

KURDISTAN REGIONAL GOVERNMENT



SULAYMANIYAH INTERNATIONAL AIRPORT

MATS

APPENDIX " J "

**HUMAN FACTORS ISSUES AFFECTING
HUMAN PERFORMANCE IN AIR TRAFFIC
SERVICES**

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Appendix " J "
**HUMAN FACTORS ISSUES AFFECTING HUMAN
PERFORMANCE IN AIR TRAFFIC SERVICES**

Note. See the Human Factors Training Manual (Doc 9683) for more complete discussion of human performance in ATS.

1. Listed below are some of the more common Human Factors issues affecting human performance in the provision of ATS:

a. Physiological limitations:

- 1. vision — the ability to physically see events unfolding (e.g. from a control tower);**
- 2. hearing — the ability to discriminate different speech patterns in a noisy environment; and**
- 3. chronic fatigue affecting judgment, cognitive skills and memory;**

b. Psychological variables:

- 1. memory (essential to maintaining a three-dimensional picture of a dynamic situation);**
- 2. vigilance versus distractions and boredom;**
- 3. operating pressures (e.g. from supervisors, management and peers);**
- 4. motivation and frame of mind (perhaps affected by domestic or other outside pressures);**
- 5. stress tolerance (and consequential stress-related illnesses);**
- 6. judgement;**

7. habit patterns (e.g. taking procedural shortcuts); and

8. cultural diversity of the many users of the ATS system (such as military versus civilian, different companies, foreign versus domestic, and different languages and behavioural patterns) — all potentially capable of affecting the controllers' expectancy;

c. Equipment factors:

1. display design and workstation layout;

2. user-friendliness of software, including flexibility to adapt to changing situations; and

3. use of automation;

d. Information transfer problems:

1. frequency congestion;

2. call sign confusion;

3. hearing expectancy;

4. language comprehension and accent; and

5. use of non-standard phraseology;

e. Workload considerations:

1. volume and complexity of traffic;

2. number of sectors in use;

3. situational awareness (maintaining the “big picture”);

- 4. mental models used in decision-making (e.g. “rules of thumb”);**
- 5. time since last break;**
- 6. impact of shift work, scheduling and overtime; and**
- 7. chronic fatigue; and**

f. Organizational factors:

- 1. corporate safety culture;**
- 2. approach to teamwork (and use of team resource management (TRM));**
- 3. adequacy of training;**
- 4. controller experience, competence and currency;**
- 5. quality of first-line supervision;**
- 6. controller/management relationship;**
- 7. effective standardization of procedures and phraseology; and**
- 8. effective monitoring of day-to-day operations.**

2. As traffic volumes and complexity continue to increase, ATS supervisors, investigators of ATS occurrences and safety managers will be required to learn more about the effects of such Human Factors on the performance of ATS personnel.
