



# **NAMIBIAN CIVIL AVIATION AUTHORITY**

Advisory Pamphlet (AP)

ANSSO-AIS-AP175/01

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## **GUIDANCE ON THE ESTABLISHMENT OF AERONAUTICAL INFORMATION SERVICES ORGANISATION**

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# GUIDANCE ON THE ESTABLISHMENT OF AERONAUTICAL INFORMATION SERVICES ORGANISATION

## 1. PURPOSE

This Advisory Pamphlet (AP) provides guidance to AIS providers on the aeronautical information services organisation and facilities requirements to meet the requirements of the NAMCARs, Part 175 and the associated technical standards. The AP also provides information on AIS personnel requirements to meet organisational needs.

## 2. BACKGROUND

- (a) The NAM-CARs Parts 170 requires an ANS provider to maintain an appropriate organisation with sound and effective management structure to enable it to provide the services covered by its approval.
- (b) The NAM-CARs Parts 170 also requires an AIS provider to maintain an appropriate organisation that will enable it to provide the services in accordance with the requirements prescribed regulations taking into account facilities and equipment requirements of the air navigation services provided.
- (c) The NAM-CARs Parts 175 requires an AIS provider to provide and maintain adequate facilities and equipment necessary for providing the services listed in its manual of procedure, and to have in place appropriately trained and competent staff to provide the services.
- (d) Below are the extracts from the Civil Aviation Regulations to which this Advisory Pamphlet apply.

## 3. EXTRACTS FROM NAM-CARS, PART 170 – AIR NAVIGATION SERVICES GENERAL

**170.05.1** An ANS provider must, at all times, maintain an appropriate organisation with a sound and effective management structure to enable it to provide the air navigation service covered by its certificate and in accordance with requirements prescribed in this Part and the relevant part of the ANS Parts.

## Accommodation of air navigation services facilities

- 170.05.3** An air navigation service provider must satisfy the Executive Director that –
- (a) it has adequate facilities for all services to be performed under its certificate;
  - (b) the working environment is appropriate for each task carried out and, in particular, complies with requirements covered under its certificate;
  - (c) appropriate office accommodation is provided for the administration of the services performed including the administration of the organisation's safety, operational and planning functions and for maintenance of technical records;
  - (d) appropriate storage facilities are provided for, equipment, tools and materials required by the organisation.

## 4. EXTRACTS FROM NAM-CAR, PART 170 – AERONAUTICAL INFORMATION SERVICES

### TRAINING AND CHECKING PROGRAM

**170.05.4** (1) Each ANS provider must, in accordance with the requirements set out in the relevant part of the ANS Parts, implement a training and checking programme to ensure that an individual performing a function in connection with any air navigation service is competent and holds the appropriate qualification to perform the duties which he or she is assigned.

- (2) An individual is considered to be competent as required by subregulation (1), if that individual is -
- (a) licensed where the function can only be performed by the holder of a license;
  - (b) certified where the function can only be performed by the holder of a certificate;
  - (c) rated and validated, where the function can only be performed by the holder of an appropriate rating and validation;
  - (d) endorsed, where the function can only be performed by the holder of an appropriate endorsement;
  - (e) qualified, where the function can only be performed by the holder of an appropriate qualification;

- (f) appropriately trained and assessed to be proficient in the performance of their functions;
- (g) up-to-date with the current knowledge, skills and information that is or are necessary for the performance of his or her functions; and
- (h) has knowledge and skills in emerging matters identified as essential to task performance.

(3) An ANS provider must develop a comprehensive training and checking programme to be approved by the Executive Director, that includes, initial, on-job-training, currency and recurrency, specialised and management training to ensure that each member of the technical personnel maintain the appropriate level of qualification.

(4) An ANS provider must -

- (a) carry out training needs assessment to determine individual training needs;
- (b) develop periodic training plans for each technical personnel providing an air navigation service at each ANS unit based on the training programme; and
- (c) maintain training records for each technical personnel providing an air navigation service at each ANS unit, including records of trainings attended and the dates of training.

(5) In developing training programmes and plans, an ANS provider must consider

- (a) the human factors and human performance requirements for the provision of each air navigation service;
- (b) skills, knowledge and attitudes requirements for each air navigation position; and
- (c) competency requirements for each air navigation position.

### **ANS PROVIDER FACILITIES AND EQUIPMENT**

**175.03.6** An AIS provider must provide and maintain adequate facilities and equipment necessary for providing the services listed in its manual of procedure, including -

- (a) providing premises and equipment appropriate for the AIS provider's employees to carry out their work; and
- (b) ensuring that employees have access to all necessary aeronautical data and aeronautical information.

## **GUIDANCE ON ESTABLISHMENT OF AERONAUTICAL INFORMATION SERVICES ORGANISATION**

### **1. Introduction**

1.1 The objective of aeronautical information services is to ensure the flow of information necessary for the safety, regularity and efficiency of international civil aviation. AIS is

responsible for the aeronautical information it provides to the users of the information. The users of aeronautical information include pilots, air traffic services and those engaged in airline operational control, chart and document producing agencies. It is essential that AIS be appropriately established within the civil aviation administration with the necessary powers and/or authorities to provide services efficiently and effectively on behalf of the State.

- 1.2 NAM-CARs Part 175 prescribes the rules, regulations and minimum standards for the provision of aeronautical information services in Namibia. The objectives and the functions of AIS cannot be satisfactorily accomplished unless there is an organization through which the objectives and functions can be achieved and executed.
- 1.3 The volume of aircraft operations and the extent to which civil aviation facilities are provided will determine the size and scope of the AIS. The amount of information to be processed and the responsibilities of the AIS provider will depend on the services listed in its manual of procedure.

## **2. Working arrangements of an AIS organisation**

- 2.1 One of the main considerations that underline efficient working arrangements and which contribute to a sound organization is the ability of the AIS headquarters to coordinate with:
  - a) related technical services;
  - b) the international NOTAM office (NOF);
  - c) aerodrome/heliport AIS units;
  - d) cartographic services;
  - e) printing and distribution service
- 2.2 Another consideration for efficient working arrangements is the availability of efficient communication facilities, particularly teletypewriter links, telefax and connection to the Internet (e-mail) for this coordination to function effectively

## **3. Liaison with related service**

- 3.1 In order to fulfil efficiently the dual role of collecting and distributing information from and to all concerned, an AIS must also establish and maintain a direct and continuous liaison with related services, as follows:

- a) the AIS of other States from which it is necessary to receive information to meet operational requirements within the State for pre-flight information;
- b) technical services within the State that are directly concerned with the provision and maintenance of the various air navigation facilities, services and procedures — this, in turn, is necessary to ensure timely distribution of all significant information both within the State and to other States as required;
- c) military services within the State, as necessary, to receive and distribute information concerning navigation warnings (military exercises, etc.) or any special military facilities or procedures available to or affecting civil aviation;
- d) air traffic services within the State, to ensure immediate transmission of all required information to services for air traffic control and for in-flight information purposes;
- e) all aircraft operating agencies conducting operations in or through the State, to ensure that pre-flight information requirements are adequately met; and
- f) any other services that may either be a source of information of interest to civil aviation or have a
- g) legitimate reason for requiring information about civil aviation

#### **4. Organisation of the International NOTAM office**

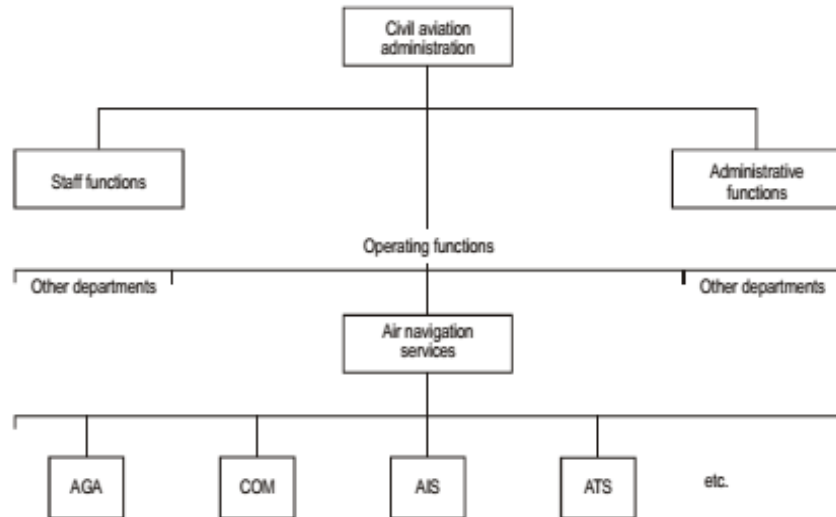
- 4.1 NAM-CATS-AIS defines an international NOTAM office (NOF) as an office designated by a State for the exchange of NOTAM internationally. NAM-CAR Part 175 further requires that an aeronautical information service must arrange, as necessary, to satisfy operational requirements, for the issuance and receipt of NOTAM distributed by telecommunication.
- 4.2 The NOF must be connected to the aeronautical fixed service (AFS), and to the following points within the Namibia for which it provides service:
  - a) area control centres and flight information centres; and
  - b) aerodromes/heliports at which an information service is established in accordance with the provisions of the NAM-CAR, Part 175.
- 4.3 The connection in 4.2 above must provide for printed communications.
- 4.4 For organizational purposes the NOF needs to be staffed on a 24-hour basis, it being the focal point within the State for the issuance and receipt of NOTAM to and from other States, except where a 24-hour service is not provided as referred to in 5.1 below.

## **5. Availability of service**

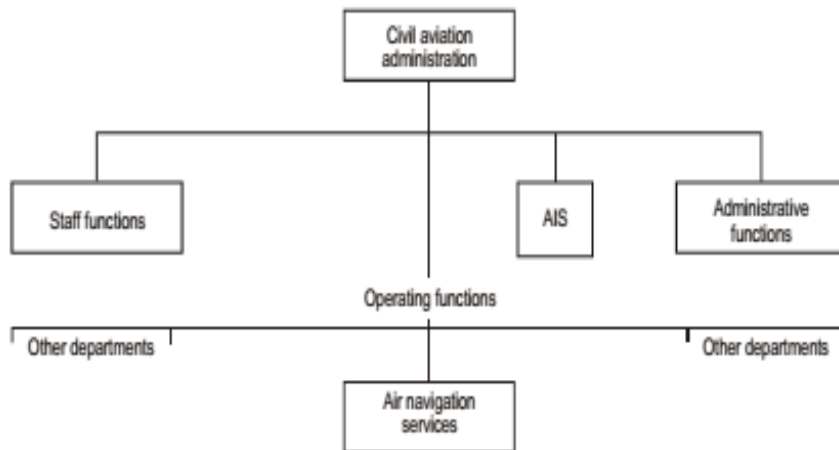
- 5.1 AIS providers are required to meet the provision of the AIS regulations (NAM-CAR, NAM-CATS) in providing aeronautical information services to civil aviation. It would be impossible for an AIS provider to meet the need for in-flight information as provided for in the regulations unless the service is available during the period when an aircraft is in flight in its area of responsibility. Further, the requirement for an AIS provider to satisfy operational requirements for the issuance and receipt of NOTAM distributed by telecommunication implies extension of service to meet the operational requirements whenever necessary. In accordance with the NAM-CAR Part 175, where 24-hour service is not provided, service must be available during the whole period an aircraft is in flight in the area of responsibility of an AIS provider, plus a period of at least two hours before and after an aircraft enters or leaves the area of responsibility.
- 5.2 The regulations also provide that aeronautical information service must be available at such other time as may be requested by any ground organization legitimately requiring aeronautical information necessary for the safety, regularity or efficiency of international flight operations, provided that the information sought falls within the responsibility of the service and is relative to a route stage originating at an aerodrome/heliport within the AIS area of responsibility. Units affected by such extensions of service would normally be the NOF(s) and any aerodrome/heliport AIS unit concerned with the flight operation.

## **6. Line structure and information flow**

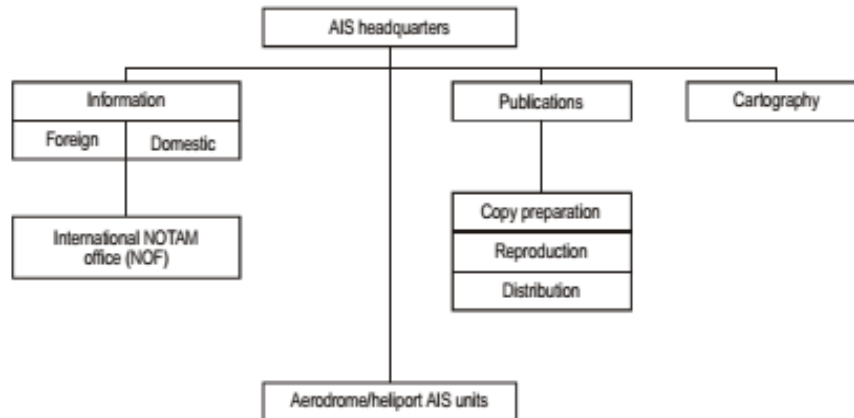
- 6.1 The figure below provides an example of the general location of an AIS organisation where it is placed within the air navigation services organisation:



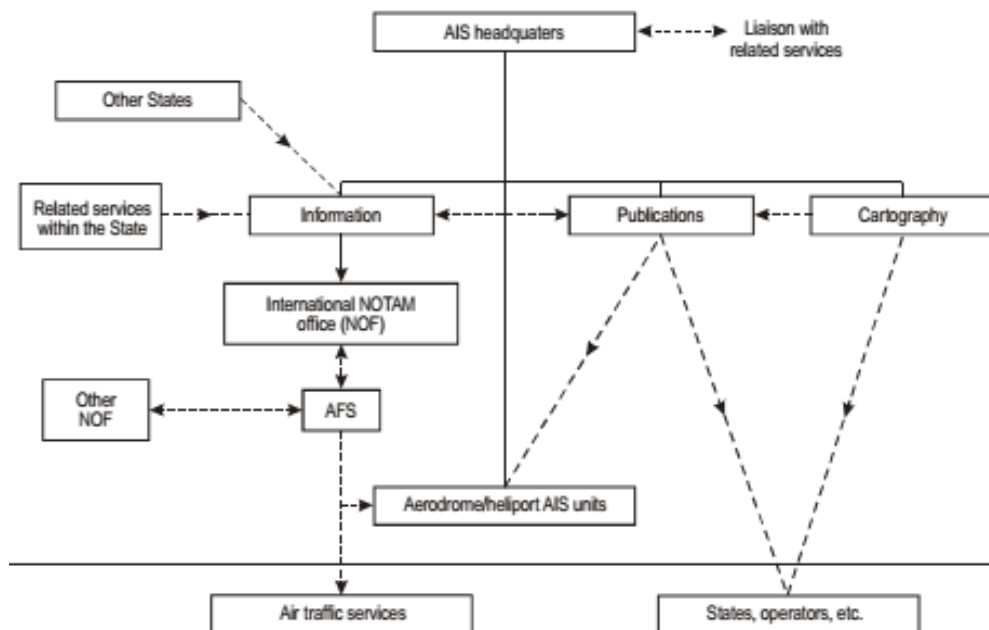
6.2 Alternatively, AIS may be located as a distinct department under the CAA as depicted in the example below:



6.3 The figure below provides an example of an AIS organisation chart:



6.4 The figure below provides an example of the AIS information flow chart:



6.5 The figures may be adapted to meet the local needs. For example, the smaller aviation administration may find it more convenient and economical to locate the whole AIS organization at the main international airport. Having the AIS headquarters and the NOF at one location facilitates the receipt, checking and dispatch of information. It also reduces the number of units to be administered separately, as well as the number of records and reference documents that have to be maintained. Such collocation thus introduces savings. Also, printing and distribution services are normally quicker and

more economical if they are placed under the direct control of AIS, either within the AIS organization or by means of local contract.

## 7. Availability of resources

7.1 As with any other aeronautical service, adequate resources are essential to AIS. Highly skilled and competent staff in sufficient numbers, suitable accommodation and the necessary equipment are prerequisites to expeditious provision of accurate aeronautical information.

## 8. Training resources

8.1 An AIS provider may ensure regularity and efficiency in the flow of aeronautical information. Aeronautical information provided should be uniform, consistent and accurate as corrupt or erroneous aeronautical information or data can potentially affect the safety of air navigation. To satisfy this need the AIS provider must ensure AIS personnel are adequate and are appropriately trained and meet the required competencies.

8.2 An AIS provider must establish knowledge, skills and attitude requirements for its technical staff. Section 13 of this AP contains guidance on training of AIS technical personnel.

## 9. Minimum requirements for staff and accommodation

9.1 The Table below provides a general guide on the minimum requirements for AIS staffing and accommodation:

	Technical officers	Clerical officers	Space in square metres (square feet)
<b>Headquarters</b>			
Large	3	3-6	28-93+ (300-1 000+)
Small	2	1-2	14 (150)
<b>NOTAM office (24 hours)</b>			
Large	5-6	3	28-37 (300-400)
Small	4	1	14 (150)

<b>Aerodrome/heliport AIS unit</b>			
major airport (24 hours)	5-6	5-6	28+ (300+)
airport (limited hours)	2+	2+	14 (150)

## 10. Minimum facilities and equipment

10.1 The following minimum facilities and equipment, in addition to basic office furniture and stationery, may be provided for the AIS headquarters:

- a) personal computers (PCs) for each post, printer and connection to the Internet
- b) photocopying equipment
- c) teletypewriter terminal (AFS/AFTN connection)
- d) telephones
- e) telefax equipment
- f) clock.

10.2 The following minimum facilities and equipment, in addition to basic office furniture and stationery, may be provided for each NOF and aerodrome/heliport AIS unit:

- a) adequate table/counter space for processing information
- b) adequate filing/card index systems
- c) full teletypewriter service (receive and transmit) linked to the AFS
- d) Effective network (LAN) linked to the AFTN
- e) adequate computers for data processing
- f) network printers
- g) scanners
- h) Internet connection
- i) photocopier
- j) telephone (fixed lines and mobile lines)
- k) telefax equipment
- l) plotting table
- m) a reliable clock and, for the NOF, a time-stamp clock, both showing UTC and, where appropriate, a second clock showing local time
- n) reference charts and documents required for consultation and pre-flight briefing.

10.3 The following minimum facilities and equipment, in addition to basic office furniture and stationery, may be provided for the AIS Cartographic unit:

- a) Adequate desktop Computers (PCs) for data processing
- b) Effective network (LAN) linked to the AFTN
- c) Network Printers
- d) Effective internet connection
- e) Aeronautical Data and Information Management Systems (AIP, Charting Systems, Procedure design expert software)
- f) CD duplicators/writers
- g) Plotting table
- h) Photocopy
- i) Plotter
- j) Telephones
- k) Fax
- l) Scanner
- m) Clock
- n) Digitizing tables

## **11. Arrangements for exchange of information with other States**

- 11.1 NAM-CAR Part 175 requires that an AIS provider promptly provide the AIS of other Contracting States with any aeronautical information required by them.
- 11.2 The AIS provider may designate an office or offices to which all elements of the Integrated Aeronautical Information Package originated by other States are to be addressed. This must be published in the GEN part (GEN 3.1) of the aeronautical information publication (AIP). Such office(s) must have the authority and be equipped to deal with requests for information from other States. At least one copy of all elements of the Integrated Aeronautical Information Package in paper, electronic form or both must, on request, be made available without charge to the AIS of other Contracting States. It is usually sufficient to directly approach the AIS of another State to arrange for the necessary copies of AIP, AIP Amendments and Supplements, aeronautical information circulars (AIC), checklists and lists of valid NOTAM and to be placed on their NOTAM distribution list.
- 11.3 In general, the aim of these arrangements should be to:
- a) establish the levels and sources from which information can be gathered reliably;

- b) ensure that new or changed information is promptly made available to the AIS headquarters for processing and distribution, with special regard to the requirements of the AIRAC system of advance notification; and
- c) ensure accuracy in the raw data notified to the AIS as well as immediate notification of errors or omissions in published aeronautical information.

#### **11.4 Designation of channels**

11.4.1 Arrangements with other States may provide for a single channel to be used for the flow of all information required. This may include, for example, topographic data necessary for the preparation of aeronautical charts. Elements of the Integrated Aeronautical Information Package delivered to foreign subscribers may, however, be sent directly to the subscriber's address. NOTAM are exchanged between NOTAM offices via the AFS.

#### **11.5 Preservation of channels**

11.5.1 Wherever possible the exchange of aeronautical information may continue even when the State of Namibia finds itself temporarily in diplomatic disagreement with another State. It must be borne in mind that the information is required not only for the national airlines of Namibia but also for international operators flying routes that connect with other States. Existing channels of communication may therefore be guarded in the light of international obligations.

#### **11.6 Substitute sources**

11.6.1 It may be necessary for the AIS provider to find a substitute source of information where information is required from a State that has not yet produced an AIP. Such sources may include NOTAM, if they are issued. If nothing is published by the civil aviation administration of such States, useful information can often be obtained from military handbooks or manuals produced by private aeronautical service agencies or by airlines. It may be borne in mind, however, that such information may often be abbreviated and intended only for certain types of operations. Furthermore, such information is likely to contain little or nothing relating to formalities and procedures associated with international traffic and accordingly it may be treated with reservation.

## **12. Basic Reference material (Publications of ICAO and other international organisations) to be kept by AIS.**

- 12.1 AIS may maintain certain ICAO documents for reference purposes, both at the AIS headquarters and at aerodrome/heliport AIS units.
- 12.2 AIS may maintain ICAO Annexes together with all related ICAO procedures for air navigation services, documents, and manuals.
- 12.3 Additionally, a number of facility and service documents of worldwide coverage and Air Navigation Plan Publications for each ICAO region may be kept by AIS. The ANS Plans provide useful information on major facilities planned for international air navigation and give a general picture of the facilities that require inter-State coordination, such as high frequency radiotelephony networks.
- 12.4 A number of publications of other international organizations concerned with certain aspects of aviation also provide useful reference material, e.g.:

### ***International Air Transport Association (IATA)/International Aeradio Limited (IAL)***

- a) IATA/IAL Air Distance Manual;

### ***International Telecommunication Union (ITU)***

- a) List of Broadcasting Stations Operating in Frequency Bands below 5950 kHz;
- b) List of Radio determination and Special Service Stations (ITU List VI);
- c) Radio Regulations; and
- d) Telegraph Regulations

### ***World Meteorological Organization (WMO)***

- a) Weather Reporting — WMO— No. 9. TP. 4
- (i) Volume A — Observing Stations
- (ii) Volume C — Transmission
- b) Manual on Codes
- (i) Volume I.1 — International Codes
- (ii) Part A — Alphanumeric Codes— WMO No. 306

## **13. AIS Personnel requirements**

## 13.2 General

13.2.1 It is essential for the AIS provider to determine the knowledge and skills requirements and develop a training program for the technical personnel engaged in the provision of aeronautical information services and aeronautical charts (cartographic services). The programme may include initial, OJT, recurrent and refresher training.

## 13.3 Training, Experience and competency

13.3.1 When determining the scope and depth of skills required of AIS personnel, the AIS provider must analyse the duties and tasks required of them to ascertain the requisite training and experience for effective execution of duties. This information must be provided by the in the provider's manual. The AIS provider must also develop for the technical staff job descriptions and a training programme while ensuring that all training records for AIS and cartographic personnel are maintained as provided for in 13.5 below.

## 13.4 Applicable courses

13.4.1 The following courses are given as a guideline towards the nature of training that need to be extended to AIS personnel so that they can be able to perform the tasks as assigned competently. This list is not exhaustive and thus the AIS provider is encouraged to offer trainings to their staff as need arises and taking into consideration current trends in the industry.

### 1) **Initial Training**

- a) AIS induction
- b) Basic AIS Course (ICAO 021)
- c) AIS Automation

### 2) **Specialised (Further) Training**

- d) Geographic Information Systems
- e) Conventional Cartography
- f) Aeronautical Digital Cartography
- g) Safety Management System
- h) Quality Management Systems
- i) Instructor's Development programme

- j) AIXM Database
- k) AIP/MAP Management
- l) AIS Supervisory Management
- m) ICAO PANS – OPS Instrument Procedures Design
- n) Customer Care
- o) GNSS Concepts
- p) Performance Based Navigation
- q) Training Developers Course

### 3) ***Recurrent Training***

- r) AIS/MAP Refresher
- s) Human Factors
- t) Change Management
- u) Management Courses

## **13.5 Experience and Competency**

13.5.1 The AIS provider is required to:

- a) Only deploy officers who have undergone the requisite training/OJT programme and have been duly designated as competent in the respective disciplines that they must be offering the services.
- b) Ensure that initial and periodic assessments are established that require personnel to demonstrate the required skills and competencies.

## **13.6 Personnel adequacy**

13.6.1 Section 9 of this AP provides a general guide on determining staffing needs for an AIS organisation. While Section 9 provides for clerical officers within the AIS provider organisation, this role can form part of the AIS technical personnel functions.

13.6.2 The AIS personnel requirements for a particular AIS unit must be determined in such a way that the numbers are sufficient and conducive to support all the services offered at the unit. These may vary from airport to airport but must generally depend on the following factors:-

- a) The volume of aircraft operations

- b) Extent to which civil aviation facilities are provided in the state
- c) Amount of information to be processed (scope)
- d) Hours of service/watch
- e) The level of automation of the AIS/MAP systems