Regional Workshop on
The Development of Transport Statistics and Transport Related Sustainable Development Indicators in the Arab Countries
Beirut, Lebanon: 16–18 September 2019

R.H.I. Airport – Beirut Traffic Flow

Angele Aouad Ph.D
Research and Studies Department
Directorate General of Civil Aviation
Increasing investment in transportation infrastructure will be critical to integrate global economies and driving long term economics growth.

Sustainable transport including air transport promotes:

- policy synergies,
- trade facilitation, and
- financial cooperation, and
- Encourage private sectors investment through PPP.
To be able to fulfill these requirements, the **Research and Studies Department** at the DGCA is:

- Collecting the data,
- Analysing the data,
- Recommanding further developments in Air transport infrastructure, management and proposing needed investments

at R.H.I. Airport–Beirut
Data

- Passenger data
  - arrival, departure, transit,
  - Economy, business, First, Child, Diplomatic,
- Passenger by country/airline,
- Passenger by airline/ country,
- Loaded freight/mail by country/airline,
- Unloaded freight/ mail by country/airline,
- Aircraft movement
  - arrival, departure,
  - Type of A/C,
Data Analysis

- Evolution of Traffic 1961-2017
- Correlation with Lebanese political situation,
- Evolution of traffic 2017 -2022
- Air passengers in Millions and growth rate,
- Distribution by continent,
- 2018 Passenger distribution by country / airline,
- Daily air traffic distribution over 24h,
- Business air traffic distribution by country / airline and over 24h,
- Aircraft movement growth by continent,
- Cargo and mail distribution and trends,
- Traffic distribution by runway,
- Traffic distribution by A/C,
- Potential future projects.
Evolution of traffic 1961–2017

1. Number of Passengers

1961–2017

Actual number of passengers


Number of Passengers: 0, 10,000,000, 20,000,000, 30,000,000, 40,000,000, 50,000,000, 60,000,000, 70,000,000, 80,000,000, 90,000,000, 100,000,000, 110,000,000
Correlation with Lebanese political situation
Air Passengers in Millions and Growth %
Evolution of traffic 2007–2018
Passengers distribution by Continent

- **Asia:** 64.7%
  1. Arabian Peninsula: 41.0%
  2. Middle East: 23.4%
  3. South Asia: 0.2%
  4. West Asia: 0.2%

- **Europe:** 25.5%
  1. West Europe: 14.5%
  2. South Europe: 4.7%
  3. North Europe: 4.1%
  4. East Europe: 2.2%

- **Africa:** 9.7%
  1. North Africa: 7.1%
  2. West Africa: 1.3%
  3. East Africa: 1.3%
4. Growth Rate

<table>
<thead>
<tr>
<th>Region</th>
<th>2008</th>
<th>% Change</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabian Peninsula</td>
<td>1.9 M</td>
<td>+64%</td>
<td>3.1 M</td>
</tr>
<tr>
<td>Middle East</td>
<td>581.9 T</td>
<td>+279%</td>
<td>2.2 M</td>
</tr>
<tr>
<td>South Asia</td>
<td>4.9 T</td>
<td>+92%</td>
<td>9.5 T</td>
</tr>
<tr>
<td>West Asia</td>
<td>6.5 T</td>
<td>+422%</td>
<td>33.9 T</td>
</tr>
<tr>
<td>West Europe</td>
<td>641.6 T</td>
<td>+75%</td>
<td>134.2 T</td>
</tr>
<tr>
<td>South Europe</td>
<td>199.7 T</td>
<td>+146%</td>
<td>342.4 T</td>
</tr>
<tr>
<td>North Europe</td>
<td>186.8 T</td>
<td>+83%</td>
<td>490.5 T</td>
</tr>
<tr>
<td>East Europe</td>
<td>146.7 T</td>
<td>-8.5%</td>
<td>1.1 M</td>
</tr>
<tr>
<td>North Africa</td>
<td>311.4 T</td>
<td>+90%</td>
<td>591.2 T</td>
</tr>
<tr>
<td>West Africa</td>
<td>72 T</td>
<td>-4.5%</td>
<td>68.8 T</td>
</tr>
<tr>
<td>East Africa</td>
<td>45.6 T</td>
<td>+227%</td>
<td>155.6 T</td>
</tr>
</tbody>
</table>

Air Passengers expressed in PAKS or Thousand (T) PAKS or million (M) PAKS
### 2018 Passenger Distribution

#### Highest Passenger Distribution by Country

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.89%</td>
<td>United Arab Emirates</td>
</tr>
<tr>
<td>14.50%</td>
<td>Turkey</td>
</tr>
<tr>
<td>9.29%</td>
<td>Saudi Arabia</td>
</tr>
<tr>
<td>7.62%</td>
<td>France</td>
</tr>
<tr>
<td>6.55%</td>
<td>Egypt</td>
</tr>
<tr>
<td>5.86%</td>
<td>Iraq</td>
</tr>
<tr>
<td>5.63%</td>
<td>Qatar</td>
</tr>
<tr>
<td>4.62%</td>
<td>Germany</td>
</tr>
<tr>
<td>3.91%</td>
<td>Jordan</td>
</tr>
<tr>
<td>3.76%</td>
<td>Kuwait</td>
</tr>
</tbody>
</table>

#### Highest Passenger Distribution by Airline

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Airline</th>
</tr>
</thead>
<tbody>
<tr>
<td>36.12%</td>
<td>Middle East Airlines</td>
</tr>
<tr>
<td>6.27%</td>
<td>Emirates Airlines</td>
</tr>
<tr>
<td>6.07%</td>
<td>Turkish Airlines</td>
</tr>
<tr>
<td>4.16%</td>
<td>Qatar Airways</td>
</tr>
<tr>
<td>3.03%</td>
<td>Iraqi Airways</td>
</tr>
<tr>
<td>2.92%</td>
<td>Saudi Arabian Airlines</td>
</tr>
<tr>
<td>2.88%</td>
<td>Pegasus Airlines</td>
</tr>
<tr>
<td>2.86%</td>
<td>Egypt Air</td>
</tr>
<tr>
<td>2.67%</td>
<td>Fly Dubai</td>
</tr>
<tr>
<td>2.55%</td>
<td>Air France</td>
</tr>
</tbody>
</table>
Air Traffic Distribution

HOURLY DISTRIBUTION OF AIR TRAFFIC

Departure Peak

Arrival Peak

Distribution percentage %

Hours of the day (UTC)

Arrival
Departure
Total
Allows
- Better management,
- Increase airport efficiency,
- Maintain a certain LOS.
Business Class Distribution by countries

Distribution of Business Class Passengers by Countries (2018)

- United Arab Emirates: 16.95%
- France: 11.45%
- Saudi Arabia: 9.94%
- Turkey: 8.88%
- Egypt: 6.65%
- United Kingdom: 5.96%
- Qatar: 5.78%
- Kuwait: 4.96%
- Jordan: 4.79%
- Iraq: 4.16%
- Germany: 2.95%
- Italy: 2.92%
- Cyprus: 2.75%
- Greece: 1.80%
- Switzerland: 1.50%
- Ethiopia: 1.40%

Business Class Vs. Economy Class (Departure PAX)

Business Class Distribution by airline

Distribution of Business Class Passengers by Airlines (2018)

- Emirates Airlines: 8.28%
- Turkish Airlines: 4.85%
- Air France: 4.59%
- Qatar Airways: 3.67%
- Egypt Air: 3.01%
- Saudi Arabian Airlines: 2.14%
- Kuwait Airways: 1.95%
- British Airlines: 1.49%
- Etihad Airways: 1.46%
- Ethiopian Airlines: 1.41%
- Lufthansa: 1.41%
- Iraqi Airways: 1.35%
- Fly Dubai: 1.10%
- Royal Jordanian: 1.06%
- Alitalia: 1.05%
- Gulf Air: 0.96%

Middle East Airlines = 54.94%

Business Class Vs. Economy Class (Departure PAX)

- 2015: 363,989 (Business) - 3,340,048 (Economy)
- 2016: 351,843 (Business) - 3,469,636 (Economy)
- 2017: 387,207 (Business) - 3,742,010 (Economy)
- 2018: 407,152 (Business) - 3,995,320 (Economy)
Aircraft movement
2008–2019
### 4. Growth Rate

**Aircraft Movement**

**Expressed in**

- Thousand (T) A/C
- Million (M) A/C

<table>
<thead>
<tr>
<th>Region</th>
<th>2008</th>
<th>Change</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabian Peninsula</td>
<td>19 T</td>
<td>+30%</td>
<td>24.7 T</td>
</tr>
<tr>
<td>Middle East</td>
<td>9.1 T</td>
<td>+119%</td>
<td>19.9 T</td>
</tr>
<tr>
<td>South Asia</td>
<td>45</td>
<td>+22%</td>
<td>55</td>
</tr>
<tr>
<td>West Asia</td>
<td>255</td>
<td>+5%</td>
<td>403</td>
</tr>
<tr>
<td>West Europe</td>
<td>5.1 T</td>
<td>+54%</td>
<td>7.9 T</td>
</tr>
<tr>
<td>South Europe</td>
<td>2.9 T</td>
<td>+80%</td>
<td>5.3 T</td>
</tr>
<tr>
<td>North Europe</td>
<td>1.9 T</td>
<td>+51%</td>
<td>2.9 T</td>
</tr>
<tr>
<td>East Europe</td>
<td>1.677 T</td>
<td>-1%</td>
<td>1.660 T</td>
</tr>
<tr>
<td>North Africa</td>
<td>3.9 T</td>
<td>+71%</td>
<td>6.6 T</td>
</tr>
<tr>
<td>West Africa</td>
<td>506</td>
<td>+1%</td>
<td>511</td>
</tr>
<tr>
<td>East Africa</td>
<td>604</td>
<td>+75%</td>
<td>1.05 T</td>
</tr>
</tbody>
</table>
Cargo movement (Kgs): 2008–2019
### 4. Growth Rate

#### Air Cargo

Air Cargo expressed in TONS or thousand (T) TONS or million (M) TONS

<table>
<thead>
<tr>
<th>Region</th>
<th>2008</th>
<th>Change</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabian Peninsula</td>
<td>35.7 M</td>
<td>+58 %</td>
<td>56.4 M</td>
</tr>
<tr>
<td>Middle East</td>
<td>5.8 M</td>
<td>+146 %</td>
<td>14.4 M</td>
</tr>
<tr>
<td>South Asia</td>
<td>8.4 T</td>
<td>-90 %</td>
<td>0.87 T</td>
</tr>
<tr>
<td>West Asia</td>
<td>1.1 M</td>
<td>-97 %</td>
<td>31.3 T</td>
</tr>
<tr>
<td>West Europe</td>
<td>16.7 M</td>
<td>-8.8 %</td>
<td>15.2 M</td>
</tr>
<tr>
<td>South Europe</td>
<td>1.2 M</td>
<td>-4.9 %</td>
<td>1.1 M</td>
</tr>
<tr>
<td>North Europe</td>
<td>2.8 M</td>
<td>-36 %</td>
<td>1.8 M</td>
</tr>
<tr>
<td>East Europe</td>
<td>508.5 T</td>
<td>-49 %</td>
<td>257 T</td>
</tr>
<tr>
<td>North Africa</td>
<td>3.5 M</td>
<td>+65 %</td>
<td>5.8 M</td>
</tr>
<tr>
<td>West Africa</td>
<td>898.9 T</td>
<td>+130 %</td>
<td>2.1 M</td>
</tr>
<tr>
<td>East Africa</td>
<td>109.4 T</td>
<td>+259 %</td>
<td>393.3 T</td>
</tr>
</tbody>
</table>
Runways and Aircrafts
Improve the sustainability of the runways through predictive maintenance
AIRCRAFT MOVEMENT DISTRIBUTION BY TYPES

- Boeing 777: 1.42%
- Airbus 330: 2.236%
- Boeing 777-300ER: 2.239%
- Airbus 330-300: 2.96%
- Airbus 319: 3.41%
- Boeing 737-700: 3.70%
- Airbus 321: 6.35%
- Airbus 330-200: 8.18%
- Boeing 737-800: 10.94%
- Airbus 320: 41.43%
Potential future projects

- Distribution of pax by nationalities
- CO2 emissions,
THANK YOU