REPORT ON AIR TRAFFIC FORECASTING TECHNIQUES

(BAHRAIN 28 - 30 OCTOBER 2007)

1. INTRODUCTION

1.1 A Workshop on Air Traffic Forecasting Techniques was organized from 28 to 30 October 2007 in Bahrain by the International Civil Aviation Organization (ICAO) in collaboration with the Civil Aviation Affairs of Bahrain.

1.2 The Workshop was organized in compliance with ICAO Assembly Resolution and the Middle East Air Navigation Planning and Implementation Regional Group (MIDANPIRG) Conclusion 9/58. The objective of the workshop was to improve forecasting capacity of the concerned staff of States of the region. It should be recalled that the Second Meeting of the MIDANPIRG Traffic Forecasting Sub-Group held in Cairo in March 2006 agreed that MID States be encouraged to host workshops and seminars in a view to improve traffic forecasting capabilities of the region. During these workshops/seminars, issues, such as defining a format of the analyzed data to be supplied by States, could be discussed and possibly presented to MIDANPIRG as an amendment to MIDANPIRG/9 Conclusion 9/58.

1.3 It was in that regard that Bahrain has generously offered to host the workshop and beard the cost for the participation of the ICAO staff (HQ and Regional Office).

1.4 The workshop was attended by 36 participants from 9 States (Bahrain, Egypt, Iran, Jordan, Kuwait, Pakistan, Sudan, Tunisia, and UAE) and by Mr. Chaouki Mustapha and Mr. Zubair Anwar from ICAO Headquarters and by Mr. Evalou Gnaang from the MID Office. It was opened by Captain Abdulrahman Al Gaoud, UnderSecretary for Civil Aviation Affairs (CAA) of Bahrain. Accompanying him were also Mr. Mohamed Khonji, Regional Director, ICAO Middle East Regional Office and Mr. Ahmed Neamat Ali, Assistant UnderSecretary for CAA. In his opening speech, Captain Al Gaoud welcomed all participants to Bahrain and stressed the need for adequate forecasts to help States in the region plan their aviation infrastructure, especially considering the air traffic growth achieved.

1.5 Mr. Mohamed Khonji, in addressing the participants, expressed the Organization’s gratitude to the Kingdom of Bahrain for the support and assistance that the Kingdom has always provided to the MID Office. He particularly outlined the support His Excellency Shaikh Ali Bin Khalifa Al-Khalifa, Deputy Prime Minister has always provided to ICAO among which the hosting by Bahrain of the Regional Monitoring Agency (RMA) when it was particularly difficult to find a hosting State.

2. DISCUSSION

2.1 Mr. Chaouki Mustapha, Economist at the Economic Analyses and Databases Section of HQ who conducted the workshop was assisted by Mr. Evalou Gnaang, RO/AT and Mr. Zubair Anwar, Economic Assistant from the Economic Analyses and Databases Section.

2.2 Topics covered during the workshop include ICAO’s activities in the field of forecasting and economic planning, the relationship between statistics, forecasting and economic planning, forecasting methodologies, airport forecasting and planning, CNS/ATM economic aspects and business case development. The forecasting methodologies were given special attention and a presentation on an ICAO forecasting model was given to participants in order to familiarize them with the process of developing a model as well as the tools and procedures employed.
2.3 One day was reserved for the exercise session which was performed using about 20 laptop computers. Using world traffic and economic data, participants were guided step-by-step to manipulate data, develop time series and develop forecast models. This exercise was based on a new manual, prepared by EAD, describing in detail the approach to regression analysis using MS Excel. Explanations such as how to analyze the data, correct the inconsistencies, check the model statistical parameters and the significance of the results etc., were provided to the participants as they followed the lead of the presenter. The exercises were completed by developing a final econometric model for world air traffic demand. The participants were made aware that the model must be checked through a series of tests before it can be used for developing forecasts. Once it was understood that the model was statistically significant, a forecast to the year 2015 was produced.

2.4 A sensitivity analysis was also carried out by developing a “low” and a “high” forecasts for the same period. This exercise session provided all participants enough knowledge to practice regression analysis on their own, hence traffic and economic data for the Middle East region was given to them as a homework assignment to practice, analyze and prepare models and develop forecasts.

2.5 An illustration of airport peaking for Dubai and Bahrain airports (using OAG data) in terms of monthly, weekly, daily and hourly peaks was presented. A presentation on peak-period analyses of Muscat FIR was also presented. The airport and FIR peaking was of particular concern to the participants as the majority of them were from the airport and air traffic control side. All participants were of the opinion that due to the exceptionally high traffic growth experienced by the region, there is an urgent need to focus on airport and FIR peaks in much more detail.

2.6 Special attention was given to the report of the Second Meeting of Traffic Forecasting Sub-Group (TF SG/2) in particular to the Ninth Middle East Air Navigation Planning and Implementation Regional Group MIDANPIRG/9 Conclusion 9/58: Traffic Forecasting Requirements In the MID Region: “that, MID States continue their support to the TF SG by ensuring that their respective nominees to the membership of the Sub-group include, as much as possible, forecasting experts, air traffic management experts and, when required, financial analysts to carry out business case and cost/benefit analyses”.

3. CONCLUSIONS

3.1 All participants filled an evaluation form on the last day and almost all of them rated the workshop to be excellent; they thought that the presentations were clear and pertinent to their needs and felt that they had benefited well from the exercise session. Many participants mentioned that three days were insufficient and they would have liked to do more exercises. Some of the main outcomes from this workshop are as follows:

- Good quality data and statistics are basic requirements to any forecasting and planning effort. Given the importance of civil aviation data collection, analysis and dissemination, participants felt that it would be very beneficial to both States in the region and ICAO to have a workshop organized in the near future on the topic of civil aviation data collection processes.
- More support should be provided by ICAO to States in the region in the field of forecasting, especially for airports experiencing very fast growth driven by airlines with fast expanding networks and fleets. This can be achieved through the collection, development and dissemination of material on the appropriate methods and techniques.

- The MIDANPIRG Traffic Forecasting Sub-Group (TF SG) remains the main body for the development of civil aviation forecasts in the region. Membership of the Sub-Group should include, in addition to air traffic controllers, air transport officers as well as financial officers.

Attachment:

Attachment A – List of Participants
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