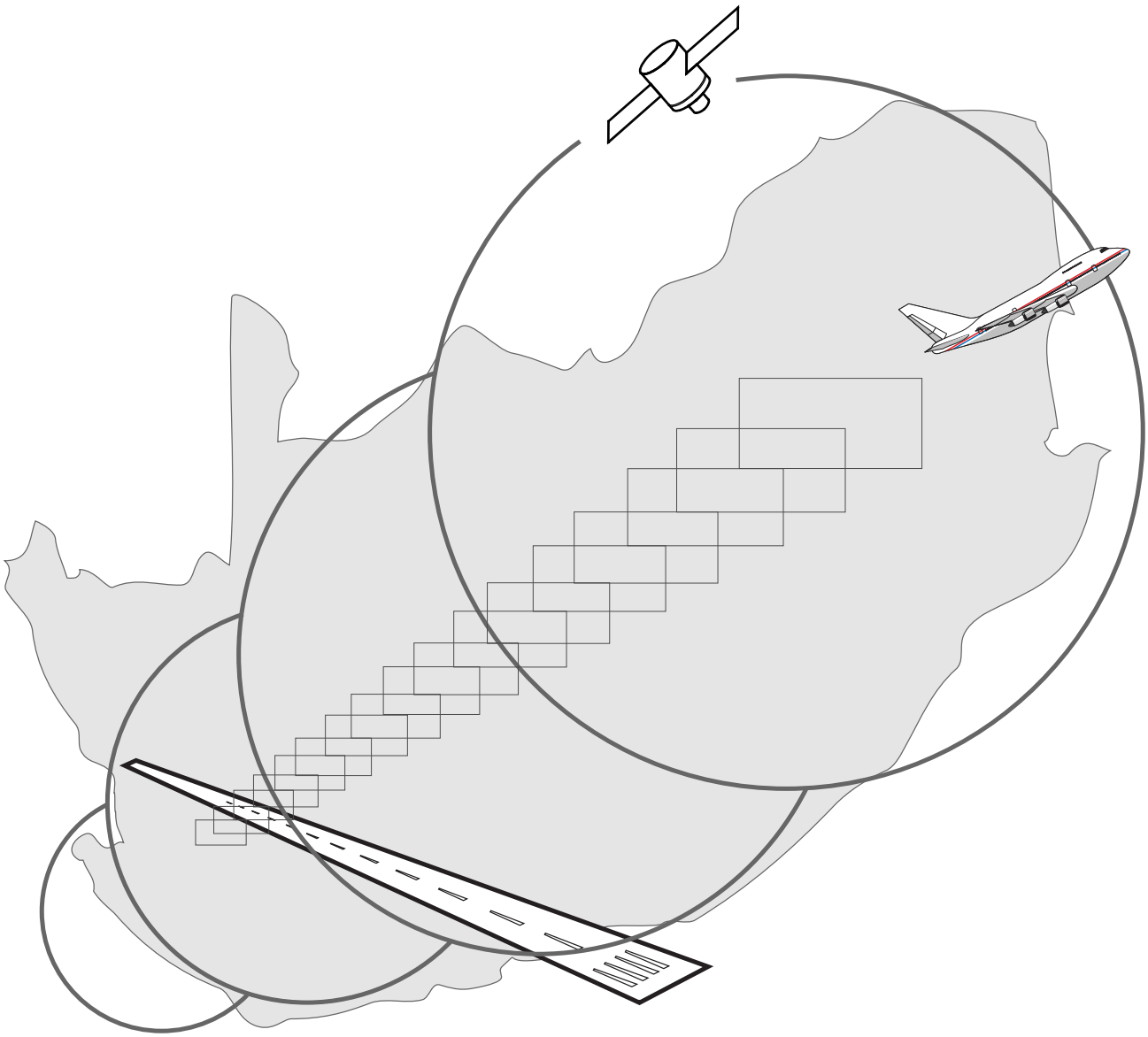
NATIONAL AIRSPACE MASTER PLAN 2000 - 2010

Edition 1



CONTENTS

ACRONYMS AND ABBREVIATIONS

A

AAC	Aeronautical Administrative Communications
AAIM	Aircraft Autonomous Integrity Monitoring
ABAS	Aircraft Based Augmentation
ACARS	Aircraft Communication Addressing and Reporting System
ACAS	Airborne Collision Avoidance System
ACC	Area Control Centre
ADIZ	Air Defence Identification Zone
ADS	Automatic Dependent Surveillance
ADS-B	ADS-Broadcast
AFI	ICAO Africa Region
AFS	Aeronautical Fixed Service
AFTN	Aeronautical Fixed Telecommunication Network
AIDC	ATS Inter-facility Data Communications
AIP	Aeronautical Information Publication
ARINC	Aeronautical Radio Incorporated
AIRMET	Information concerning en route Weather phenomena which may affect the safety of low-level aircraft operations
AIS	Aeronautical Information Service
AMC	Air Management Cell
AMS	Aeronautical Mobile Service
AMSS	Aeronautical Mobile-Satellite Service
ANP	Regional Air Navigation Plan
ANS	Air Navigation Services
AORRA	Atlantic Ocean Random Routing Area
APIRG	AFI Planning and Implementation Regional Group
APP	Approach
ASDE	Airport Surface Detection Equipment
ASM	Airspace Management
ATC	Air Traffic Control
ATCO	Air Traffic Controller
ATFM	Air Traffic Flow Management
ATIR	Air Traffic Incident Report
ATIS	Automatic Terminal Information Service
ATM	Air Traffic Management
ATN	Aeronautical Telecommunication Network
ATNS	Air Traffic and Navigation Services Company Limited
ATS	Air Traffic Services
ATSC	Air Traffic Services Communications
ATSU	Air Traffic Service Unit
ATZ	Aerodrome Traffic Zone

C

CAA	Civil Aviation Authority
CAR	Civil Aviation Regulations
CATS	Civil Aviation Technical Standards
CCA	Commissioner for Civil Aviation

CBA	Cost Benefit Analysis
CDTI	Cockpit Display of Traffic Information
CFIT	Controlled Flight Into Terrain
CFMU (CAMU)	Central Flow Management Unit (Central Airspace Management Unit)
CNS	Communication, Navigation, Surveillance
CNS/ATM	Communication, Navigation, Surveillance / Air Traffic Management
COM	Communications
CPDLC	Controller Pilot Data Link Communication
CTA	Control Area
CTR	Control Zone

D

DME	Distance Measuring Equipment
DFIS	Digital Flight Information Service
DOC	Document

F

FAD	Danger Area
FANS	Future Air Navigation Systems
FAP	Prohibited Area
FAR	Restricted Area
FASID	Facilities and Services Implementation Document
FDPS	Flight Data Processing System
FIC	Flight Information Centre
FIR	Flight Information Region
FIS	Flight Information Service
FMS	Flight Management System
FUA	Flexible Use of Airspace

G

GBAS	Ground-Based Augmentation System
GES	Ground Earth Stations
GLONASS	Global Orbiting Navigation Satellite System
GPSMU	Global Positioning System Monitoring Unit
GNSS	Global Navigation Satellite System
GPS	Global Positioning System

H

HF	High Frequency
HFDL	High Frequency Data Link
HMI	Human-Machine Interface
HMU	Height Monitoring Unit

I

ICAOPA	International Council of Aircraft Owner and Pilot Associations
IATA	International Air Transport Association

ICAO	International Civil Aviation Organisation
ICG	Implementation Co-ordination Group
IFR	Instrument Flight Rules
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions
INS	Inertial Navigation System
ITU	International Telecommunication Union

J

JOC	Joint Operational Centre
JOPS	Joint Operations

L

LAAS	Local Area Augmentation System

M

MASPS	Minimum Aircraft System Performance Specifications
MET	Meteorological Services for Air Navigation
MMR	Multimode Receiver
MNT	Mach Number Technique

N

NAV	Navigation
NDB	Non Directional Radio Beacon
NM	Nautical Miles
NOTAM	Notice to Airmen
NDOT	National Department of Transport
NASCOM	National Airspace Committee

O

OACC	Oceanic Area Control Centre
OLDI	On-line Data Interchange
OPAS	Operational Assistance

P

PANS	Procedures for Air Navigation Services
PANS-RAC	Procedures for Air Navigation Services - Rules of the Air and Air Traffic Services (Doc 4444)
PIRG	Planning and Implementation Regional Group
PSR	Primary Surveillance Radar

R

R&D	Research and Development
RAFC	Regional Area Forecast Centre
RAIM	Receiver Autonomous Integrity Monitoring
RAs	Resolution Advisories
RCC	Rescue Co-ordination Centre

RCP	Required Communication Performance
RF	Radio Frequency
RFI	RF Interference
RNAV	Area Navigation
RNP	Required Navigation Performance
RSC	Rescue Sub-Centre
RSP	Required Surveillance Performance
RTSP	Required Total Systems Performance
RVSM	Reduced Vertical Separation Minimum

S

SAAF	South African Air Force
SAR	Search and Rescue
SARPS	Standards and Recommended Practices
SACAA	South African Civil Aviation Authority
SANDF	South African National Defence Force
SBAS	Satellite-Based Augmentation
SIGMET	Information concerning en route Weather phenomena which may affect the safety of aircraft operations
SITA	Societe De Telecommunications Aeronatiques
SMGCS	Surface Movement Guidance and Control Systems
SMR	Surface Movement Radar
SSR	Secondary Surveillance Radar
SUA	Special Use Airspace

T

TAF	Aerodrome Forecast
TMA	Terminal Manoeuvring Area/Terminal Control Area
TWR	Tower

U

UIR	Upper Information Region
UTA	Upper Terminal Area

V

VDL	VHF Digital Link
VFR	Visual Flight Rules
VHF	Very High Frequency
VMC	Visual Meteorological Conditions
VOLMET	Meteorological Information for Aircraft in Flight
VOR	VHF Omnidirectional Radio Range

W

WAAS	Wide Area Augmentation System
WAFC	World Area Forecast Centre
WAFS	World Area Forecast System
WGS	World Geodetic Survey

GLOSSARY

Seamless Airspace	-	Airspace without any visible boundaries or restraints to the operator.
Random Routing Area	-	An area in which a particular flight may route as deemed most efficient by the operator and in collaboration with the service provider.
Flex Tracks	-	An Ad-hoc RNAV route, published for a specific period, based on the use of the most current information in order to provide the best possible efficiency under the prevailing circumstances.
Master Plan	-	The National Airspace Master Plan describing the physical composition and organisation of the airspace present and future.
Project FAME	-	A project commenced by ATNS to ensure Future Airspace Management Efficiency.

PREFACE

This document describes the proposed National Airspace Master Plan to meet the requirements of South Africa until the year 2010. The Master Plan is compiled in accordance with the policy statement in the National Policy on Airports and Airspace Management. The policy statement states that "ATNS should be responsible for compiling, in consultation with stakeholders and ATS providers, a National Airspace Master Plan for approval by the Civil Aviation Authority (CCA) on recommendation from (NASCOM). In approving such a Master Plan, the CCA should also consult with the various stakeholders through NASCOM."

The intention of this Master Plan is to provide a consolidated agreed to, set of principles and guidelines along which the industry can plan, within the vision of the global, regional and national service provision.

The National Airspace Master Plan describes the organisation and where appropriate, the physical construction of the airspace, associated services and responsibilities up until 2010 in order to accommodate the expected traffic growth and complements regional (FASID) and global plans.

The organisation of airspace needs to be reviewed in order to ensure optimum implementation of the CNS/ATM systems.

The Global Air Navigation Plan for CNS/ATM Systems is defined as, Communications, Navigation and Surveillance systems, employing digital technologies, including satellite systems together with various levels of automation, applied in support of a seamless global air traffic management system.

The Strategic Vision is to foster implementation of a seamless, global air traffic management system that will enable aircraft operators to meet their planned times of departure and arrival and adhere to their preferred flight profiles with minimum constraints and without compromising agreed levels of safety.

The Mission for implementation is to develop a seamless, globally co-ordinated system of air navigation services that will cope with worldwide growth in air traffic demand while:

- improving upon the present levels of safety;
- improving upon the present levels of regularity;
- improving upon the overall efficiency of airspace and airport operations, leading to increased capacity;
- increasing the availability of user-preferred flight schedules and profiles; and
- minimising differing equipment carriage requirements between regions.

BACKGROUND

WHY THE NEED FOR A NATIONAL AIRSPACE MASTER PLAN

The sovereign airspace of the RSA is a national resource which must be used on a non-discriminatory basis to the benefit of South Africa as a whole. In order to ensure that the airspace is constructed correctly, utilized efficiently and keeps pace with the demands of the fast moving technology it is essential that there be a Master Plan to guide the process. This was recognized by the NDOT as far back as 1996 and documented as a National Policy. The long lead times involved in introducing new airspace and airspace changes require the commitment of all those involved in aviation in Southern Africa in order for the Master Plan to be realized by 2010. In summary the Master Plan will ensure a uniform approach and stepped evolutionary change. The Master Plan will be in line with global and international requirements and accommodate the development and implementation of new technology with due regard for the current situation and limitation.

THE NEED FOR CHANGE

The expanding air transport system, coupled to the limitations of the existing system, is the direct cause for growing airspace congestion and the need for change. The pressure for sustained growth should be accommodated at an acceptable cost to aviation. Delays, shortfalls and limitations must be addressed by a change to the present airspace organisation and the management thereof. Aviation in general has a requirement for change to meet their needs and this should be accommodated in the Master Plan.

Over the last ten years the Aviation Industry has become increasingly sensitive not only to direct operating costs but also the costs associated with air traffic services. Partly as a consequence of this, there has been a substantial and rapid development in the sophistication of both, regular public transport and general aviation aircraft, leading to an increasing demand for direct routing, flight level optimization, improved en route fuel management and efficient en route and terminal airspace flow control. As with many other states, the RSA is dependent on aviation operating efficiency and productivity which must therefore be planned for. The plan which is emerging is requiring the consolidation of the FIR's and the rationalization of all other airspace to cater for more efficient operations.

An extract from the Rio Declaration re-enforces the need for change and to stay in step with world developments as a signatory to the Convention.

"The Conference declared that increasing levels of co-operation will be necessary at the national, regional and global levels to ensure transparency and interoperability between CNS/ATM system elements so that the goal of a seamless, global air traffic management system could be achieved."

AIM

The aim of the National Airspace Master Plan is to provide South Africa with a National airspace planning programme meeting the Standards and Recommended Practices of ICAO and the reasonable expectations of all users up until 2010.

OBJECTIVES

To service the Oceanic airspace in accordance with ICAO SARPS in such a way that it meets the requirements of all users and particularly, the international community.

To consolidate the current five continental FIR's into more efficient entities with due regard for ICAO SARPS in such a way that it meets the requirements of all users and at the same time increases efficiency.

To rationalize all managed airspace in accordance with ICAO SARPS in such a way that it meets the requirements of all users by a consultative process, strategically and tactically.

To minimize all Permanent Prohibited, Restricted and Danger areas in accordance with ICAO SARPS and to facilitate the FUA to the benefit of all users.

To continually maintain information (unregulated) airspace in accordance with ICAO SARPS in such a way that it meets the requirements of all users.

The Master Plan will also contribute to:

- **Safety:** reduce the total number of Air Traffic incidents.
- **Capacity:** reduce the level of Air Traffic Management induced delays to an acceptable level in normal circumstances.
- **En route:** increase the capacity in line with traffic forecasts to ensure that ATM induced delays are not a significant constraint.
- **Airports:** increase arrival and departure rates.
- **Flight Efficiency:** increase significantly the percentage of flights that are able to follow their preferred flight profiles and schedules.
- **Cost-effectiveness:** assist in making flight more cost effective.
- **Environment:** assist in reducing the impact of noise and emission pollution.
- **National Security:** cater for National Security requirements and to be supportive of the military environment.
- **Uniformity:** increase the realization of common projects wherever beneficial to minimize the use of specific local procedures not transparent to airspace users.

LEGISLATION

Guided by the National Policy adequate legislation is currently available in the form of the Civil Aviation Regulations concerning the designation and classification of airspace. This legislation, together with the SARPS, will assist in the realization of the plan.

STEPPED EVOLUTIONARY CHANGE

The main focus of the Master Plan is for a structured route for development and change which will lead to airspace organisation able to accommodate the new technology to the benefit of users.

The Master Plan is designed to introduce a stepped approach to facilitate the process towards autonomous flight in a seamless airspace and increased traffic volume, whilst producing tangible and early benefits for airspace users, as the technology develops.

A number of airspace changes will be directed by the implementation of the Master Plan, this will be based on considerations for both, ground and airborne equipment.

For reasons of safety, cost and risk containment, the introduction of changes has to be based on a process of evolution and not revolution. This will be attained through continual client contact and feedback from the operational environment (Trials and Demonstrations).

The changes introduced must fit within the parameters of the ICAO CNS/ATM global strategy, the national policy and remain in step with ICAO standardization plans, to ensure harmonization with adjacent airspace. As far as is practicable, the varying needs of the different users will be taken into account and where possible, accommodated.

STAKEHOLDERS

The Master Plan must be supported by and has included consultation with the following Stakeholders

ACSA
Airline Operators
ALPA
AOPA
ATNS
(ATNS OPSCOM which includes IATA)
CAA
CAASA
General and Commercial Aviation
NDOT
NIDS
SAAF
SANDF
The Aeroclub of South Africa

Although the above is not a definitive list, the South African Government by way of the Minister of Transport, being the sole shareholder of ATNS and custodian of RSA's responsibilities to the international community in terms of the Convention, airport owners/ operators, air travellers and the general community, must also be seen as stakeholders.

AIRSPACE PLANNING

Airspace planning will always form an integral and on going process which will flow out of the Master Plan. It is therefore necessary that there be a structure and explanation of the process in the Master Plan to accommodate and guide this evolution.

The primary aim of airspace design is to compliment the Master Plan and provide an environment in which safe and efficient aircraft operation can take place. This would include navigation along the intended flight path, obstacle avoidance and assurance of separation standards.

The three main interdependent parameters which must be taken into account when designing airspace to compliment the Master Plan are:

- Aircraft navigation performance.
- Ground and airborne communication performance.
- Available surveillance.

The main elements in the design phase should include:

- Identification of the need to create or change airspace.
- Designing the proposal to satisfy the need.
- Presentation of the proposal for user comment.
- Modification of the proposal if necessary.
- Implementation of the proposal and monitoring the success.

In determining the proposed airspace the following should be considered:

- The benefits for the operation to be derived from the change.
- The impact the change will have, subsequent retraining and implementation time.
- A favourable balance of benefits for both operator efficiency and safety assurance.
- Statistical data on aircraft movements associated with the airspace.

In planning an airspace there should always be three points which both the designer and the NASCOM should consider.

- The airspace should not be exploited by a single party.
- The airspace must be equitably shared by all those who have a legitimate requirement for its use.
- The airspace cannot be planned in isolation.

PLANNING TARGETS

The timetable for the implementation of relevant airspace design on an evolutionary basis for the eventual fulfilment of the Master Plan up until 2010 is as proposed hereafter.

AIRSPACE	RESPONSIBLE	DATE
Rationalisation of the FIR's	ATNS	1- 01- 2003
Implementation of the AORRA	ATNS	1- 01- 2002
Implementation of a basic CFMU (CAMU)	ATNS	1- 03- 2001
Implementation of annual airspace audit	NASCOM	1- 03- 2000
Procedures for temporary special use airspace and briefings	NASCOM	1-03- 2000
Withdrawal of Permanent FAR's (and FAD's)	NASCOM	2000 - 2010
Withdrawal of Permanent FAP's	NASCOM	2000 - 2010
Review of Master Plan	NASCOM	ANNUALLY
NASCOM	CCA	QUARTERLY
Managed Airspace above FL205	ATNS	2003
All air routes and managed airspace above FL195	ATNS	2003
Phase 1 RNAV routes	ATNS	1999 (Implemented)
Phase 2 RNAV routes	ATNS	2000
Phase 3 RNAV routes	ATNS	2001

COMMUNICATION NAVIGATION SURVEILLANCE / AIR TRAFFIC MANAGEMENT IN THE AIRSPACE MASTER PLAN

ATM

In addition to a Control, Advisory, Information and Alerting Service, a comprehensive flow management service will be provided to ensure minimum delays and optimum fuel loads with maximum payloads on preferred routes.

Separation standards will be reduced progressively in accordance with ICAO SARPS and a system of CFMU (CAMU) guided Flex Tracking will be introduced when, fixed tracks are compromised due to facility or weather restrictions. (FUA)

Note: Fixed RNAV routes will evolve into Flex tracks where sufficient data indicates that significant savings can be achieved.

Technical solutions will be implemented to reduce R/T time, and assist ATC with decisions and problem solving. e.g.

- CPDLC on clearance delivery at congested aerodromes (FAJS - FACT).
- CPDLC for ATS in remote areas.
- OLDI with associated procedures (inter centre).
- Automated traffic sequencing at arrival TMA's.
- Automatic CFIT and FAP/R alerts.
- Automated transmission of Aeronautical and Met information (DFIS).
- ACAS and associated procedures will be implemented as part of the ATM package.

Communication

VHF communication will be available to air traffic operating above 1500 ft AGL in areas of significant movements (conflicts).

HF Voice communication will be available to any aircraft operating within the delegated or sovereign area of responsibility and processed by Johannesburg Oceanic.

CPDLC will be available via VDL in specific areas e.g. Clearance Delivery and remote areas where a third party exists (SITA / ARINC) with transition to a global ATN.

CPDLC will be available via Satellite or HFDL in remote areas, e.g. oceanic.

Aeronautical information (non-traffic) and MET data will automatically be provided via DFIS or ATIS.

Navigation

Although autonomous systems such as GPS, (INS and IRS) will be acceptable as primary NAV aids, the current VOR/DME Network will remain in place to accommodate non equipped aircraft and to provide redundancy in the short / medium term.

Provided navigational accuracy is guaranteed, Autonomous system arrival and departure procedures will be developed, never the less, VOR/DME will still constitute the primary terminal navaids within the medium term.

Note: Landing aids are not included as they are aerodrome specific, however, ATNS will support any R & D or trials associated with implementing advanced systems. (LAAS with satellite approaches.)

Dynamic rerouting will be accommodated in remote areas where aircraft are appropriately equipped. (Capable)

Surveillance

A full secondary surveillance radar service will be provided in the area contained within the Johannesburg - Cape Town - Durban and adjacent coastal region FL 105 and above. (Area Radar)
A full service includes adequate SSR redundancy.

In the Johannesburg (FAJS), Cape Town (FACT), Durban (FADN), Port Elizabeth (FAPE) and possibly Bloemfontein (FABL) TMA's, Primary supported by secondary Radar will remain a minimum requirement. In the case of FAJS, Primary and secondary will be provided with redundancy in order to ensure a full Radar Service.
Remote Area Surveillance above F245 (upper airspace) will be provided via Automatic Dependent Surveillance (ADS) and in areas below, via pilot report and processed ATS display.

In summary, Johannesburg will constitute the only fully radar serviced TMA with the other aforementioned TMA's being radar, with procedural back up.

EFFICIENCIES ACHIEVABLE BY 2003

Certain aspects of the "Autonomous Flight" concept, where aircraft have the opportunity to fly via the most efficient route from (gate to gate) with a minimum of control from the ground and reliance on terrestial based aids will be progressively introduced.

The airspace structure should be so organised to provide a safe network of ATS routes within justified airspace to satisfy the needs of the operators. Areas should be identified where Area Navigation (RNAV) and the use of flexible or random operations can be exploited.

Whenever the circumstances warrant, the airspace organization should be designed to support the ultimate goal of allowing each aircraft to fly its own optimized flight path. Airspace classification should be indicated in accordance with the ICAO airspace classification table and reviewed regularly.

Airspace restrictions should be of a temporary nature, with particular emphasis on the need to achieve effective co-ordination and co-operation with other affected agencies. Permanent segregation of airspace should be avoided. Temporary airspace reservations, where necessary, should be limited in time and space, coordinated and promulgated in a timely manner.

The rationalised FIR's will consist of regulated and non-regulated airspace. Within these airspace's only ATZ's, CTR's TMA's, CTA's, limited temporary FARs and FAP's, airways, information routes, should be encountered. Within the Oceanic area random routing areas and limited danger or restricted areas could also be encountered. The SANDF and other users will be required to support the Master Plan in all its aspects during normal peacetime operations.

Airspace allocation will be managed holistically via the CFMU (CAMU). All restricted airspace and danger areas will be promulgated as the need arises (FUA).

Airspace

As regulated airspace will be provided where required and based on specific client demands and the trigger elements specified by ICAO and or the CAA, it can be concluded that the existing ATZ's, CTR's and TMA's will, in most cases remain, however, with the protection areas and general dimensions being restructured where required.

Note: The auditing of airspace dimensions is a project currently in hand by the ATNS AIS Department in conjunction with Operations Planning.

Regulated and protected VOR routes (airways) will remain the standard between TMA's, however, provision will be made to accommodate aircraft with self-contained NAV systems (RNAV) which are acceptable to the CAA. (Approved), to the benefit of the operators.

A parallel system of routes will be provided between the TMA's where major activity is prevalent or expected, particularly at medium and high levels. i.e. FAJS - FACT - FADN - FAJS.

In regulated airspace outside of the fixed route network, Random and Flexible Routing will be permitted provided the aircraft are appropriately equipped.

Protected routes will be provided down to FL 085 internally and FL 055 along the coast, as far as possible and practical. (Terrain VHF coverage possibility etc.)

Flight information will be provided to aircraft outside of regulated airspace from 1500 ft AGL.

All airspace above F195 will be considered as regulated unless specifically excluded and appropriately published.

The current Six Flight Information Regions (FIR's) are to be consolidated into a maximum of three, namely Johannesburg Area, Cape Town Area and Johannesburg Oceanic.

Airspace utilisation will be managed holistically as per the National Policy where joint and flexible arrangements will be made, thereby negating the requirements for large inefficient permanent FAR's.

Approach Airspaces could be managed remotely e.g.

Durban will provide the TMA Approach services for Durban, Richards Bay and Pietermaritzburg.

Bloemfontein will provide the TMA Approach service for Bloemfontein, Kimberley and Upington.

Johannesburg Approach will fundamentally remain as is.

Cape Town will provide the TMA Approach at Cape Town and George.

Port Elizabeth will provide the TMA Approach Control at Port Elizabeth and East London.

CENTRAL FLOW MANAGEMENT UNIT'S ROLE (CENTRAL AIRSPACE MANAGEMENT)

The CFMU (CAMU) will be implemented with the objective, amongst others, to strive to accommodate all users airspace needs (FUA). The requirements of all other airspace users should be recognized and where possible accommodated.

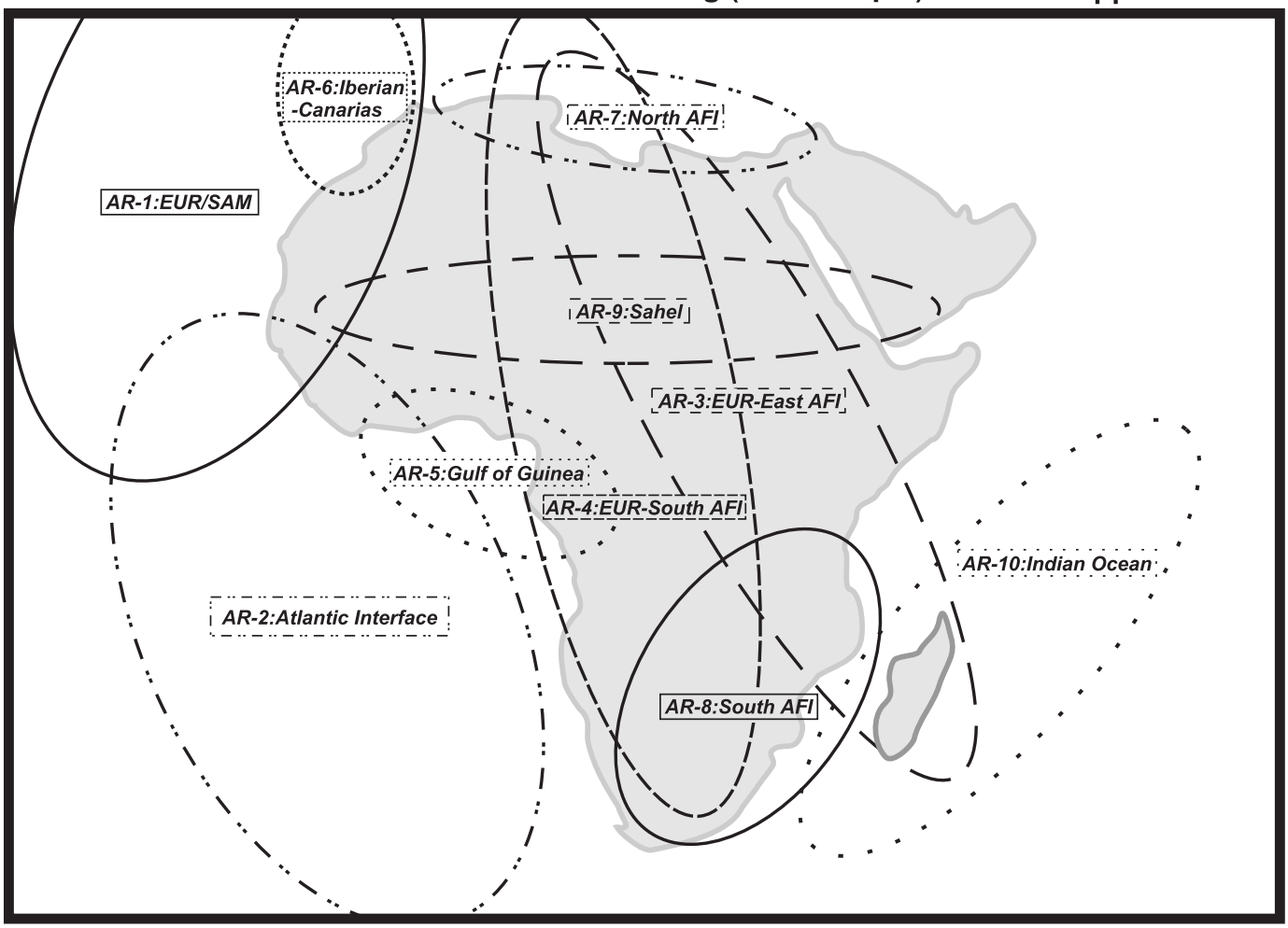
The airspace users expect a safe practical airspace allocation. In addition the CFMU (CAMU) must strive for flexibility which will lead to cost effective operations. Airspace allocation can be tailored to individual needs and the operations of flights to schedule could be realized with due regard to priorities.

The CFMU (CAMU) must continually be aware of the requirements of the SANDF. The interoperability of military and civil systems to support the timely exchange of data in support of efficient and effective airspace allocations must be of utmost importance and pursued by the CFMU (CAMU).

The CFMU (CAMU) and the SANDF JOC must work together very closely in order to achieve the optimal use of airspace as required.

The CFMU (CAMU) will work towards providing a coordinated traffic flow along and in adjacent areas of routing.

CNS/ATM : Areas of routing (AFI example) **Appendix B**



AIRSPACE AND SLOT TIMES

Although slot times do not form part of this Master Plan it should be mentioned that slot times would be applied to regulate the amount of traffic utilizing a specified piece of airspace.

The slot time procedures and application are contained in the RSA AIP in ENR 1.9 and currently subject to a review.

It is thus evident that no matter how meticulously airspace is designed that it could become saturated and alternate tools will be needed to maintain a safe efficient and expeditious flow of traffic.

The over-arching definitions accepted in terms of equity and access read as follows;

Equity

The ATM System should ensure equity for all airspace users that have access to a given airspace or service. Thus, excluding emergency situations, which will always enjoy highest priority, the first aircraft ready to use the ATM resources will generally receive priority, except where significant overall safety or system operational efficiency would accrue by providing priority on a different basis.

Access

The ATM system should provide an operating environment that:

a) ensures that all airspace users have the right of access to ATM resources needed to meet their specific operational requirements; and

b) ensures that the shared use of the airspace for different airspace users can be achieved safely.

SPORT AVIATION

Sport aviation should be accommodated within the framework of the CARS and CATS where a reasonable request is received via the CAA or by procedures, via the CFMU (CAMU). The ATS providers realize that sport aviation has a place in the RSA and that it contributes, to the industry.

Where requests are received which require dedicated airspace for sport aviation, the request will be evaluated and managed according to priorities, CARS and CATS. A dedicated portion of airspace will be allocated on a temporary basis for use by the sport aviation body. When this airspace is not required it is then available to aviation in general (FUA).

A typical request would be from the Aero Club to the NASCOM where the request would be considered and a recommendation made to the Commissioner for appropriate action.

The allocation of ad hoc airspace or services on request would be done through the CFMU (CAMU) via agreed to procedures.

ATS AIRSPACE CLASSIFICATION (CURRENT VFR/IFR TABLE)

Class	Type of Flight	Separation Provided	Service Provided	Radio Communication Requirement	Subject to an ATC Clearance
A	IFR only	All aircraft	Air traffic control service	Continuous two-way	Yes
B	IFR	All aircraft	Air traffic control service	Continuous two-way	Yes
	VFR	All aircraft	Air traffic control service	Continuous two-way	Yes
C	IFR	IFR from IFR IFR from VFR	Air traffic control service	Continuous two-way	Yes
	VFR	VFR from IFR	1) Air traffic control service for separation from IFR	Continuous two-way	Yes
			2) VFR/VFR traffic information (and traffic avoidance on request)		Yes
D	IFR	IFR from IFR	Air traffic control service including traffic information about VFR flights (and traffic avoidance advice on request)	Continuous two-way	Yes
	VFR	Nil	Traffic information between VFR and IFR flights (and traffic avoidance advice on request)	Continuous two-way	Yes
E	IFR	IFR from IFR	Air traffic control service including traffic information about VFR flights as far as practical	No	No
	VFR	Nil	Traffic information as far as practical	No	No
F	IFR	IFR from IFR	Air traffic advisory service as far as practical	Continuous two-way	No
	VFR	Nil	Flight information service	No	No
G	IFR	Nil	Flight information service	Continuous two-way	No
	VFR	Nil	Flight information service	No	No

ATS AIRSPACE CLASSIFICATION (FUTURE PLANNING)

In addition to previous tables following the table above the following table indicates the typical considerations for IFR operations in CNS/ATM system airspace.

CNS/ATM AIRSPACE CLASSES - SERVICES PROVIDED AND FLIGHT REQUIREMENTS

	RNP	TYPE OF FLIGHT	SEPARATION ASSURANCE	ROUTING	LOCATION/ TRAFFIC LOADING	COMMUNICATION REQUIREMENT	SUBJECT ATC CLEARANCE	ADS	ACAS	SSR TRANSP	OTHER SERVICES
H	10	IFR ATC (1)	ASAS	Random Continental	Oceanic / Remote	TIBA	NA	(B)	√	√	On Request Emergency Notification
I	4	IFR	ASAS ATC (1)	FIXED RNAV	Continental (Light/Medium)	TIBA	NA	(B)	√	√	On Request Emergency Notification
J	10	IFR	ASAS * ATC (2)	Random	Oceanic Remote Continental	CPDLC	√	√	√	√	Alerting NOTAM MET
K	10	IFR	ASAS *ATC (2)	Fixed RNAV Flex (FUA)	Continental (Light/Medium)	CPDLC ALT (HF/VHF) Voice	√	√	√	√	Alerting NOTAM MET
L	4	IFR	ASAS *ATC (2)	Fixed RNAV Flex (FUA)	Continental Heavy	VHF Voice + DL	√	√	√	√	Alerting NOTAM MET
M	1	IFR	ASAS *ATC (3)	Fixed RNAV SIDS/STARS	Terminal	VHF Voice + DL	√	√	√	√	Alerting NOTAM MET CAT 1 / GNSS APP
N	0.3	IFR	ASAS *ATC (3)	RNAV SIDS/STARS	Terminal	VHF Voice + DL	√	√	√	√	Alerting NOTAM MET CAT 11 GNSS APP LASS

1. By Exception

2. Decisions assisted by automated tools e.g. MTCA, Conflict Resolution

3. Decisions assisted by automated tools e.g. STCA, MSAW, Sequencing

AIRSPACE DESIGNATION

The Aviation Legislation in South Africa 1997 Part 11 Sub Part 5 describes the NASCOM procedure from where airspace shall be designated on a permanent basis for airspace mentioned in regulation 172.02.1.

The NASCOM shall obtain approval from the CCA for the institution of the airspace via the AIRAC.

The airspace designation shall be as follows:

ATZ	Class G or C	AFIS / Aerodrome Control Service
CTR	Class C airspace	Aerodrome / Approach Control Service
TMA	Class C airspace	Approach Control Service
CTA	Class C/A airspace	Area / Approach Control
FIR	Class A, C or G airspace	FIS / Area Control
Oceanic	Class G airspace becoming class A in certain areas.	FIS / (Area Control)

With future consideration for CNS / ATM classification as indicated in the previous table.

FLIGHT INFORMATION REGIONS

By the year 2003 it is envisaged that the RSA will have three FIRs ie. Johannesburg, Cape Town and Oceanic. The two continental FIR's will encompass the entire airspace over the sovereign territory of the RSA. The Oceanic FIR will cover that area of oceanic responsibility as designated from time to time by ICAO or other service providers.

The adjacent FIR's must be contiguous and if possible be delineated so that operational consideration regarding the route structure encompassed by them take precedence over their alignment along national borders.

The establishment of FIR's is amongst other things dependent on the air route structure extending over the sovereign territory of the RSA, its topography and cost effectiveness for both ATS providers and aircraft operators.

The boundaries of FIR's over the high seas must be coordinated and taken up in the regional air navigational agreements. The route structure and the ability of RSA to provide the required services must be taken into consideration and reviewed from time to time.

ADVISORY AIRSPACE

The establishment of advisory airspace should be the result of ongoing monitoring of airspace by the SACAA, ATS providers and operators. Such airspace should be considered as the precursor of controlled airspace during that period when air traffic advisory service is provided in anticipation of a full ATC service.

AIRSPACE RESTRICTIONS AND RESERVATIONS

Airspace restrictions and reservations will ultimately be coordinated via the CFMU (CAMU) for the shortest time practically possible and in the smallest area after considering impact on overall traffic flow and collaboration with affected users.

The CFMU (CAMU) will be a natural extension of services provided by the current flow control office at FAJS.

TYPES OF RESTRICTIONS TO BE PLANNED FOR

The following are the more traditional restrictions and should now be planned in such a way that they become more user friendly by at least the year 2003.

- Restricted areas should be reviewed and mutually agreed to be established via the CFMU (CAMU) on a requirement basis. Restricted areas may also be mobile, that is, following an event or track.

- Prohibited areas are of such a nature that they will probably remain as is and inaccessible to all aircraft, however, this could also become period based. Prohibited areas must be well motivated via NASCOM and annually reviewed.

NOTE: Only danger areas may be imposed and published over the high seas, regardless of the risk involved. NASCOM must ensure that this applies to the RSA during the airspace audits.

DANGER RESTRICTED AND PROHIBITED AREA RATIONALIZATION

In order for Danger areas, Restricted areas and Prohibited areas to be rationalized and audited the following table must be kept up to date for planning purposes:

PROHIBITED/RESTRICTED/DANGER AREAS
SUMMARY

No	P	R	D	Place and Description
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.		R		FABL FIR - Schimdtsdrif - Military Firing Range
21.				
22.		R		FABL FIR - De Aar - Ammunition Depo
23.		R		FABL FIR - Bottelduim - Military Shooting range
24.	P			FABL FIR - Ganspan - Explosives store
25.		R		FABL FIR - Ga-Thlose/Maremane - Military Shooting range
26.			D	FABL FIR - Bloemfontein Military Jet Flying Area
27.		R		FABL FIR - FABL Military FTA
28.			D	FABL FIR - Bloemfontein Military Low Flying area
29.		R		FABL FIR - De Brug Firing Range
30.			D	FABL FIR - Bloemfontein Military Low Flying Area
31.	P			FABL FIR - Zomervelt (Welkom) Explosives factory
32.		R		FACT FIR - Mossel Bay Harbour
33.				
34.				
35.	P			FACT FIR - Langebaan Nature Reserve
36.		R		FACT FIR - Koeberg Nuclear Power Station
37.				
38.				
39.		R		FACT FIR - Simonstown - Naval Base
40.		R		FACT FIR - Donkergat
41.		R		FACT FIR - Skurwerkug
42.		R		FACT FIR - Langebaan Range - Air to Ground Firing Range
43.		R		FACT FIR - Table Bay harbour - Harbour Area
44.				
45.		R		FACT FIR - Langebaan Military GFA - SAAF Training Area

No	P	R	D	Place and Description
46.			D	FACT FIR - Langebaan Military Low Flying Area
47.		R		FACT FIR - Oudtshoorn Military Shooting Range
48.		R		FACT FIR - Saldanha Bay Harbour
49.		R		FACT FIR - Port Nolloth Harbour
50.				
51.		R		FADN FIR - Durban Harbour
52.		R		FADN FIR - Richards Bay Harbour
53.			D	FADN FIR - Durban Fleet Weapons Training
54.				
55.			D	FADN FIR - La Mercy Air to Ground Firing From Helicopters
56.				
57.			D	FADN FIR - Nshongweni Military Helicopter Training Area
58.			D	FADN FIR - Durban/Virginia FTA
59.			D	FADN FIR - Pietermaritzburg FTA
60.	P			FAJS FIR - Voortrekker Monument - National Monument
61.				
62.		R		FAJS FIR - Hyestekrand - Ammo Depo
63.		R		FAJS FIR - Secunda - Explosives Factory
64.				
65.		R		FAJS FIR - Sasolburg
66.	P			FAJS FIR - Iscor - Iron and Steel works
67.	P			FAJS FIR - Vanderbijlpark - Steel works
68.	P			FAJS FIR - Modderfontein - Explosives factory
69.				
70.			D	FAJS FIR - Magaliesburg Flying Training Area (combined civilian/SAAF)
71.		R		FAJS FIR - Transvaal Military Middle Flying Area
72.		R		FAJS FIR - Transvaal Military High Flying Area
73.				
74.				
75.		R		FAJS FIR - Potchefstroom Military Shooting range - Mortar, Machine etc
76.		R		FAJS FIR - Roodewal - Air to ground Firing
77.				
78.		R		FAJS FIR - Kruger National Park - Mpumalanga
79.		R		FAJS FIR - Maleoskop S.A.P Shooting Range
80.	P			FAJS FIR - Dantex Explosives factory
81.				
82.		R		FAJS FIR - Pienaars River
83.		R		
84.		R		FAJS FIR - Bethal Explosive Factory
85.				
86.		R		FAPE FIR - Grahamstown Military Shooting Range
87.		R		FAPE FIR - East London Harbour
88.		R		FAPE FIR - Port Elizabeth Harbour
89.			D	FAPE FIR - SADA Military Shooting range
90.				
91.				
92.				
93.				
94.				
95.				
96.				
97.				

No	P	R	D	Place and Description
98.				
99.				
100.				
101.				
102.				
103.				
104.				
105.		R		FABL FIR - Jan Kempdorp Demolition Range
106.			D	FABL FIR - Bloemfontein New Tempe FTA
107.			D	FABL FIR - Bloemfontein Military Flying
108.			D	FABL FIR - Kimberley FTA
109.			D	FABL FIR - Upington FTA
110.			D	FABL FIR - Welkom FTA
111.				
112.				
113.				
114.				
115.				
116.				
117.				
118.				
119.				
120.				
121.				
122.			D	FAJS FIR - Louis Trichardt SAAF Low Flying Area
123.			D	FAJS FIR - Mafikeng FTA
124.				
125.			D	FAJS FIR - Phalaborwa FTA
126.			D	FAJS FIR - Pilansberg GFA
127.			D	FAJS FIR - Pretoria FTA 1
128.			D	FAJS FIR - Pretoria FTA 2
129.			D	FAJS FIR - Grand Central Flying Training Area
130.				
131.				
132.				
133.				
134.				
135.				
136.				
137.				
138.				
139.				
140.				
141.				
142.				
143.			D	FACT FIR - West Cape Fleet Training Area
144.		R		FACT FIR - Cape of Good Hoe Nature Reserve
145.	P			FACT FIR - Keurboom Nature Reserve
146.	P			FACT FIR - Keurboom Bird Colony
147.		R		FACT FIR - Overberg - Flight Test Area
148.		R		FABL FIR - Alkantpan Test Range
149.		R		FACT FIR - Vals Bay - Weapons Firing Range

No	P	R	D	Place and Description
150.		R		FACT FIR - Mosgas
151.				
152.				
153.			D	FACT FIR - Cape Town Maritime Flying Training Area
154.				
155.			D	FACT FIR - George FTA
156.				
157.			D	FACT FIR - Worcester/Robertson FTA
158.				
159.			D	FACT FIR - Ysterplaat Military Helicopter Mountain Flying Area
160.				
161.				
162.				
163.				
164.				
165.				
166.				
167.				
168.				
169.				
170.			D	FAJS FIR - Tzaneen FTA
171.		R		FAJS FIR - Wallmansthal Weapons range
172.		R		FAJS FIR - Hartebeeshoek Communication Station
173.				
174.				
175.				
176.				
177.	P			FAJS FIR - Roedtan Ammo Depo
178.		R		FAJS FIR - Messina Weapons Range
179.		R		FAJS FIR - Hoedspruit Northern Restricted Area - SAAF Training
180.				
181.		R		FAJS FIR - Gravelotte Restricted Area
182.			D	FAJS FIR - Johannesburg Flying Training Area
183.			D	FAJS FIR - Johannesburg Helicopter FTA
184.			D	FAJS FIR - Syferfontein Acrobatic Area
185.			D	FAJS FIR - East Rand FTA
186.				
187.				
188.				
189.				
190.			D	FAPE FIR - East London FTA
191.				
192.			D	FAPE FIR - Port Alfred FTA
193.			D	FAPE FIR- Port Elizabeth/Uitenhage Civil GFA
194.				
195.				
196.				
197.				
198.				
199.				
200.			D	FACT FIR - Cape Town Flying Training Area

AIRSPACE RESERVATIONS

The CFMU (CAMU) will be the planning and coordinating body for the Real-time airspace temporary reservations which will be in use by the year 2001. Two types of reservations will generally be applied. That is, static airspace reservation and mobile airspace reservation.

SPECIAL DESIGNATED AIRSPACE

Where aircraft are required to comply with special procedures, the CFMU (CAMU) will be contacted and a special designated airspace will be proclaimed. This would include areas such as an ADIZ or SAR Areas.

REQUIRED NAVIGATION PERFORMANCE (RNP)

The ICAO RNP concept will be adopted to ensure that aircraft within a defined airspace are capable of establishing position to a required accuracy. As a product of the improved accuracy and integrity of positioning, separation standards will be safely reduced in accordance with SARPS to improve airspace efficiency.

The following RNP will be applied as per the Annexes and PANS/RAC.

RNP 4 Domestic Continental

RNP 10 Oceanic / Remote Continental

RNP

EVENT	YEAR
RNP 10	2000 (Oceanic Implementation in progress)
RNP 4	1999 (On Trial)
RNP 1	2003
RNP 0.3	2005

FLEXIBLE USE AIRSPACE

Since 1994 there has been a significant increase in air traffic in the country which has placed a greater load on airspace structures. The second biggest partner in airspace allocation is the SANDF that has a large amount of restricted areas and controlled airspace. This has accentuated the additional track miles to be flown around these areas at great cost to the operators. The airspace structures have not changed to accommodate the changed environment. The current structures, inherent from the past, based on outdated concepts and born out of a need no longer prevalent, needs to be urgently amended to accommodate the increasing demand of air traffic. This is especially true for jet aircraft operators throughout the national and delegated airspace of the RSA.

The demands for the economical use of airspace by operators are ever increasing which necessitates the effective organising of the RSA National Airspace structure and its resources. The inadequacies created by the increased load and new technology need to be urgently addressed.

The advent of CNS/ATM has placed even more pressure on the authorities and the airspace structures for change, which is a prerequisite for the implementation of CNS/ATM.

The SAAF and other organizations will always have a requirement for airspace in which to conduct their specific operations whether it be training or force preparation exercises, albeit of a greatly reduced nature, within which autonomy of operation is ensured.

The RSA government's transformation process has also forced a restructuring of the SANDF. This restructuring proposes the creation of a Joint Operations Centre (JOC) within which all the arms of service are represented and operations are conducted within the framework of an integrated command and control structure. It is imperative that the concept of FUA be accepted within the SANDF by 2000 to ensure that all land, air, and sea operations, involving the usage of the national airspace, can and will be met.

The prime objective of airspace design is to ensure the most efficient use of the airspace and associated resources. Permanent airspace segregation must be avoided at all costs.

In line with accepted CNS/ATM concepts the airspace structures need to be adapted more to the traffic flows, which will become increasingly more flexible due to area navigation and GNSS usage. To allow continued usage by all would only be achievable with the introduction of a flexible usage of the airspace.

For the RSA and all the operators to benefit fully from the technologies of the CNS/ATM Systems, airspace structures will have to become far more flexible otherwise the majority of benefits of CNS/ATM will never be realized.

Above all, the airspace users want a safe airspace structure within which to operate. In addition, they expect more flexible and cost-effective routes which can be tailored to their individual business requirements, and which will allow them to operate punctually within their published schedules.

Rigid airspace structures i.e. permanent restricted and danger areas, have resulted in the use of "available" airspace being under utilized which will be addressed by this Master Plan and is formulated as follows:

- To formulate a plan which will assist in minimizing the constraints of rigid airspace and route structures.

- To formulate a plan which will be conducive to real time exchange of information to the benefit of all concerned.

Airspace And Organization

The principles underlying the FUA concept, are advances in avionics and altimetry, and the development of RNAV techniques together with satellite navigation systems, capable of providing more accurate and timely position information. This provides the cornerstone for progressive improvement in the way that airspace is designed.

THE CONCEPT IN BRIEF

The concept of the FUA, is that airspace should no longer be designated as either purely civil or military airspace, but rather as one continuum and allocated according to user requirements. Any necessary airspace segregation will be temporary, based on real time need within a specific time period.

Flexible Use Of Airspace

The FUA concept provides one of the foundations for more efficient utilization of airspace by releasing airspace in areas and at times when it was not previously available. This, in turn, will allow the introduction of both additional routes and more direct RNAV routes, thus increasing the capacity of the available airspace and shortening flight distances between destinations.

The airspace within the RSA should not be designated as solely civilian or military only, other than in areas of "high" continuous density where this is unavoidable or where so designated by National Policy.

Any segregation of airspace should always be of a temporary nature unless unavoidable

The FUA concept, due to increased availability of airspace will allow for a potentially increased system capacity and a better utilization of airspace.

The daily allocation of flexible airspace structures would be based on real demands within a specific time period and routed via the CFMU (CAMU).

The allocation procedures will need to be clearly defined.

In order to implement the FUA concept in the RSA, the following structures need to be established:

- Airspace structures (i.e., audit and re-evaluate present airspace allocation) by 2001.
- Co-ordination and decision-making bodies/procedures (i.e., CFMU (CAMU), AMC, airspace allocation model) by 2000.

ASM LEVELS

The flexible use concept will require that the airspace be managed at different levels of responsibility in order to ensure that both civilian and military requirements are addressed. The following outlines the different levels and functions within the concept that will contribute towards the success of the Master Plan.

Level 1 (Strategic Airspace Management)

This is the high level defining within a joint military/civil process and reviewing of the national airspace policy taking into account both national and international airspace requirements. Responsibilities will include the following:

- Review and propose amendments (at regular intervals) to the national airspace policy and amend legislation as required.
- Establish airspace structures.
- Consider international relations/boundaries for Cross Border Areas and agreements.
- Provide operating authority to other levels.

Level 2 (Pre-Tactical Management)

This is the level at which operational management is conducted within the framework of the structures and procedures defined at Level 1. Responsibilities to include:
Design of airspace structures [i.e., permanent ATS routes, controlled airspace, Temporary Segregated Areas (TSA'),

- Conditional Routes (CDR's)]
- Establish AMC's, ATSU Procedures.
- Allocation of temporary airspace as per established procedures.
- Promulgate daily allocation notification (i.e., Airspace Use Plan - AUP).
- Resolve conflicting requirements.

Level 3 (Tactical Level Management)

This is the level where real-time use of the airspace, allocated by Level 2, is managed. Specific airspace problems and/or individual traffic situations are resolved (i.e., day-to-day ATSU co-ordination).

THE FLEXIBLE AIRSPACE STRUCTURE REQUIRED

In order for the flexible use concept to be realized the current airspace structures will need to be reviewed, amended, and additions made i.e. reorganised.

The structures needed must be suited to temporary allocation and Flexible / Dynamic Sectorisation and/or routes. Current restricted areas (mostly) do not allow for this concept or for temporary allocation to one or more users.

Airspace Structure Optimization

Data communications, the introduction of improved flight plan processing systems, and advanced airspace management co-ordination tools and message exchange capabilities will facilitate a progressively more flexible and dynamic management of airspace. Where traffic densities permit, there will be an evolutionary change from fixed airspace divisions to flexible airspace allocation. Initial considerations will include defined airspace blocks, FAR temporary segregated areas, configured for particular times of the day.

Route Network Optimization

Measures are in hand to improve the present fixed route network to reflect the improved airspace flexibility offered by the FUA concept, and the early use of RNAV techniques. This will help in designing route structures that allow more direct and fuel efficient flights.

In addition to current structures the following structures for flexible usage need to be incorporated.

Conditional Routes (CDR's)

A conditional route is a permanent route or a portion of the route, which can be planned and used only under specific conditions. These would be established at the two highest levels. These routes and the conditions would be published in the AIP. The actual activation or usage would form part of the daily notification procedures by Conditional Route Availability Message (CRAM).

Temporary Segregated Areas (TSA's)

This would be a portion of airspace of defined dimensions in which the activities require the exclusive reservation of the airspace for specific user during a specific period. When not reserved this will revert to whatever user/procedure as laid down by the strategic level. This airspace would replace the majority of the current restricted areas and will allow for a high level of flexibility of airspace usage. This type of area would be established at the two highest levels and allocated by the unit operating at the Pre Tactical level, who responds to the daily request for use of this airspace. Activation would take place at the tactical level. These areas would be established to fulfil the needs for civil/military, training, and test flights and would replace current restricted areas. A TSA could also be a mobile portion of airspace following a specific activity.

Cross Border Areas (CBA's)

These are temporary segregated areas established over international boundaries. A CBA could be established by states to allow military training and other operational flights to be carried out on both sides of the border.

Reduced Coordination Airspace (RCA)

This is a specific portion of airspace within which General Air Traffic is permitted "off-route" without requiring controllers to initiate coordination with other controllers. This would be typical when traffic is light or has ceased and would enable traffic to operate outside of route structures without controllers being required to initiate coordination.

Publication/Notification

The airspace as proposed must be published in the IAIP together with the conditions associated with it. The notification of the activation or deactivation in the form of specific messages will be detailed in the implementation plan. Specific message formats will be required to be developed and adopted for this purpose.

DOMESTIC AIRSPACE TRANSITION
(To be updated at each Plan review)

Year	Communication	Navigation	Surveillance	Air Traffic Management & Support Systems
2000				
2001				
2002				
2003				
2004				
2005				
2006				
2007				
2008				
2009				
2010				
2011				
2012				
2013				
2014				
2015				

CONSIDERATIONS

The planning targets are strictly adhered to by all contracted organisations and;.

The Prohibited, Restricted and Danger Area table receive priority and regular update and;

The SANDF and in particular the SAAF should:

- Establish the SAAF structure and procedures for the implementation of the FUA concept in harmony with the ATNS by 2000.
- Introduce personnel to the benefits of the FUA concept by early 2000.
- Create a JOC in harmony with the CFMU (CAMU) by 2001.

ATNS should:

- Establish a CFMU (CAMU) in harmony with the SAAF structures by 2001.
- Introduce personnel to the benefits of the FUA concept by early 2000.
- Establish the involvement of all other airspace users by early 2000.

PLAN APPROVAL

Plan prepared by the ATNS Operational Planning Department - ATM (Planning and Standards)

Consultation undertaken with the SAAF through the Ops Sub-Committee of the ATNS / SAAF Exco in accordance with the NDOT's Policy.

Draft approved at NASCOM 02/2000

Committee Members:

Name	Title	Organisation
Mr A.J. Bradshaw	GM:ATM	ATNS
Col S.L. Korf	SSO C&C Liaison	SAAF
Mr K. V. Ewels	TMS	ATNS
Lt Col A. M. Jacobs	SM ATSS	SAAF
Mr M. C. Horak	MAIS	ATNS
Mr D.D. Williams	MOPS (Pln)	ATNS
Mr J. P. Jooste	ME	ATNS
Mr G.C. Partridge	MSA	ATNS

Approved By:

CAA CEO/CCA _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

EXECUTIVE SUMMARY

The National airspace in South Africa is managed by predominantly two organisations, the SAAF and ATNS, to provide ATS to aircraft. The SAAF provides an ATS to its own aircraft within designated airspace and to any other aircraft operating therein. The SAAF has no commercial intent. The ATNS on the other hand operates within the airspace as described in the Policy on Airspace Management. Providing an ATS to aircraft on a commercial basis.

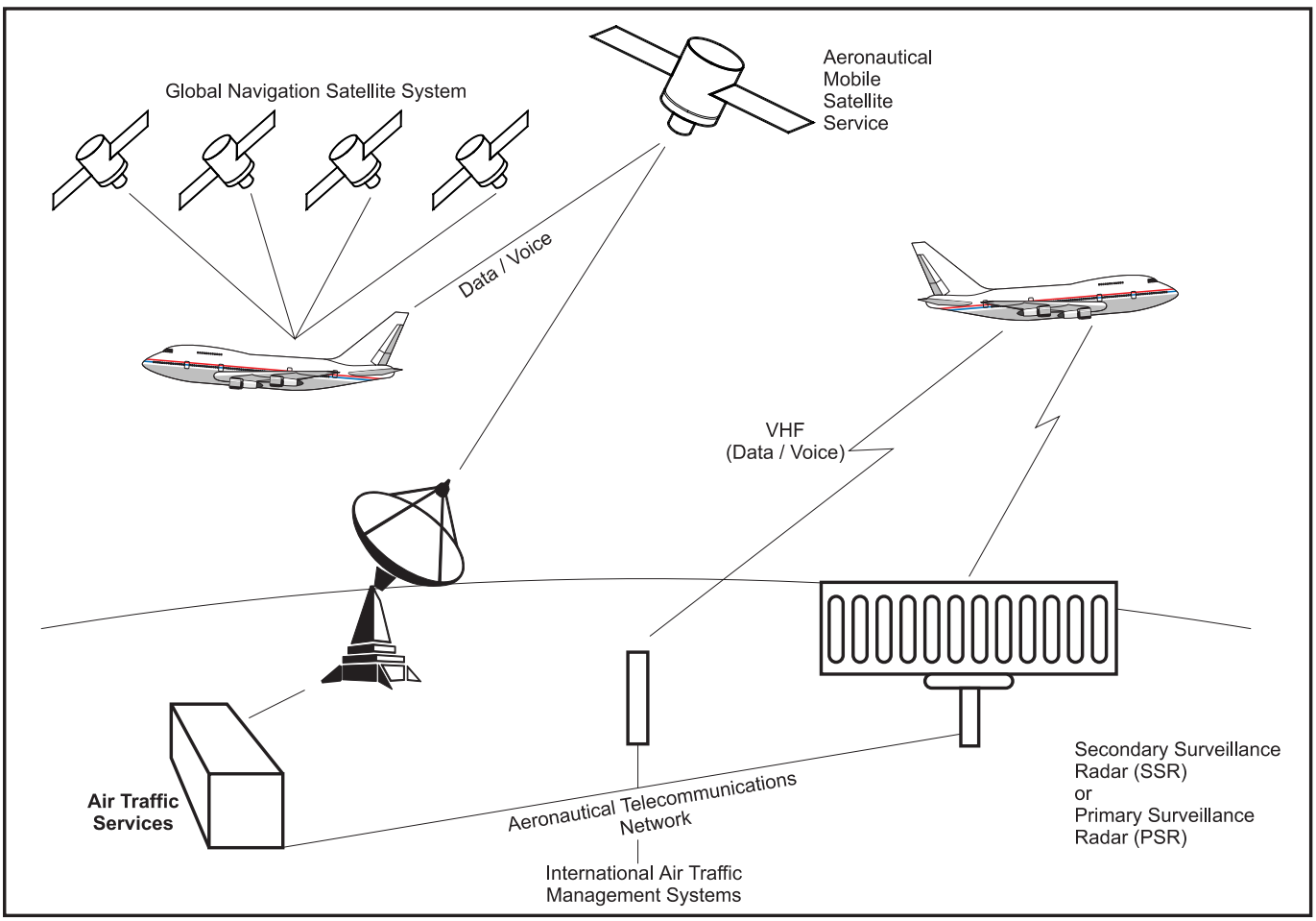
The ATS is currently provided within five continental FIR's within the sovereign airspace of South Africa and the oceanic FIR over the high seas as delegated by ICAO. The continental FIR's will in the near future be rationalised, a process already being implemented by ATNS under it's Project FAME.

The provision of ATS is regulated under a legal framework originating from the (1944) Chicago convention which regulates International Civil Aviation and applicable South African laws, rules, regulations and orders.

This plan describes the present airspace structure and the transition to the future structure and organisation. It provides a basis for consultation with all affected parties and adjacent states in order to promote harmonious implementation as envisaged by the ICAO ICG's based on implementation plans prepared by the ICAO planning groups for the AFI region (APIRG).

The present system utilised for managing air traffic within the current airspace will be replaced on an evolutionary basis by the CNS/ATM systems which will compliment and indeed requires a new airspace structure.

In Figure 1 - a representation of the CNS systems for easy reference.



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3. The relevant SADC Protocols.

4. The ICAO airspace policy conclusions.

5. The AFI 7 RAN Report.

6. The FAME end state strategy statement for ATNS to 2003.

7. The AFI plan (Doc 7474) and Regional Supplementary Procedures, DOC003 incorporating time scales for Regional CNS/ATM system implementation up to 2005.

8. Civil Aviation Regulations and Technical Standards. (CARS/CATS)

9. Global ANP for CNS/ATM Systems Vol 1 + 2.

CONCLUSION

In conclusion it must be stated that all participating organisations must accept the National Airspace Master Plan and implement it in order that the full benefits of CNS/ATM are realised to the full potential. Total realisation of the National Airspace Master Plan will place the RSA amongst those leading the CNS/ATM field in the world and achieving the SARPS of ICAO to the benefit of aviation.

Furtherto this the FUA concept can only be achieved with the full co-operation of all relevant role players. The interests of the country as a whole must be placed above all other agendas for this to become a reality.