complete the installation and testing of the system.

#### SSR Signal Processing Unit R&D Project

With the adoption of Mode-S radar stations which were provided under the project of renovation of Existing Radars and Procurement of Additional Requirement, most of the old type SSR (Secondary Surveillance Radar)'s used by a period of 20 years, were disabled. A new Mode-S radar is located to Mira Communication station, which is at a higher altitude and alternative to Baspinar SSR Station. After the integration of Mira Mode-S SSR to Interim System which is still operational, it was found suitable to use the Baspinar SSR as R&D platform after actually switched on. It is intended to produce the standard ASTERIX CATO48 data format and developing a national signal processing capability of ADS-B with SSR . 10 pieces of ADS-B units will be produced by the end of April 2016. And And the project will end by the end of 2017 completely

#### The Genuine CWP (Controller Working Position) Development and Implementation R&D Project (Özgün CWP)

It is intended enriching the categories of data that supported by the software ÇARE (Multi-Function Radar Screen), that have been developed for the purpose of recording / replay of standard ASTERIX format, which is used for Surveillance data, incident analysis and performance assessment.

The aim is to develop EFS (Electronic Flight Strip) which will replace the paper strip and make the installation of ÇARE software to the 25 Radar Data Processing Centers in the airports.

The project will be finished by the end of 2017.

#### The Modernization of ATM Communication Infrastructure in Turkey R&D Project (TAMAM)

It must be followed that the communications Systems which is the most important element of CNS/ATM systems expression of service quality with the scientific results and how much the improvement obtained as a result of investments meet the need.

It is of great importance to determine the quality of the communications infrastructure such as, Air/space distortion amount on

the voice signal for voice communications, the delay of the remote station and the headquarters from the transmission medium, packet loss, beacons, sound signal in the S/N (signal / noise) to measure values such as rate and issues such as the determination of the geographical area infirm in terms of coverage area. It is aimed to develop software tools to help making such tests.

In addition,OLDI (Online Data Interchange) connection which is replacing the voice communication between adjacent traffic units is used . It is planned the establishment of the OLDI messaging system over AFTN between Esenboga, Adana and Gaziantep airports control towers and HTKM.

The project will be finished by the end of 2017.

The Air Traffic Controller Selection Project developed by TUBITAK BILGEM in conjunction with DHMI has been awarded an international prize given by Oracle.

The Air Traffic Controller Selection System (atcSES) has taken a place in the best 10 javabased projects in a competition organised by ORACLE which is seen as the most important price that can be given to Java developers. The 9 of the awarded projects have been elected by a Java community and the other one has been elected by an online voting through Java webpage.

Award was presented in the welcome day of the JavaOne Conference which is held on San Fransisco, USA. More than 60.000 people from all over the world attended to this conference. On the other hand, an article about atcSES was published on September/



October issue of the Java Magazine which is followed by most people in software world.

TUBITAK developed Air Traffic Controller Selection System (atcSES) with the partnership of DHMI.

Skills which are required for an air traffic controller can be assessed in a secure and reliable manner by this system. These skill are spatial awareness, reasoning, complex attention, psychomotor abilities, visual memory, auditory memory, cross-control, and basic mathematics. The system includes 12 tests which evaluate 9 different essential skills and a personality test as well. Air traffic controller candidates enter an computerbased exam which is provided by the atcSES and suitable candidates for the job are selected.

#### International R&D Projects

#### Sherpa Project

SHERPA (Support Ad-Hoc to Eastern Region with Pre-Operational Actions on GNSS) is EU 7th FP (Framework Programme) Project started in March 2012 and completed in November 2013.

SHERPA represents an important asset in support to the implementation of LPV (Localizer Performance with Vertical Guidance) procedures in Europe, by contributing to a common strategy towards the implementation of EGNOS operations in the aviation community.

DHMI participated to the SHERPA project and chose Balikesir Kocaseyit Airport, located in the western coast, for the project activities and fulfilled Business and Safety case documents, Cost and Benefit analysis as well as designed a procedure for it. After this Project DHMI gained more knowledge and practice on LPV approaches based on EGNOS signals.

#### Resilience 2050

Resilience 2050 is EU 7th FP Project dealing with "New design principles fostering safety, agility and resilience for ATM" and "Building agility and resilience of the ATM system beyond SESAR. This Project aims development of design principles which enables resilient system behavior for the future ATMsystem. The project started in June 2012 and completed in 2015.

DHMI participated the project with ITU (İstanbul Technical University) and contributing to the provision of data for the analysis, operational knowledge for the definition of a new ATM system as giving expert opinion and system evaluation and giving inputs concerning a good practice to deal with disruptions.

#### · Secure Data Cloud Project

Secure DataCloud is a SESAR WP E research Project aiming at pursuing a high level of information sharing while at the same time guaranteeing the necessary level of data





privacy in ATM. This is to be accomplished by the use of secure computation, a set of techniques allowing non—trivial computations while preserving the privacy of the inputs to any involved party.

The specific aims of this project are the following.

- » Adapt the secure computation framework to the specific AT and ATM requirements of security, scalability and computational cost, through an analysis of the techniques and algorithms that have been developed so far in this field.
- » Identify the main areas of application inside AT and ATM.
- » Development of several business cases, where the utility of such techniques is proven.
- » Furthermore, two relevant business cases will be implemented as software prototypes.
- » Diffusion of this knowledge among the relevant stakeholders.
- » Project started in September 2013 and completed in 2015.

#### **CONGRESS AND FAIRS**

DHMI, with TUBİTAK participated to the :

- 1. World ATM Congress 2015 in Madrid
- 2. The 25th ATC Global Exhibition and Conference 2015 in Dubai as an exhibitor to show our own projects.

#### 1. World ATM Congress 2015 (Madrid)

World ATM Congress 2015 is the only event covering all aspects of the air traffic management (ATM) and air traffic control (ATC) industry.

The World ATM Congress provides a new international platform for the global civil, commercial and defence air traffic management industry to see, learn and connect with the world's leaders in the field. The World ATM Congress combines a large-scale exhibition, a thought-leadership conference and social events providing unrivalled networking opportunities.

DHMI, with TUBİTAK participated to the World ATM Congress 2015 and ATC Global Exhibition 2015 which were held in Madrid and Dubai as an exhibitor status. With this opportunity R&D projects have been shown at the global ATM market.

### 2. The 25th ATC Global Exhibition and Conference 2015 (Dubai)

DHMI, with TUBİTAK participated to the ATC Global Exhibition 2015 which were held in Dubai as an exhibitor status.






In light with its traditional approach; DHMI again shows the best performance in costefficiency both European wide and regionally. The success lays in the secret behind the firm steps taken by DHMI on some key elements; strict cost containment measures versus a tremendous provision of service, reflected on the figures of costs; as summarized as all possible savings in favor of the users. The 2015 cost-base has again been actualized lower than the forecast, as a mirror of efficiency.

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#### The cost-base has again been actualized lower than the forecast, as a mirror of efficiency.

"

DHMI's unit ATM/CNS provision costs are again significantly lower than the European system average. DHMI unit costs are in the bottom quartile and in line with the underlying economic and traffic demand fundamentals.

#### **2015 ACTUAL COST-BASE**

The decision was taken to establish the Turkish cost-base in TRL as from 2015 onwards. The same year investments costs have been calculated on the basis of current/real values of fixed assets in the inventory, starting from the year 2015. Up to 2015, no indexation has been applied to fixed assets.

For an effective way of service provision in the context of the ANSP's capability and quality, the ANSP should be capable of financing its investments again at the end of their operating lives on the basis of their real/current values through their cumulative depreciation costs. Therefore, the only aim is to ensure that assets can be replaced at the end of their useful operating lives by taking into account of the real/current value of assets (replacement costs).

The 2015 cost-base has been realized as 1,132 M TRL, significantly lower compared to the estimated figure. This decrease has been a combination of a major decrease by -24,0% in depreciation costs and furthermore a -24,7% decrease in cost of capital and a decrease of -2,1% in staff costs despite the increase of 5,8% in other operating costs.

DHMI has reached its aim to reduce its preliminary estimated figure when actualizing the costs. The 2015 figures have been kept at the lowest possible level. These are reflected in the table below;

Comparison of 2014 Forecast & Actual costs								
				('000 TRL)				
Costs	2015 F	2015 A	Delta	%				
Staff	482.843	472.700	-10.143	-2,1%				
Other operating costs	400.734	424.167	23.432	5,8%				
Depreciation	188.568	143.254	-45.315	-24,0%				
Cost of capital	122.335	92.138	-30.197	-24,7%				
Total costs	1.194.480	1.132.259	-62.222	-5,2%				

### ROUTE CHARGES

As regards the costs by nature; staff and other operating costs have been calculated as 472,7 M TRL and 424,2 M TRL respectively, depreciation and interest costs have been established as 143,3 M TRL and 92,1 M TRL respectively, the total cost base being 1,132 M TRL.



The results regarding the main parameters are shown in the below table, including operational realizations at national and regional levels i.e high traffic increase due to the Crimea crisis which started in 2014 and continued in 2015. The over-recovery recorded in 2014 should normally have been carried over to 2016 but Turkey took into account a part of this overrecovery (29 M TRL) already in 2015 (one year earlier) to support the users.

Main Parameters - 2014 F vs 2014 A								
(000 TF								
Parameter	2015 Planned	2015 Actual	Variation	%				
Costs	1.194.480.120	1.132.258.588	-62.221.531	-5,2%				
Charges billed *	1.153.563.739	1.268.791.048	115.227.308	10,0%				
Total Service Units	13.065.897	14.181.607	1.115.710	8,5%				

"

As the only stable country in this region, the demand towards the Turkish airspace has been continuing in 2015 at the same acceleration. The resulting over-recovery of nearly 175 M TRL will therefore be deducted from the 2017 chargeable cost-base.

Demand towards Turkish airspace is continuing at same acceleration in 2015. The fluctuation in the XR that started at the last quarter of 2014 and continued in 2015 has affected the other operating costs which actualized slightly higher than foreseen. Nevertheless this cost item has been the only one showing a slight increase whilst the other cost items show significant decreases.

Apart from the impact of the XR, the constantly applied cost-containment measures have



again been implemented in 2015 with a positive result on the performance of cost efficiency compared to the approved level of the cost-base forecast;

this efficiency obtained in depreciation costs and cost of capital is translated as a saving of more than -75,5 M TRL and, furthermore a decrease in staff costs of -10,1 M TRL has been realized even though there has been an increase in other operating costs, resulting in a total saving of -62,2 M TRL.

Total saving in the 2015 cost-base of more than TRL 62 million.



Actually, the success achieved is a result of strictly adherence to the goal to keep even below the estimated costs which were already

440.08

6023.08

5606.08

limited during its determination phase with the planned measures.

6.02



#### SERVICE UNITS

2015 was again a year during which traffic increase was difficult to estimate because of the instability in the situations of the neighboring states. The political and operational developments in these states were followed closely. The situation had been very uncertain and therefore the developments in traffic were not easy to be predicted.

Very in depth considerations had been made whether the crisis would end or keep going on.

The continuation of the shift in overflights from the North to our country which started in 2014 was realized during 2015 as anticipated, bringing the total service units to 14.181.607 representing an increase of 9% compared to the estimated figure and 11% compared to the previous year and which can be translated as more than double the regular annual increase.

However, despite the incredible additional workload for the ATCOs, the huge amount of additional traffic in 2015 was handled by Turkey who willingly decided not to apply any restriction or regulations in order to avoid any inconvenience for the airline community.

Turkey willingly decided not to apply any restriction or regulations in order to avoid any inconvenience for the airline community.





#### **NATIONAL UNIT RATE**

As usual Turkey is determined to maintain its efficiency targets of which the main one is to keep its unit rate low whilst maintaining high aeronautical performance. The unit rate of Turkey for 2015 is again one of the lowest within the European system average.

DHMI's increasing financial effectiveness comes from the past and its upwards trend

is expected to continue in the future when the unit rate, as the main indicator, is considered. In the last two decades, DHMI's unit rate has reduced by 30%, from a level of  $44 \in$  to around  $31 \in$  in 2015. A further reduction to  $24,25 \in$  is estimated. This is an obvious strategy that aims at serving high quality air navigation services at the lowest price without compromising safety.



On top of this, the unit rate is expected to show a horizontal trend again during the period 2016-2021. DHMİ has maintained its success in achieving both economic efficiency and high service quality.

DHMİ has maintained its success in achieving both economic efficiency and high service quality.

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2016 and Five Year Plan - Unit Rates									
Year	2016	2017*	2018*	2019	2020	2021			
Unit Rates	24,25	28,49	31,51	32,88	33,97	35,59			
Variation -24,1% 17,5% 10,6% 4,4% 3,3% 4,8%									
* Increase mainly depends on the end of previous years' under/over recovery effect.									

### ROUTE CHARGES

The only exception will be the years 2016 and 2017. The reason is that the serious over-recovery in 2014 and 2015 will have a significant decreasing impact on the 2016 and partly on the 2017 unit rate compared to 2014. The effects of the over-recoveries will be eliminated partly in 2016 with the result that the 2017 UR will come close to its regular levels. The rise of the 2018 UR is relative and merely because the effects of the previous under-recoveries are eliminated. Without these effects, the 2018 UR is at its regular level and will remain almost stable during the remaining period.

All in all, this shows that Turkey is determined to maintain its efficiency targets.

#### FORWARD LOOKING INFORMATION

The table below provides forward looking information relating to the years 2016-2020. The macro-economic indicators projected by the Government, budgetary implementations and variations in market prices have been taken into account in the calculation of these figures.

Five Year Plan									
('000 TRL)									
Costs by nature	2017 F	2018 P	2019 P	2020 P	2021 P				
Staff	669.648	818.858	995.048	1.175.886	1.401.569				
Other operating costs	595.923	722.026	864.744	1.013.266	1.196.716				
Depreciation	192.356	234.422	284.087	335.057	398.660				
Cost of capital	122.931	151.923	186.308	221.597	265.690				
Exceptional items	Ο	Ο	Ο	Ο	0				
Total costs	1.580.758	1.927.230	2.330.187	2.745.806	3.262.635				

In the period 2017-2021, the increases foreseen in the cost-base will be in parallel to price and consumption expectations and the unit rates will nearly remain stable over this period.

Within this period, the year 2018 should be highlighted as this will be the year during which the New Airport in Istanbul will start its operation. It is expected that this will lead to a huge traffic increase in especially 2018 which makes it vital to take additional measures for the provision of services. It is foreseen that this situation will inevitably increase the 2018 and 2019 cost-bases. On the other hand, one of the advantages that this airport will provide is the decrease in en-route ATFM delays. As a result, this will contribute to DHMI's operational productivity, will increase its cost-efficiency and will lower the en-route delay costs.

"The new airport will decrease enroute ATFM delays"

"



## COMMUNICATION NAVIGATION SURVEILLANCE



#### CNS

The DHMI Electronics (CNS) Department is the main proponent of Air Navigation Department in providing Civil Air Navigation Services for Turkey and is one of the main departments of DHMI to provide the air traffic safety in Turkey. The DHMI provides Communication, Surveillance and Navigation (CNS) Services by means of Electronics Units at 52 Turkish Airports and Turkey Air Traffic Control Center.

The DHMI Electronics Department is in charge of the following tasks:

- » To provide and install navigation aids, radar systems, communication systems related to flight safety and to provide continuity of these systems,
- » To formulate the projects and technical specifications of the required electronic systems and equipment; to prepare the periodic maintenance plans of existing systems; to perform and monitor these plans,

- » To set up a ground team to work on the flight control of the Navigation, Surveillance and Communication systems ,
- To renew, repair, calibrate and modify the systems and test equipment that cannot be repaired at the airports and Navigation Aid Stations of the airports; to provide necessary stand-by equipment, test equipment and documentation; to plan and perform domestic and international training related to these services; to follow the latest technological improvements in order to provide a better service and to implement these improvements,
- To follow the studies of international aviation institutions (ICAO, EUROCONTROL, ECAC, etc.), to coordinate and cooperate with the related units to perform the prepared and approved plans in time; to draw up plans and programs as required.
- To organize and conduct ATSEP Basic, Qualification and Refreshment trainings.



## COMMUNICATION NAVIGATION SURVEILLANCE

#### ATSEPs

The total number of ATSEPs employed by the DHMI was 551 for 2015. (14 manager, 8 Chief Engineer, 96 Engineer, 30 Chief Technician and 403 Technician.)

Air Traffic Safety Electronics Personnel Certification and Licensing Regulation was published by Directorate General of Civil Aviation Authority (SHGM/CAA) in 31.01.2007. It was revised in 24 February and 28 August 2010 and finally in 14 November 2013.

People working on CNS system has valid ATSEP certificate issued by DGCA (Directorate General Civil Aviation), Turkish NSA. Licences are renewed every 5 year. DHMI is responsible for training of ATSEP personnel and ensuring the validation of licences.

#### TRAINING

The activities like preparing Training Plans and Training Materials in accordance with the regulation and organizing the trainings for technical staff to ensure the air traffic safety is one of the responsibilities of CNS Department.



ATSEP Basic Trainings and ATSEP Proficiency Trainings were carried out at the Training Centre of DHMI, located in Esenboğa Airport by CNS Department in 2015;

- » 16 trainees completed the ATSEP Surveillance Proficiency Training 2-20 February 2015,
- » 24 trainees completed the ATSEP Navigation Proficiency Training 2-27 February 2015 and 19 trainees completed the ATSEP Navigation Proficiency Training 4 May- 1 June 2015,
- » 31 trainees completed the ATSEP Communication Proficiency Training 2-27 February 2015 and 41 trainees completed the ATSEP Communication Proficiency Training 4 May- 1 June 2015,
- » 15 trainees completed the ATSEP Basic Proficiency Training 6-30 April 2015.



SMS – Safety Management System To cover all safety aspects related to CNS systems, a Safety Management Systems was

Safety is always our first priority in CNS services. Staffs are encouraged to report all the safety related aspects through mandatory and voluntary reporting systems.

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put in place.

All safety related aspects are being

QMS - Quality Management System

The DHMI has the TS EN ISO 9001:2008 certificate for its CNS Services since 2013. December. DHMI has been applying as well as maintaining it in compliance with the requirements of the TSEN ISO 9001:2008. The services have been managed in compliance with national and international standards.

A Quality Management System (QMS) has been established, documented, applied and coordinated with related department and the results are being shared.

People working on CNS system has valid ATSEP certificate issued by DGCA (Directorate General Civil Aviation), Turkish NSA. Licences are renewed every 5 year. DHMI is responsible for training of ATSEP personnel and ensuring the validation of licences.

maintained by DHMI in compliance with the requirements of the international standard ISO 9001:2008 and certificate was issued to DHMI by Turkish Standards Institution (TSE).

Necessary assessments are carried out annually by Turkish Standards Institution (TSE). Also internal audits performed by the DHMI according ISO Standards annually.

#### NAVIGATION AIDS

The DHMI Electronics Department supplies navigation services for civil air traffic for all phases of flights; take-off, en-route, approach and landing by navigation aids;

- VOR (VHF Omni-Directional Radio Range), >>
- DME (Distance Measuring Equipment), >>
- NDB (Non-Directional Radio Beacon),
- ILS (Instrument Landing System)

Navigation Aids which is operational by					
the end of 2	2015;				
-7 PSR	-24 SSR				
-65 ILS,	-70 VOR,				
-132 DME,	-73 NDB.				
	•				



## COMMUNICATION NAVIGATION SURVEILLANCE

#### NAVIGATON AIDS IN TURKEY

	AIRPORTS	PSR	SSR	ILS	VOR	DME	NDB	Toplam
1	İstanbul Atatürk	1	2	5	4	8	4	24
2	Ankara Esenboğa	1	З	4	4	10	10	32
З	İzmir Adnan Menderes	1	2	2	З	5	З	16
4	Antalya	1	З	4	2	7	З	20
5	Adana		1	1	1	2	1	6
6	Muğla Dalaman	1	2	2	1	З	1	10
7	Muğla Milas-Bodrum	1	1	2	1	З	1	9
8	Trabzon	1	1	2	1	З	1	9
9	Isparta S. Demirel			1	1	2	1	5
10	Nevşehir Kapadokya			1	1	2	1	5
11	Erzurum		1	2	1	З	2	9
12	Gaziantep			2	1	2	1	6
13	Adıyaman			1	1	1	1	4
14	Ağrı		1	1	1	2	1	6
15	Amasya Merzifon		1	1	1	2	1	6
16	Balıkesir Merkez			1	1	2	1	5
17	Balıkesir Kocaseyit			1	1	2	1	5
18	Batman		1	1	1	2	1	6
19	Bingöl			1	1	2	1	5
20	Bursa Yenişehir		1	1	З	4	1	10
21	Çanakkale			1	1	1	1	4
22	Denizli Çardak			1	1	2	1	5
23	Diyarbakır			1	1	2	1	5
24	Elazığ			1	2	З	1	7
25	Erzincan		1	1	2	З	1	8
26	Gökçeada				1	1	1	З
27	Hakkâri S.Eyyubi				1	1	1	З
28	Hatay			1	1	2	1	5
29	lğdır			1	1	2	1	5
30	Kahramanmaraş				1	1	1	З



	AIRPORTS	PSR	SSR	ILS	VOR	DME	NDB	Toplam
31	Kars			1	1	2	1	5
32	Kastamonu		1	1	2	2	1	7
33	Kayseri			1	1	2	1	5
34	Kocaeli Cengiz Topel			1	1	1	1	4
35	Konya		1	1	2	З	1	8
36	Malatya			1	1	2	1	5
37	Mardin			1	1	1	1	4
38	Muş			1	1	2	1	5
39	Ordu Giresun			1		2	1	4
40	Samsun Çarşamba			1	1	2	1	5
41	Siirt				1	2	1	4
42	Sinop			1	1	1	1	4
43	Sivas Nuri Demirağ			1	2	З	1	7
44	Şanlıurfa GAP		1	1	1	2	1	6
45	Şırnak Şerafettin Elçi			1	1	2	1	5
46	Tekirdağ Çorlu			1	1	2	1	5
47	Tokat				1	1	1	З
48	Uşak				1	1	1	З
49	Van Ferit Melen			1	1	2	1	5
50	Antalya Gazipașa (*)			1		2	1	4
51	Eskişehir Anadolu Uni. (*)			1	1	1	1	4
52	Kütahya Zafer(*)			2	1	З	1	7
53	Selçuk Efes				1	1	1	З
54	Aydın Çıldır				1	1	1	З
55	Zonguldak Çaycuma (*)				1	1	1	З
56	İstanbul Sabiha Gökçen (*)			2	1	З	1	7
	TOPLAM	7	24	65	70	132	73	371
		PSR	SSR	ILS	VOR	DME	NDB	Toplam

Explanation (\*)

Zafer, Zonguldak Çaycuma, Antalya Gazipaşa, Aydın Çıldır and Selçuk Efes Airports are operated by private corporation controlled by DHMİ,
İstanbul Sabiha Gökçen Airport is operated by private corporation controlled by Undersecretariat for Defence Industries,

3. Eskişehir Anadolu University Airport is operated by private corporation controlled by Eskişehir Anadolu University.

4. All CNS systems except Sabiha Gökçen, Eskişehir Anadolu University, Balıkesir Merkez and Amasya Merzifon (Military) Airports' CNS systems are provided and established by DHMI.

## COMMUNICATION NAVIGATION SURVEILLANCE



Electronics Department installs ILS Systems which comply minimum CAT-II signal performance and provide safe and comfortable landings to aircrafts in bad weather conditions and low visibility.

However, some airports applying CAT-I operations due to environmental reasons, lack of CAT-II lightnings, etc.

#### ILS Systems Put Into Service in 2015:

- » Ordu Giresun Airport (ILS),
- » Çanakkale Airport (ILS),
- » Trabzon Airport (ILS/LLZ),
- » Gaziantep Airport (ILS/LLZ),
- » Mardin Airport (ILS/LLZ),
- » Kocaeli C. Topel Airport (ILS/GP),
- » Balıkesir Merkez Airport\* (ILS),
- » Amasya Merzifon Airport\* (ILS).

\*Installed by military units.

#### Other Navaids Put Into Service in 2015:

- » Ordu Giresun Airport (NDB),
- » Ordu Giresun Airport (DMEx2),
- » Hakkari Yüksekova Airport (VOR),
- » Hakkari Yüksekova Airport (DME),
- » Hakkari Yüksekova Airport (NDB),
- » Trabzon Airport (DME),
- » Isparta Süleyman Demirel Airport (VOR),
- » Isparta Süleyman Demirel Airport (DME).

#### Renewed Navaids in 2015:

- » Bursa Yenişehir Airport (ILS),
- » Bursa Yenişehir Airport (DME),
- » Tekirdağ Çorlu Airport (OM-MM),
- » Iğdır Airport (VOR),
- » Zonguldak Çaycuma Airport (VOR).





#### **Other Activities**

In order to do the calibration of electronics testing and measuring devices, which are used in CNS Systems, a laboratory has been put into service within our Organization.

Previously mounted CVOR and DME Systems in South Sudan Juba Airport have configured and they are made to ready for the flight inspection by our Organization with the coordination of Turkish Cooperation and Coordination Agency.







## COMMUNICATION NAVIGATION SURVEILLANCE

#### **COMMUNICATION SYSTEMS**

Turkey has attained the capability to provide an uninterrupted communication service utilizing complementary VSAT and TDM networks.

DHMI Electronics Department endeavors to provide a 24-hour uninterrupted communication service for civil air traffic by communication systems within international tolerances. The security and continuity of all Communication and Navigation Aid Devices/ Systems which are used in ATM management in Turkish airspace and airports are supervised by international organizations (ICAO, ECAC, EUROCONTROL, FAA etc.).

Provided communication Systems;

» VCS (Voice Communication Systems),

- » Ground/Ground Radios,
- » AFTN/AMHS (Aeronautical Fixed Telecommunication Network/Aeronautical Message Handling System)
- » ATIS/D ATIS (Automatic Terminal Information Service / Datalink ATIS)
- » VSAT (Very Small Aperture Terminal)
- » COSPAS-SARSAT (Space System for the Search of Vessels in Distress- Search And Rescue Satellite-Aided Tracking)
- » VRS (Voice Recording/Playback Systems)
- » Datalink Sytems,
- » Radiolink Systems,
- » HF-SSB Radios.



» Air/Ground Radios,



The control and determination of the international organizations regulate the level of compliance of Turkey. These have a direct effect on tourism, trade, external affairs and the revenue of Turkey and define the class and category of Turkish Civil Aviation Flight, Passenger Security and Safety. Thereby, Air/Ground Communication and an uninterrupted flow of radar data are of vital importance.

ALREPORT2015

Besides, a backup circuit utilizing satellite channels (VSAT) for every station works in parallel to the TDM communication environment (terrestrial circuit). This circuits links the Air/Ground Radios of the stations and radars to the Air Traffic Control Centers. The aim of backup circuit is to ensure an uninterrupted, reliable, qualified voice and data communication network between the ACC/APP and Air/Ground communication/ radar stations within Turkey.

Every year DHMI replaces the Air/Ground radio equipment which is compatible with the current technologies. DHMI carries out the all Air/Ground radio equipment calibration and on the job training regularly.



1130 Air Ground VOIP radios was provided by the DHMI Electronics Department in 2015.

DHMI Electronics Department provides and establishes Voice Communication System (VCS) to facilitate complex communication needs of Air Traffic Controllers. In 2015, a tender to satisfy the need of VCS System at Gaziantep, Adana, Siirt and Mus Airport was successfully achieved. These VCS's for 4 airports will be installed and put in service in 2016. Voice ATIS (Automatic Terminal Information Service) is a continuous broadcast of recorded noncontrol aeronautical information in airport areas. Voice ATIS broadcasts contain essential information, such as weather information, which runways are active, available approaches, and any other information required by the pilots, such as important NOTAMS. Pilots usually listen to an available

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## COMMUNICATION NAVIGATION SURVEILLANCE

Voice ATIS broadcast before contacting the airport control unit (tower or approach), in order to reduce the controllers' workload and relieve frequency congestion.

It is planned to assemble and install Voice ATIS at busier airport respectively. In 2015, Voice ATIS systems were put in service at Zonguldak Caycuma, Antalya Gazipasa, Sanliurfa GAP and Diyarbakir Airports. Voice ATIS system in Istanbul Ataturk Airport was redesigned as departure and arrival broadcasting seperately.

Voice ATIS at an airport is broadcast by air/ ground VHF radio. Another method to bring ATIS information to pilots is to transmit



information via datalink. D-ATIS (Datalink ATIS) is a system to allow pilots to retrieve information e.g. on local weather conditions or runway and taxiway instructions via datalink.



DHMI made a contract with datalink service provider SITA to put D-ATIS into service at Esenboga Airport in 2014. The contract of which duration would be end in 2016 was extended to 2018.

To install D-ATIS system at other big and busier airport is planned respectively.

Our technical staffs have attended several technical trainings about aeronautical communication technologies at IANS (Institute of Air Navigation Services) Center in Luxembourg.

Communication Systems by the end of 2015:

- » 32 VCS (Voice Communication System),
- » 18 ATIS System,
- » 1 DATIS System
- » 59 VRS (Voice Recording Equipment),
- » 27 Radiolink Systems,
- » 4.394 Air/Ground Radios,
- » 4.960 Ground/Ground Radios,
- » 97 HF-SSB Radios.



#### SURVEILLANCE SYSTEMS

To provide an accurate and reliable surveillance picture to Air Traffic Controllers, we look for new technologies, systems and operations; and adopt these innovations our existing ATM infrastructure. By means of new investments, every point in the Turkish airspace is covered and being controlled minimum two surveillance sensors.

With the two big projects ("SMART (Systematic Modernization of ATM Resources in Turkey)" and "Renovation of Existing Radars and Additional Requirements") we are able to provide Mode S surveillance information



and using the latest ATM technologies.

Beside of the conventional surveillance techniques, we also follow new techniques like ADS-B and Multilateration (LAM/WAM) to add this new systems' assets our inventories.

Technical staff attends regular training and courses, organized in Turkey or abroad. By these trainings, they get the knowledge of surveillance and DP techniques and of maintaining the installed systems.

All of our surveillance systems are in compliance with international standards.

Figure 14 shows a PSR/MSSR radar site located at Ankara Esenboğa Airport.



## COMMUNICATION NAVIGATION SURVEILLANCE

As today, 7 PSR (Primary Surveillance Radar) and 22 Mode S MSSR (Mono pulse Secondary Surveillance Radar), 2 SSR radar systems and 1 ADS-B (Automatic Dependent Surveillance-Broadcast) system are in service to provide air surveillance picture. The locations of these sensors are shown at Figure 15.

The data produced by surveillance sensors are transmitted via terrestrial and satellite lines to ATC centers. All sensor data is fed to WAN network and it is shared between ATC centers through this WAN.

A sole Flight Information Region (FIR) Ankara has been established under SMART Project. Formerly Turkish Air Space was managed through two separate FIRs.

SMART ATC systems has been in operation since 7th of July. 2015 and by the transfer of Istanbul ACC and Izmir ACC sectors to Ankara ACC ; Area Traffic Control Service has been provided by Turkish Air Traffic Control Center (Ankara).

On the other hand; Approach Control Services provided by İstanbul, Antalya, Adnan Menderes, Dalaman, Bodrum and in case of emergency situations role sharing scenarios between these centers are in place. Through this Project; Air Traffic Control infrastructure of Turkey has been renowed and modern controller functions have been commissioned.

With this project, ATM resources and technological infrastructure of Turkey and air traffic safety has reached top level, owned by very few countries.

In SMART ATC systems ARTAS is used as main tracker and a local tracker is in use as backup tracker.

A-SMGCS Level II systems are in operation since 2010 at Ankara Esenboğa, Istanbul Atatürk and Antalya Airports.

In order to use the resources (runway, air space etc.) more effectively, AMAN/DMAN (Arrival Manager/Departure Manager) systems installed at Istanbul Atatürk Airport.

For near future we are planning the following projects:

- » Electronics Flight Strip (EFS) Systems
- » APP Systems for Gaziantep Airport
- » On-mounted PSR/Mode S SSR Systems for Istanbul New Airport and New Mode S SSR System for Dalaman Airport



# PERFORMANCE



#### Traffic

JALREPORT20

The Turkish Airspace located at the cross roads of main traffic flows between Europe, Caucasian Region, Middle East, Africa and Asia and DHMI is paying utmost importance to the bi-lateral and regional cooperation as being one of the main air navigation service provider in the region.

Compared to the rest of the world, the civil

aviation sector in our country has a rapid, continuous and serious upward trend. It is also a known fact that this situation results not only from the global factors of the sector, but also from the dynamics of our country. In 2015, DHMİ air traffic volume increased by 113 % compared to the year 2006 and. Our passenger number also increased 191 % compared to the year 2006 and reached approximately 182 million passenger.



#### Capacity

Turkey has completed the transition phase of the SMART (Systematic Modernization of ATM Resources in Turkey) Project and implementation of new ATM systems have been realized before the end of year 2015.

Having the Airport Airside Capacity assessment and enhancement studies for İstanbul / Atatürk Airport completed, studies to implement the CDM to enhance the productivity of the Airport has been commenced. Memorandum of Understanding was signed by the stake holders at April 2011. The steering and study groups were formed and studies have been going on according to the agreed Business Plan. Currently, the tests for the data sharing platform have been going on.

For the implementation of Arrival Manager (AMAN) and Departure Manager (DMAN) Systems at İstanbul Atatürk Airport, tender was completed and contract has been signed at 13th of Mar 2013. These systems are going to be used together with the SMART Systems and will have an important contribution to the capacity and quality of the services provided.

### PERFORMANCE

Beside these projects / studies to increase the capacity of the İstanbul Atatürk Airport, tender for the establishment / construction of third Airport at İstanbul City has recently been done. According to the specification, the new airport will be one of the biggest airports in world with its 150 Million Passenger Annual Capacity and will be operational at the first quarter of the year 2018. In the meantime, to cope with the continuous traffic growth and to satisfy the extra capacity needs. Also tender for the establishment / construction of second parallel Runway to be used for the simultaneous independent parallel approaches for Istanbul Sabiha Gokcen Airport has recently been done. Second runway will be operational at the first quarter of the year 2018 as well.

DHMİ together with the ANSPs of her neighbours has taken all the necessary measures to provide ATC Services to this unexpectedly increasing traffic in Turkish Airspace without causing any remarkable delay.

With the increase of traffic in Turkey, there is a continuously growing demand for capacity at istanbul/Atatürk, Antalya, Ankara/Esenboğa, istanbul/Sabiha Gökçen Airports. Due to an imbalance between the demand for these airports and the availability of adequate airport facilities/infrastructure and airspace systems, slots have been distributed in an equitable, non-discriminatory and transparent way by DHMİ since June 2010. To be operationally successful, DHMİ ensures close co-operation and coordination with airport authorities and airlines.

As a result, considering the traffic growth and

delay situation, it is assessed that the measures taken to enhance and better manage capacity led to an effective increase of ATM capacity and therefore, the capacity plan was achieved and delays were kept at optimum levels.

As a result of the objection raised by Romania to the airspace changes required to handle the traffic increase caused by Ukraine and Russia Federation crises inevitable, then ATFM restrictions put forward on point ODERO and ATFM restrictions on point ODERO in Ankara ACC resulted in some delay in Ankara ACC".

0.07 minute/flight reference value defined for the Member State. As a result of the efficient work organisation, Hungarian air traffic control did not contribute to delays (0 minute/flight) in 2014

#### Punctuality

According to DHMI's plan, 0.5 minute/flight target defined for 2015. There was no Enroute delay in İstanbul and the average enroute delay per flight for Ankara was 0,12 minutes in 2015 as it was 2014. They were significantly lower than the, target and still remained below the European average.

Istanbul Atatürk (+5.7% vs. 2014) and Sabiha Gökçen (+18.5% vs. 2014) airports continued their remarkable traffic growth also in 2015. The continuous strong growth resulted in a substantial increase in airport ATFM arrival delays at the two Istanbul airports in 2015. Seasonal weather and airport capacity measures in conjunction with technical issues (radar and frequency) impacted airport operations at Istanbul/Ataturk and Istanbul/



#### Sabiha Gökcen"

Istanbul Sabiha Gökçen and Atatürk airports continued their growth also in 2015 with an increase in average daily traffic of 91 and 67 movements respectively. Over the past 10 years, Istanbul Sabiha Gökçen airport grew at an remarkable average annual rate of +29.8% and Istanbul Atatürk at an average rate of 8.2% per year. The continuous strong growth resulted in a substantial increase in airport ATFM arrival delays at the two Istanbul airports in 2015. Performance at these airports will be continued to be monitored by DHMI. However, these delays were eliminated through common actions agreed between our FMPs and the NMOC.

As a result, considering the traffic growth and delay situation, it is assessed that the measures taken to enhance and better manage capacity led to an effective increase of ATM capacity and therefore, the capacity plan was achieved and delays were kept at optimum levels

#### Environment

SIDs have been designed to provide noise abatement over the most congested areas. Noise monitors have been established and data is being analysed in a noise map pilot project.

There is legislation regarding maximum noise levels generated by aircraft but no system of enforcement/punitive measures has been developed as yet. Local traffic regulations have been developed in coordination with airport and airline operators in 2014 and will be implemented at first half of 2015.

#### ENVIRONMENTAL INITIATIVES FOR A CUSTOMER ORIENTED APPROACH

"

### Environment friendliness is one of DHMI's top priorities.

The consciousness of being environmentally friendly is one DHMI's top priorities and is one our most precious values. In fact, air traffic is increasing at an amazing speed and new records are achieved in both passenger and cargo traffic. Each of these increases is an indication of success to be proud of. However the same growth is the biggest enemy for the environment that we all live in.



It is with this consciousness that DHMI embraces new projects to minimize the additional burdens on the environment caused by this traffic increase. Knowing that DHMI is contributing

even only a tiny bit in the overall efforts to diminish the negative effects of these increases to the environment, will give us even more strength in future successes.

For this purpose, some of our environment

### PERFORMANCE

related projects encourage that huge energy saving systems are preferred and moreover especially renewable energy systems are used in every field of service.

DHMI, aiming to be the model of the environmentally friendly managements has, in the context of "the Green Company Project" initiated by the Turkish Civil Aviation Authority General Directorate, uninterruptedly continued its works and 36 of its airports have been awarded with the "green company" certificate; İstanbul Atatürk, Antalya, Ankara Esenboğa, Trabzon, Muğla Dalaman, Muğla Milas-Bodrum, Erzurum, Gaziantep, Isparta Süleyman Demirel, Nevşehir Kapadokya, Adıyaman, Amasya Merzifon, Balıkesir Koca Seyit, Balıkesir Merkez, Bursa Yenişehir, Elazığ, Erzincan, Hatay, Kocaeli Cengiz Topel, Konya, Malatya, Mardin, Samsun Çarşamba, Sivas Nuri Demirağ, Şanlıurfa GAP, Tekirdağ Çorlu, Tokat, Uşak, Batman, Kayseri, Kars, Denizli Çardak, Van Ferit Melen, Siirt, Muş and Kahramanmaraş Airports. It is planned that this number of airports will reach 41 in 2016.



Furthermore, in the context of our "handicap friendly airports" concept, all necessary measures have been taken to remove all

obstacles that handicapped passengers may be faced at our airports in line with appropriate standards and as a result nearly all of our airports have been certified by the Turkish CAA as "Handicap-Friendly Airports".

#### PLANNED INVESTMENTS TO IMPROVE PERFORMANCE

"

DHMI continuous its new investments non-stop.

"

- The TAMAM project (Modernization of ATM Communication Infrastructure in Turkey)
- SSR Signal Tracking Center R&D project
- Aviation Academy, distance learning and knowledge sharing portal R&D project
- Controller Working Position (CWP) implementation and development R&D project
- ATC Radar Simulator R&D project
- The SMART Project (Systematic Modernization of ATM Resources in Turkey)

- \* Establishment of one central ACC
- \* Renewal of old radars
- Construction of ATC buildings
- Periodic Modernization of navaids & air communication systems
- Air navigation services training facility
- Periodic Renewal IT systems both hardware and software
- \* Modernization of Information Network Systems
  - \* Environmental protection
- Renewable energy systems
- Procurement of two calibration a/c
- National ATC Center 1.phase R&D project
- Modernization of Surveillance and ATC system functions



**FLIGHTS PERFORMED** 



#### The New Istanbul Airport is to make DHMI a Worldwide Game Changer by 2018

Globalisation of goods and services as a major aspect marking the 21st century has transformed aviation sector into a giant industrial platform of operational network where major airports and hubs get nourished from each other's connections, capabilities and strength of their relevant facilities. Consequently, establishment of the New Istanbul Airport as a mega hub within Eurasia region will provide a great support to the neighbouring major airports in terms of recovering their overall capacity congestion and thus mitigating risks of air safety and delays which influence one another successively.

When there were departures to 26 domestic destinations from 2 centers by Turkish Airlines only in 2002; in May 2015, with the opening of world's second and both Europe's

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### PERFORMANCE



#### \* Indicates over 7000 flights in total take offs-landings, between two airports.

and Turkey's first airport built on sea, namely "Ordu-Giresun Airport", we have reached 55 inter-connected airports open to the service of global aviation.

Due to the recently planned new airports, we expect to reach the goal of having airports with 100 km intervals all around the country. Meanwhile Air Traffic Control services are carried out through 47 entry-exit points and 162 main RNAV air routes within 982.000km sq. airspace incorporating 10 adjacent FIRs.

Besides, there are 18 PPP projects already implemented whereas the total amount of revenue arisen from public private sector partnership is approximately 2.2 billion USD and the expected total turnover from the forthcoming PPP engagements is predicted as more than 28 billion Euros.





\* Indicates over 7000 flights in total take offs-landings, between Turkey and other countries

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Distribution of Total International Commercial Aircraft Movements by Continent - 2015



As is known; Istanbul is the pearl of Eurasian region. As a megacity of touristic attraction, Istanbul -also an internationally renowned center of finance and commerce, is getting prepared for having a higher prolific profile to host and foster new bussiness acquirements pertaining to general and global aviation sectors including the relevant industrial infrastructure expected to flourish pursuing the establishment of New Istanbul Airport.

Istanbul's geographical point of stance as the center of gravity among main hubs from the Far East to Europe and from the far North to Africa continents has been continuing to intensify its strategic power and role in passenger and cargo traffic within the aviation network.

As known; Istanbul Atatürk Airport's Domestic and International Terminals including the multistorey parking facility and General Aviation Terminals are planned to be shut down by 2018; and in 2007, European Union's Transportation Infrastructure for Turkey Final Report had mentioned the requirement of a new big aviation hub to be constructed in Istanbul until 2020.

DHMI is also well aware of the rising trend of general aviation sector and hence hopes for developing dynamic bases for MRO operations and flights supporting general aviation industry as far as possible in reference to air safety issues considering the maximum air traffic capacity that overall Istanbul TMA can handle.

Furthermore, by altering and expanding the services in all our airports to the highest standards and quality possible in terms of ergonomy, variety, accessibility and green efficiency, DHMI has triggered the momentum of development for domestic airliners to a level where with the drastic increment of travelling passengers, total number of the destinations flight from and toward Turkey has increased more than 300% from 60 nodes in 2003 to approximately 258 nodes by 2015.

Naturally such a trend not only led the path to expansion of domestic airliner fleets but turned Istanbul city into a stopover hub through which 15 million transfer passengers have been carried. Mid-term prospects until 2020 shows that Turkey will sustain her air traffic growth with average 7% rate in the EU airspace.

Istanbul city lies within the 3000 Nautical Miles coverage of accessibility from more than 110 countries hosting more than 3 billions of people. This privileged position has become one of the main motives harnassing the air traffic boom as experienced seamlessly and made us aspire for a bigger investment that will constitute a fresh source of dynamism for the hubs to be connected subsequently within an equally balanced manner in between the corridors both from north to south and west to east as well.

Namely, the New Istanbul Airport is being constructed to provide service even for any aircraft having big fuselages and wingspans such as ICAO Cat G.

When we focus on the capacity growth of passengers in main Istanbul airports we basically observe an average of 35% rise in total on annual basis. The Overall Airport passengers shares does also indicate the strength of

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### PERFORMANCE

Istanbul city as a promising mega aviation hub with the 50% capacity in comparison to all other airports in Turkey.

In 2016 we expect to host more than 190 million passengers whose more than 95 million are predicted to use Istanbul airports only.

On the other hand, due to 2014 EUROCON-TROL CODA Digest Report we intend to curb the combined rate of delays in Istanbul's Air Traffic Flow Management from approximately %30 percent among all other European airports to below 10% as quick as possible which in return will facilitate the flow of within the relevant flight network. And this would only possible with the opening of New Istanbul Airport to service by 2018 at the latest.

Otherwise the expansion of apron areas and addition of new runways in the current Istanbul airports have all come to the point of their final stages and thus will not meet the ever growing air traffic demand after 2018.

Istanbul New Airport's footprint shall have an area of approximately 76 million square metres next to Yeniköy and Akpinar districts along the Black Sea shore.

The New Airport is expected to provide recruitment for 100.000 people. This high potential of work force will be a great stimuli for Turkey's economic welfare and development.

The official delivery of reserved area for the First Phase ground work activities of the Istanbul New Airport Project was made in May 2015.

With the completion of first phase the airport will be ready to host 90 million passengers annually. The airport will get connected to the city with all sorts of intermodal transfer availablities.

New Istanbul Airport is also signifying the great success of DHMI in PPP projects which will make important reference points when venturing into new airport management investments abroad.

DHMI as having a highly accumulated expertise in PPP ventures is now eager to set sail for undertaking BOT projects especially in Africa and Asia.

It has become a tradition that DHMI shows the best performance in cost-efficiency both European wide and regionally. The success lays in the secret behind the firm steps taken by DHMI on some key elements; strict cost containment measures versus a tremendous provision of service.







DHMI's unit ATM/CNS provision costs are again significantly lower than the European system average.

One of DHMI's main targets is to keep its unit rate stable and low whilst maintaining high aeronautical performance. It has successfully ensured a unit rate that is one of the lowest ones

among other states within the Route Charges System.

On the other hand, one of the advantages that this airport will provide is the decrease in en-route ATFM delays. As a result, this will contribute to DHMI's operational productivity, will increase its cost-efficiency and lower the en-route delay costs for airliners' benefit.

When we focus on macroeconomic indicators, we can clearly observe a solid upward trend in World real GDP average rates throughout 2016. This situation indeed gives a strong clue of growth in overall air traffic passenger and freight capacities together. By 2023 to 2033 China, India, Germany, UK, France and Russia are expected to have the highest GDP ranking in USD basis. Such a tri-polar vector of destinations merging over Istanbul appear to guarantee high passenger and cargo traffic rates. In the same vein, emerging regions seem to constitute almost two thirds of the World traffic by 2033. With traffic more than tripling for these regions over the next twenty years, Middle East, Africa, Russia, China and India will mark the fastest growing regions.

In this respect we plan to have more than 350 flight destinations that will arrive in and depart from the New Istanbul Airport by 2023.

Among 91 aviation mega cities by 2033, Istanbul will be the one among the most important hubs having the largest network of transfer not from one major airport to another but from one region to another instead. And this creates a huge drive for the 4th phase of New Istanbul Airport where we expect to serve 150 million passengers in a year.

### PERFORMANCE

Statistics toward 2033 ICAO-wide total air traffic is going to double within 15 years while emerging markets will represent more than 70% of total air freight traffic in 2033. All those predictions including one of IATA's Vision 2050 report show the righteous cause of our decision to accomplish the New Istanbul Airport by 2018.

Upon the premises mentioned before, with the operation of New Istanbul Airport we aspire to take place within the first ten airports at global scale until 2023. Moreover the consciousness of being environmentally friend-

Istanbul New Airport's footprint has an area of approximately 76 million square metres in total along the sea shore of the Black Sea. The airport lays at the European peninsula of

The first phase of the Airport is scheduled to be opened to service in 2018.

Istanbul.

When all the phases will have accomplished, the airport is planned to have such distinctive features as; ly is one of DHMI's top priorities. For this purpose, some of our environment related projects encourage that huge energy saving systems are preferred and especially renewable energy systems are used in every field of service. DHMI is aiming to be the model of environmentally friendly managements.

Finally, I would like to emphasize that the New Istanbul Airport as a Mega Hub will not only augment the trade surplus of Eurasia and Middle East but also add a fresh breath of cooperative opportunities for a brighter Horizon to encompass all the civil aviation partakers.

#### THE NEW ISTANBUL AIRPORT

4 different terminal buildings ready to host 150 million pax on annual basis,

- » VIP, Cargo and General Aviation terminal buildings/facilities, including
- » State's Guest/Reception Terminal,
- » Outdoor/Indoor multi-storey vehicle/car parks,
- » Hotel, fire brigade, garage, praying houses, congressium, power plants, sanitary and recyling facilities.




# MILESTONES



#### HIGHLIGHTS

The aviation sector is developing at an amazing speed. DHMI is one of the role players within these developments. It is continuously improving, developing and growing on a non-stop basis.

ALREPORT2015

DHMI has witnessed many important and outstanding events this year and has again made huge progress!

#### March

- » DHMİ Call Center has been put into operation making access to DHMI much easier
- » Mr. Serdar Hüseyin Yıldırım has been appointed as the new DHMI Director General and Chairman of the Board
- » DHMI has presented five R&D Projects at the World Aviation Exposition held in Spain/Madrid

#### April

- » The world aviation axis has shifted to İstanbul; record of all times, one flight every 23 seconds!
- » The Committee to Facilitate Air Transport (HANKOK) has met in İstanbul for the 144th time to which representatives of the related entities and the aviation sector has attended
- » A Memorandum of Cooperation was signed between DHMİ and Bulatsa, the ANSP of Bulgaria to develop the current successful cooperation and mutual efforts to even higher levels

### 2015

#### March/April

» Turkey's first radar has been manufactured nationally and now ready for use with a coverage of 60 nautical miles

#### May

- » 3rd Airport in İstanbul; the worlds' biggest investment
- » The first airport ever constructed at sea not only in Turkey but also in Europe (third in the world) - the OR-Gİ Airport - has become operational

### MILESTONES

#### July

» DHMI has managed to increase its number of handicap-friendly airports to 35 and was presented "good example" at the 8th meeting of the United Nations Committee on Rights of Persons with Disabilities (CRPD)

#### September

- » Atatürk Airport was awarded: The airport with the most new long haul routes
- » Cooperation and Coordination meeting took place between DHMİ and DFS

#### November

» The General Aviation Forum has been held in istanbul to discuss problems and solutions of the sector

#### October

» A Protocol was signed between SSM, DHMI and Aselsan with a view to meet defense, aviation and security system needs nationally

#### December

» Increase of over 9% in passenger traffic, of more than 6% in cargo traffic and over 8% in the number of flights bringing the total to more than 1.810.000



#### March 2016: DHMI Call Center

A Call Center has been put into operation making access to DHMI much easier. With the focus on customer satisfaction, the call center is based on a very detailed data bank and professional staff with in-depth expertise. DHMI: 444 34 64

#### **New Director General**

Mr.Serdar Hüseyin Yıldırım has been appointed as the new DHMI Director General and Chairman of the Board. Graduated as an aircraft engineer, he has worked at senior management level of several airlines and has given airline operations lessons at a private university. We congratulate him with his new function.

#### **R&D Studies**

DHMI has taken part of the World Aviation Exposition held in Spain/Madrid. It presented five R&D Projects at this exposition which even on the first day counted 6500 visitors. The bird radar, the ATC simulator, the aircraft tracking system, the ATC0 selection software and the Flight Track System developed by Turkish engineers received much attention.

#### Turkey's First Radar Manufactured Nationally

Turkey's first radar manufactured nationally with a coverage of 60 nautical miles has passed successfully all tests and is now ready for use.

#### April 2016:

#### The HANKOK Meeting has been realized

The Committee to Facilitate Air Transport (HANKOK) has met in İstanbul for the 144th time. Under the presidency of the DHMI Deputy Director General, the meeting was attended by representatives of the related entities and the aviation sector. Fees and security related developments were the main topics.

#### Memorandum of Cooperation

A very meaningful cooperation was signed between two important entities; DHMİ and Bulatsa, the ANSP of Bulgaria. With this Memorandum of Cooperation signed by the two Director Generals, it is aimed to develop the current successful cooperation and mutual efforts to even higher levels.

#### **New Airport**

DHMİ is continuously making new investments to meet demand; the first airport ever constructed at sea not only in Turkey but also in Europe (third in the world) - the OR-Gİ Airport - has become operational. A long lasting dream of another huge project has come true.

#### May 2016: 3rd Airport in İstanbul; the worlds' biggest investment

Civil aviation has made huge progress in the last decade in line with the developments encountered in the world economic balance and Turkey has been one of the game changers. From a statistical point of view this can be expressed as an increase of over 9% in passenger traffic bringing the total to more than 180 million people, an increase of over 8% in the number of flights bringing the total to more than 1.810.000.

For İstanbul alone, this is translated as one flight every 23 seconds, a record of all times! The world aviation axis has shifted to İstanbul.

Therefore, the tremendous work regarding the construction of the 3rd Airport in İstanbul is continuing day and night with more than 7500 people.

### MILESTONES

#### July 2016: Handicap-friendly Airports

As one of its major humanitarian projects, DHMI has managed to increase its number of handicapfriendly airports by 5 airports bringing the total to 35. These airports are Balıkesir Koca Seyit, Kars, Mardin, Şanlıurfa GAP and Kastamonu. DHMİ will continue its work in this field uninterruptedly. Turkey was presented "good example" at the 8th meeting of the United Nations Committee on the Rights of Persons with Disabilities (CRPD).

#### September 2016:

#### Award for Atatürk Airport

Atatürk Airport was awarded "the airport with the most new long haul routes"

### Cooperation and Coordination meeting took place between DHMİ and DFS

During this meeting, important issues have been

dealt with such as; exchange of information and experience, air space design, ATS route structure, the İstanbul new Airport, DHMİ/DFS products planned to be developed, R&D studies, training and the roadmap for the ATC selection software.

#### October 2016: Cooperation Protocol on Defense

A Protocol was signed between Undersecretariat for Defense Industries (SSM), DHMI and Aselsan with a view to meet defense, aviation and security system needs nationally.

#### November 2016: The General Aviation Forum has been held in İstanbul

One of the most important features of the aviation sector in this era is speed. The need therefore to keep up with this demand is very important. During this forum the problems and related solutions of the sector was discussed in detail.

#### **SOCIAL EVENTS & SPORTING ACTIVITIES**

The "DHMI Youth and Sports Club" was founded in 1985 with a view to allowing its members and sportsmen to practice various sporting activities, to develop mutual respect, to contribute to moral and physical health training and to allow young people to make use of their leisure time through sport.

The principal aim of the club is to provide sportsmen and women with the basic training in sport activities. To this end, DHMI organizes courses to which more than 100 licensed sportsmen and women attend and also opens furthermore every year a "Summer school" for the children of its employees.

The DHMI women's volleyball and pilates clubs are currently continuing their activities at top level.







The General Directorate of State Airports Administration's (DHMI) balance sheet and income statement for the financial year 2015 were drawn up in accordance with the regulations laid down in the Turkish Uniform Accounting System.

#### MARKETING

In line with civil aviation activities, our Administration is responsible for air transport, aerodrome operation, aerodrome ground services, air traffic control services, installation and operation of navigation systems and facilities in compliance with economic and social requirements in parallel to the principle of efficiency.

The methods and principles used for the recording of accrual and income obtained for services provided by the Administration are specified in the Directive, and all the commercial transactions have been carried out under that directive.

Our Administration's service sales income obtained from air traffic control services, aerodrome ground services and terminal services as required by Civil Aviation Activities, plus other proceeds and profits. At the end of the period, a total gross income of 4.186.915 thousand TRY was obtained, of which 3.573.891 thousand TRY was income from service sales, 590.258 thousand TRY was ordinary revenue and profit from other operations and 22.766 thousand TRY was extraordinary revenues and profits. When a reduction of 332.990 thousand TRY is deducted from this, our income amounts to 3.853.925 thousand TRY which represents a increase of 27,31 % when compared to the net income of 2014.

9.

7.40

4.30

Under the Uniform Accounting System, service sales are provided in detail according to their respective codes of expenditure. Every service heading is followed by three sub-headings (Air Navigation Services, Ground Services and Terminal Services) as "type of category". Foreign sales represent 22 % of the total sales.

The services rendered in 2015 are gathered in three groups.

- Air Navigation Services: Air Navigation, AIS publications and other unclassified navigation services.
- Terminal Services: (Runway, Apron, Taxi-Route) Services: Landing, parking, approach and lighting services, safety precautions against aircraft fire, follow-me services, ground handling, other runway, apron and taxi-route services.
- 3. Operating Services : Passenger service, service allocation (Office, check-in desks, land etc), electricity - heating - cooling, telephone, diaphone, telex and public address system, Build-Operate-Transfer (B.O.T), load bridge, 400Hz electricity and water, other terminal services.





STATEMENT OF INCOME		('000 ₺)
	2015	2014
A.GROSS SALES	3.573.891	3.025.629
1. Domestic Sales	2.788.452	2.306.689
2. Export Sales	785.439	718.940
3. Other Sales	0	0
B. SALES DEDUCTIONS (-)	332.990	273.146
1. Sales Returns (-)	0	189
2. Sales Discounts(-)	0	0
3. Other Deductions(-)	332.990	272.957
C. NET SALES	3.240.901	2.752.483
D. COST OF SALES	1.480.680	1.300.746
1. Cost Of Products Sold (-)	0	0
2. Cost Of Merchandise Sold (-)	O	O
3. Cost Of Services Rendered (-)	1.480.680	1.300.746
4. Cost Of Other Sales (-)	O	O
GROSS PROFIT OR (LOSS)	1.760.221	1.451.737
E. ADMINISTRATIVE EXPENSES (-)	132.086	134.340
1. Research and Development Expenses	4.334	3.835
2. Marketing, Selling and Distribution Expenses	2.878	2.878
3. General Administration Expenses (-)	124.874	127.627
OPERATING PROFIT OR (LOSS)	1.628.135	1.317.397
F. INCOME AND PROFIT FROM OTHER ORDINARY OPERATING	590.258	233.225
1. Dividend Income From Affiliates	O	O
2. Dividend Income From Subsidiaries	0	0
3. Interest Income	60.059	48.458
4.Commission Income	0	0
5. Provisions no Longer Required	12	64
6. Profit on Sale of Marketable Securities	9	6.289
7. Foreign Currency Transaction Gain Exchange	501.292	138.939
8. Rediscount Income	0	0
9. Other Income and Profit	28.886	39.475

STATEMENT OF INCOME		('000 ₺)
	2015	2014
G. EXPENSES AND LOSSES FROM OTHER ORDINARY OPERATIONS (-)	624.547	148.786
1.Comission Expenses (-)	0	0
2. Provision (-)	1.919	2.369
3. Loss on Sale of Marketable Securities	O	O
4. Loss From Foreign Currency Exchange	621.208	142.598
5. Rediscount Interest Expense	O	O
6. Other Ordinary Expense and Losses	1.420	3.819
7. Net Monetary Gains or Losses	0	0
H. FINANCIAL EXPENSES (-)	0	0
1. Short Term Borrowing Expenses	0	O
2. Long Term Borrowing Expenses	0	0
ORDINARY PROFIT OR (LOSS)	1.593.846	1.401.836
I.EXTRAORDINARY REVENUES AND PROFITS	22.766	41.320
1. Prior Period Revenues and Profit	535	15.005
2. Other Extraordinary Revenues and Profit	22.231	26.315
J. EXTRAORDINARY EXPENSES AND LOSSES	43.378	524.234
1. Idle Department Expenses and Losses	0	0
2. Prior Period Expenses and Losses	2.386	523.643
3. Other Extraordinary Expenses and Losses	40.992	591
PROFIT OR (LOSS) FOR THE PERIOD	1.573.234	918.922
K. PROVISIONS FOR INCOME TAXES AND OTHER LEGAL DUTIES (-)	340.005	299.762
NET PROFIT OR (LOSS) OF THE PERIOD	1.233.229	619.160



INCOME		('000 秒)
	2015	2014
1. GROSS SALES	3.573.891	3.025.629
a. Domestic Sales	2.788.452	2.306.689
b. Export Sales	785.439	718.940
c. Other Sales	0	0
2. INCOME AND PROFIT FROM OTHER ORDINARY OPERATING	590.258	233.225
a. Interest Income	60.059	48.458
b. Provisions no Longer Required	12	64
c. Profit on Sale of Marketable Securities	9	6.289
d. Profit From Foreign Currency Exchange	501.292	138.939
e. Other Income or Profit	28.886	39.475
EXTRAORDINARY REVENUES AND PROFITS	22.766	41.320
a. Prior Period Revenues and Profit	535	15.005
b. Other Extraordinary Revenue and Profit	22.231	26.315
TOTAL:	4.186.915	3.300.174

EXPENSES AND LOSSES		('000 ₺)
	2015	2014
1.COST OF SALES AND OPERATING EXPENSES	1.612.766	1.435.086
a. Raw Materials and Supplies	48.482	51.882
b. Staff Wages and Costs Salaries and Other Staff Expenses	695.019	637.740
c. Outsource Services Expenditures External Utilities and Services	314.154	250.084
d. Various Costs Miscellaneous Expenses	140.476	127.834
e. Taxes, Duties and Similar Charges Taxes and Other Fiscal Duties	10.385	8.729
f. Amortization and Depletion Expenses Depreciations and Amortisations	404.250	358.817
2. EXPENSES AND LOSSES FROM OTHER ORDINARY OPERATIONS (-)	624.547	148.787
a. Provisions (-)	1.919	2.369
b. Loss on Sale of Marketable Securities	O	O
c. Loss From Foreign Currency Exchange (-)	621.208	142.599
d.Net Monetary Gains or Losses (-)	O	O
e. Other Ordinary Expenses and Losses	1.420	3.819
3.FINANCIAL EXPENSES (-)	0	O
a. Long Term Borrowing Expenses (-)	0	O
4. EXTRAORDINARY EXPENSES AND LOSSES	43.378	524.234
a. Idle Department Expenses and Losses (-)	0	O
b. Prior Period Expenses and Losses (-)	2.386	523.643
c. Other Extraordinary Expenses and Losses (-)	40.992	591
TOTAL:	2.280.691	2.108.107



ASSETS			('000 ₺)
		2015	2014
1. CURRENT ASSET		2.131.884	1.489.450
A. Liquid Assets		1.732.508	1.046.822
B. Marketable Securities		0	0
C. Trade Receivables		323.045	348.358
D. Other Receivables		8.988	26.549
E. Inventories		34.539	29.072
F. Contract Progress Costs		0	0
G. Prepaid Expenses For Future Months		31.286	34.943
H. Other Current Assets		1.518	3.706
LONG TERM ASSETS FIXED ASSETS		6.573.605	5.371.753
A: Trade Receivables		1.150	1.271
B. Other Receivables		D	0
C. Financial Fixed Assets		0	0
D. Tangible Fixed Assets		6.487.301	5.287.119
E. Intangible Fixed Assets		84.265	83.272
F. Assets Subjects to Amortization		0	0
G. Prepaid Expenses For The Future Years		0	2
H. Other Fixed Assets		889	89
	TOTAL ASSETS:	8.705.489	6.861.203

LIABILITIES		('000 ₺)
	2015	2014
I. SHORT TERM LIABILITIES	1.569.363	1.450.507
A. Financial Liabilities	0	0
B. Trade Payables	156.493	182.227
C. Other Liabilities	14.775	23.296
D. Advances Received	194.532	247.770
E. Contract Progress Income	0	0
F. Taxes Payable and Other Fiscal Duties	56.980	46.518
G. Provisions for Duties and Expense	73.021	69.229
H. Income Relating to Future Months	1.073.562	881.467
I. Other Short Term Liabilities.	0	0
II. LONG TERM LIABILITIES	913.413	912.856
A. Financial Liabilities	0	0
B. Trade Payables	0	0
C. Other Liabilities	0	0
D. Advances Received	0	0
E. Provisions for Debts Expenses	554	532
F. Income Relating to Future Years	912.859	912.324
G. Other Long Term Liabilities	0	0
III. SHAREHOLDERS EQUITY EQUITY CAPITAL	6.222.713	4.497.840
A. Paid-In Capital	3.986.975	2.956.801
B. Capital Reserves	0	0
C. Profit Reserves	1.002.509	921.878
D. Retired Earnings	0	0
E. Losses From Previous Years (-)	0	0
F. Net Profit (Loss) For The Period	1.233.229	619.161
TOTAL LIABILITIES (SOURCES)	8.705.489	6.861.203



CASH FLOW STATEMENT		('000 ₺)
	2015	2014
A.CASH AT THE BEGINING OF THE PERIOD	1.046.822	497.589
B.CASH INFLOWS WITHIN THE PERIODS	4.018.626	3.670.370
1. Cash From Sales	3.263.354	2.693.294
Net Sales	3.240.901	2.752.483
Decrease in Trade Receivables	50.718	28.857
Increase in Trade Receivables	28.265	88.046
2. Cash From Other Operations	178.432	144.018
3.Cash Received From Extraordinary Income and Profit	11.879	16.529
4.Cash From Increase in Short Term Liabilities	192.130	203.272
Securities Issued	0	O
Credits Obtained	0	O
Other Increase	192.130	203.272
5. Cash Received From Increase in Long Term Liabilities	535	379.502
Issuance of Securities	0	O
Credits Obtained	0	O
Other Increases	535	379.502
6. Cash Received From Share Capital Increase	11.261	228.015
7. Cash Received From Share Premium	0	O
8. Other Cash Received From Cash Inflows	361.035	5.740
C. CASH OUTFLOWS WITHIN THE PERIOD	3.332.940	3.121.136
1. Cash Outflows Due to Costs	1.144.287	899.951
Costs of Sales.	1.480.680	1.300.746
Increase in Inventories	5.467	1.961
Decrease in Trade Payables	31.728	6.588
Increase in Trade Payables (-)	5.994	71.492
Expenses not Requiring Cash Payments such as Depreciation and Provisions(-)	367.594	337.852
Decrease in Inventories(-)	0	0

CASH FLOW STATEMENT		('000 ₺)
	2015	2014
2. Cash Outflows Due To Administrative Expenses	115.819	134.340
Research and Development Expenses	4.334	3.835
Marketing, Selling and Distribution Expenses	2.878	2.878
General and Administrative Expenses	124.874	127.627
Expenses not Requiring Cash Payments such as Depreciation and Provisions-(-)	16.267	0
3. Cash Outflows Related to other Expenses and Losses	264.721	46.519
Ordinary Expenses and Losses	624.547	148.787
Other Expenses and Losses not Requiring Cash Payments(-)	359.826	102.268
4. Cash Outflows Due to Financial Expenses	0	0
5.Cash Outflows Due To Extraordinary Expenses and Losses	2.103	17.457
Extraordinary Expenses and Losses	43.378	524.234
Expenses and Losses Not Requiring Cash Payments(-)	41.275	506.777
6.Cash Outflows Due To Investment in non-current assets	555.661	891.569
7.Cash Outflows Due To Short Term Liability Payments	130.422	5.682
Current Maturities of Marketable Securities	O	O
Principal Payments of Marketable Securities	O	0
Other Payments	130.422	5.682
8. Cash Outflows Due To Long Term	O	0
Current Maturities of Marketable Securities	O	0
Principal Payments of Marketable Securities	O	0
Other Payments	O	0
9.Taxes and Other Similar Charges Paid	662.760	642.106
10.Dividends Paid	448.178	474.746
11.0ther Cash Outflows	8.989	8.766
D.CASH AT THE AND OF PERIOD (A+B-C)	1.732.508	1.046.823
E. INCREASE OR DECREASE IN CASH (D-A)	685.686	549.234



#### TURKISH COURT OF ACCOUNTS' REPORT

In accordance with Law 6085, the Court of Accounts audits the financial activities, decisions and proceedings of DHMI General Directorate and further to the competence provided under the same Law, produces an "Audit Report" in order to examine whether or not the accounts and proceedings of DHMI's income, expenditures and assets are in line with related laws and legal regulatory arrangements.

In this context, the financial tables of DHMI General Directorate provide a true and fair view on the net assets and financial situation as of 31.12.2015 as well as the income and expenditure resources comprising revenues and costs and results of the activities for the year ended at the same date, it is also understood that they are prepared in accordance with the Uniform Accounting requirements.

(Signed) Tülin ALIÇ Head of Department on behalf of President of Turkish Court of Accounts

The 2015 audit has been performed by;

Veysel TEPE Principal Auditor & Head of Group

K.Mehmet GÜLBURUN Principal Auditor

Abdullah DEĞİRMENCİ Principal Auditor

Mehmet BEDER Principal Auditor

Yakup BALABAN **Principal Auditor** 

614757/1524C SAVISTAV BASKANLIG Says : D.B.Baqk,1-2016/8/ Kana : Denstim hilgini hit.

28.03.2016 tarih ve 61537423-730.08.01-E.30418 sayılı yazınır. T.C. Skystay Baskarigi, 6085 Stylis Saystay Kanuar ina isya abrigatatir mali fadiya, karar se ishemkarisi her yil denetlimski se i entyresende, DHM'an pidi, pider ve mallarna ilipkis himos i bakaki dözenlimskere uyum olup ofnadda hussanda. Denetine R.

Bu ovroevede, DHMI Genet Madachgahusensada "Denotine Rapon," hate fukker, mail daram ve aynı tarihar sona eren yıla aif falayon, 31.12.2015 tari fukker, mail daram ve aynı tarihar sona eren yıla aif falayot enenşkara ile akta oldağı ve Tarih Tekdazen Mahanche geneklerine uygan olanak hatırda oldağı konsya ilişkin üşdi deartin genbasas görüşü ektedir.

DEVLET HAVA MEYDANLARI İŞLETMESİ GENEL MÜDÜRLÜĞÜNE

Bilgilerinizi ve gereğini rica odurim.

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Fik: Denetim grabuman görüşd

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A Legendary Ottoman Aviator of 17th Century,

### Hezarfen Ahmet Celebi (1609-1640)

Hezarfen Ahmet Celebi (1609-1640), an inhabitant of Istanbul in the 17th century Ottoman Empire is credited with the first appropriate flight with artificial wings in the history of aviation. The event took place in the year 1638 during the tenure of Sultan Murad IV. Hezarfen took off from the 183-foot tall Galata Tower near Bosporus and landed successfully at Uskudar, on the other side.

This feat was 200 years ahead of its time. Evliya Celebi, historian and chronicler and an eyewitness, recorded vividly in his Seyahatname (a book of travel), the jubilation that followed. Sultan Murad IV was inordinately pleased. Hezarfen was awarded a thousand gold pieces.

He was bound for greater glory when religious intolerance and political asininity cut him down. Palace advisors and religious heads forced Sultan Murad to do otherwise. Hezarfen was exiled to Algeria. (In this irony of fate, he had another illustrious contemporary as company. Galileo had been sentenced for life and put under house arrest in 1633 for unmitigated brilliance that religion and politics found hard to digest)

After two years Hezarfen died. He was thirty-one.

Hezarfen Ahmet Celebi is an unforgettable name. His trials and tribulations have the shadow of genius. Hezarfen airstrip-one of the three airports in Istanbul-is a reminder that dreams do not die.



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