



| ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

A UN SPECIALIZED AGENCY

DEVELOPMENT OF NATIONAL AIR NAVIGATION PLAN KUWAIT

PBN SG/8 (DOHA, QATAR, 12 - 13 DECEMBER 2023)

ICAO GANP/NANP Workshop

The Workshop on the Global Air Navigation Plan and National Air Navigation Plan (GANP & NANP) has been conducted in the ICAO MID Office in Cairo, Egypt during the period 5 – 8 March 2023.

The objective of the Workshop is to review the latest amendments of the GANP and to foster the implementation of the National Air Navigation Plans (NANPs).

ICAO GANP/NANP Workshop

The Workshop reviewed the outcome of the Assembly 41 related to the GANP. And highlighted that the GANP 7th edition encompassed minor updates, as follow:

- Update of the GANP performance framework
- Safety KPA - Strengthen the link with the GASP
- Maintenance process for the performance framework
- Mapping the Basic Building Blocks (BBBs) and the Universal Safety Oversight Audit Programme (USOAP)
- Update the Aviation System Block Upgrade (ASBU) framework and the Basic Building Block (BBB) framework

ICAO GANP/NANP Workshop

- The Workshop noted that the GANP 8th edition will include major changes including, but not limited to, update of performance and ASBU frameworks and manual on national air navigation planning, including a template aligned with the ANP.



New GANP 7th edition

The Workshop reviewed and updated the MID Region Air Navigation Strategy (ICAO MID Doc 002). The draft revised MID AN Strategy will be presented to MIDANPIRG/20 for further review and endorsement.

The Workshop noted the regional implementation status of priority 1 ASBU Threads/Elements and the selected KPIs in the Draft MID AN Report 2022.



Reflection on the regional documents

The Workshop reviewed the performance management process (6-step approach).

The Workshop was apprised of the capabilities of the Air Navigation Systems Performance Assessment tool (AN-SPA). The goal of this tool is to promote a performance-based approach for a cost-effective modernization of the air navigation system. This tool guides the States in the application of a six-step performance management process and in the selection of relevant operational improvements within the ASBU framework.

The tool is now available in the GANP Portal.

Identification of the national needs

Based on the above, Kuwait noted the need to develop the National Air Navigation according to the last amendments of the GANP and consequently, on the MID Air Navigation Plan Volume III and MID Doc 002: Air Navigation strategy.

Accordingly, Kuwait invited the MID Office to support the development on the NANP. And hosted a 5 days Workshop including all parties of the ANS to develop the related part of the Plan.

Many follow up meetings were conducted virtually to finalize the plan







Results

The Kuwait Air Navigation Plan has been developed in accordance with the latest GANP version, and inline with the regional requirements, using the 6-step approach to identify the needs for Kuwait Air navigation sector and meeting the expected growth.

Kuwait NANP is attached at Appendix A.



Thank You!



Kuwait National Air Navigation Plan

KNANP

Date: September 2023

Issue: 01

Revision: 00

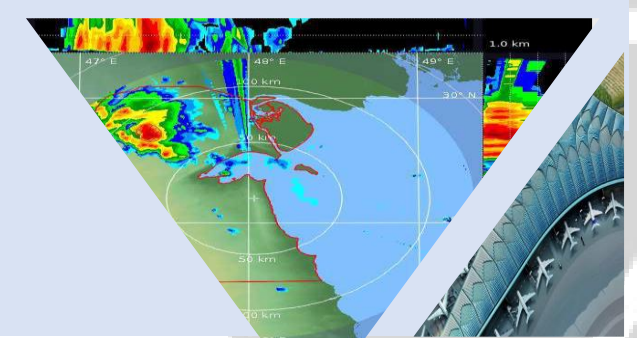


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Foreword

The rapid growth of aviation requires the adoption of efficient and Effective air Navigation plan to assure a consistent growth with the evolving aviation Business and operating model. This National Air Navigation Plan manual sets the strategy of Air aviation Services functions in the State of Kuwait.

The document Outlines Kuwait FIR navigation service Provider Business Plan objectives, responsibilities, and the necessary Processes to effectively implement this strategy.

Our approach is consistent with Kuwait regulator Aviation safety Department (ASD) requirements and ICAO Framework for global Air Navigation Plan, Regional Air Navigation Plan.

The Directorate General of Civil Aviation (DGCA), which is mandated by the Government of the state of Kuwait for the Air navigation Service Provider, Aerodrome Operator committed to Working closely with the other stakeholders to develop, effectively implement, and continuously Improve the state-level of aviation service, a different expert groups have been established. Resources will be allocated Through funding or deployment of expertise as determined by the Director General of Civil Aviation.

This document and the associated appendices are approved by the Director General of Civil Aviation. Any changes in the document must be presented to the Director General of Civil Aviation for approval.

Approved by Director General of Civil Aviation.

Signature:



Eng. Emad Al- Jelwi
Acting Director General

II. Amendment Procedure

Kuwait National Air Navigation Plan (KNANP) is issued after the authorization of the Director General of civil Aviation (DGCA), who is also responsible for all amendments and revisions, As required by Kuwait Air Navigation Services Provider (ANSP). The approval of the Aviation Safety Department (ASD) shall be obtained before revisions to the Kuwait National Air Navigation Plan (KNANP) are implemented.

All revisions to the Plan are prepared and controlled by Kuwait Air Navigation Service provider.

Each holder of a copy of this Plan is individually responsible for the safeguarding of their copy (or copies), and for maintaining the correct amendment status. A copy of this plan is provided to Kuwait Air Navigation Services Provider (ANSP) Directors.

III. Revisions

Amendments to this Manual are affected within Kuwait Air Navigation Services Provider (ANSP) by replacing the existing Document with a revised stored document. This process is fully recorded in the Document Record and the superseded document remains within Kuwait Air Navigation Services Provider (KANSP) in the obsolete register as described in the amendment instructions. This process is initiated to cover corrections and/or changes to the contents, or to add new data or information. A copy of this Manual includes an updated List of Effective Pages (LEP). Revisions shall be numbered consecutively.

III.1 Revision record

Record in the appropriate column and row the date entered and the initials of the person inserting the revision.

III.2 Amendment Record

REV. NO	DATE ENTERED	EFFECTED PAGES	ENTERED BY
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IV. Distribute

This Kuwait National Air Navigation Plan (KNANP) Manual shall be distributed to Kuwait Air Navigation Services Provider (KANSP) personnel assigned to duties involving the preparation and/or implantation of The Plan and evaluation. A copy of Kuwait National Air Navigation Plan (KNANP) Manual and/or amendment shall be provided to Aviation Safety Department (ASD).

CHAPTER 1

Background

1.1 Introduction

The GANP provides a global basis on which regional and national air navigation implementation plans are developed. All three levels of planning – global, regional and national – must be adequately addressed and integrated to promote a seamless global air navigation system.

Regional air navigation planning is very well established. Article 28 of the Convention on International Civil Aviation (Doc 7300) establishes the responsibility of contracting States to provide the necessary air navigation services to facilitate international air navigation. In order for air navigation implementation to be bettered managed, the world is divided into air navigation regions. The ICAO regional air navigation plans are used as repository documents for the assignment of these responsibilities.

MIDNPIRG is responsible for the development and maintenance of MID-air navigation plan (MID ANP). It provides for the planning and implementation of air navigation systems within specified areas, in accordance with agreed global and regional planning frameworks.

MID ANP is published in three volumes: Volumes I and II define requirements aligned with the BBB framework, and Volume III follows the performance management process for selecting relevant ASBUs.

Whereas ICAO addresses the planning strategy at the global and regional levels, planning at the national level is the responsibility of State of Kuwait. A national planning framework has been developed by Kuwait DGCA based on its needs and in collaboration with ICAO MID Office to ensure to the greatest extent possible that solutions are internationally harmonized and integrated.

Planning for the modernization of the air navigation system in Kuwait considered the requirements of user system and took into account traffic density and complexity, and the level of sophistication required for the provision of necessary services, among other elements.

The MIDANPIRG/20 meeting through Conclusion 20/9, urged States to expedite implementation of the performance-based approach and develop their National Air Navigation Plan (NANP).

MIDANPIRG Conclusion 20/9: DEVELOPMENT OF NANP

That, in order to enable prioritization and optimum allocation of resources for all planned projects within States:

- a. States be urged to develop NANP based on a performance-based approach and the six-step performance management process six-step performance management process described in the Manual on Global Performance of the Air Navigation System (Doc 9883) and the Revised MID-Air Navigation Strategy (Doc 002); and*
- b. ICAO MID to conduct assistance missions/Workshops at National level on GANP/NANP in 2023-2024.*

1.2 NANP Scope and Objectives

This document describes Kuwait's Air Navigation Planning arrangements to align with both regional and global objectives. It includes ANS objectives set, priorities and targets planned at the national level up to 2030, and facilitate monitoring the progress of implementation towards targets planned. The NANP will be reviewed on annual basis.

This plan will be used for reporting purposes and to provide guidance materials to all stakeholders for the implementation of specific system/procedures to ensure the greatest degree of harmonization and interoperability with other States.

Kuwait NANP has been developed based on Performance based approach with Strong focus on desired/required result. Instead of prescribing solutions, desired/required performance is specified, which helps decision-makers set priorities, make the most appropriate trade-offs, choose the right solutions and perform optimum resource allocation.

1.3 List of Abbreviation and Acronyms

ABAS	Aircraft Based Augmentation System
ACAS	Airborne Collision Avoidance System
ACDM	Airport Collaborative Decision-Making
ADS-B	Automatic Dependent Surveillance-Broadcast
AIS	Aeronautical Information Services
AMHS	ATS messages Handling System
ANSP	Air Navigation Services Provider
AND	Air Navigation Department
ASBU	Aviation System Block Upgrade
ASD	Aviation Safety Department
ASMGCS	Advanced Surface Movement Ground Control System
AIM	Aeronautical Information Management
ATM	Air Traffic Management
ATS	Air Traffic Services
CNS	Communications, Navigation and Surveillance
DGCA	Director General of Civil Aviation
FIR	Flight Information Region
GANP	Global Air Navigation Plan
GNSS	Global Positioning Navigation System
ICAO	International Civil Aviation Organization
KPA	Key Performance Area
KPI	Key Performance Indicator
MIDANPIRG	Middle East Air Navigation Planning and Implementation Regional Group
PBN	Performance Based Navigation
RASG	Regional Aviation Safety Group
SARPs	Standards and Recommended Practices

CHAPTER 2

Aviation Ecosystem in Kuwait

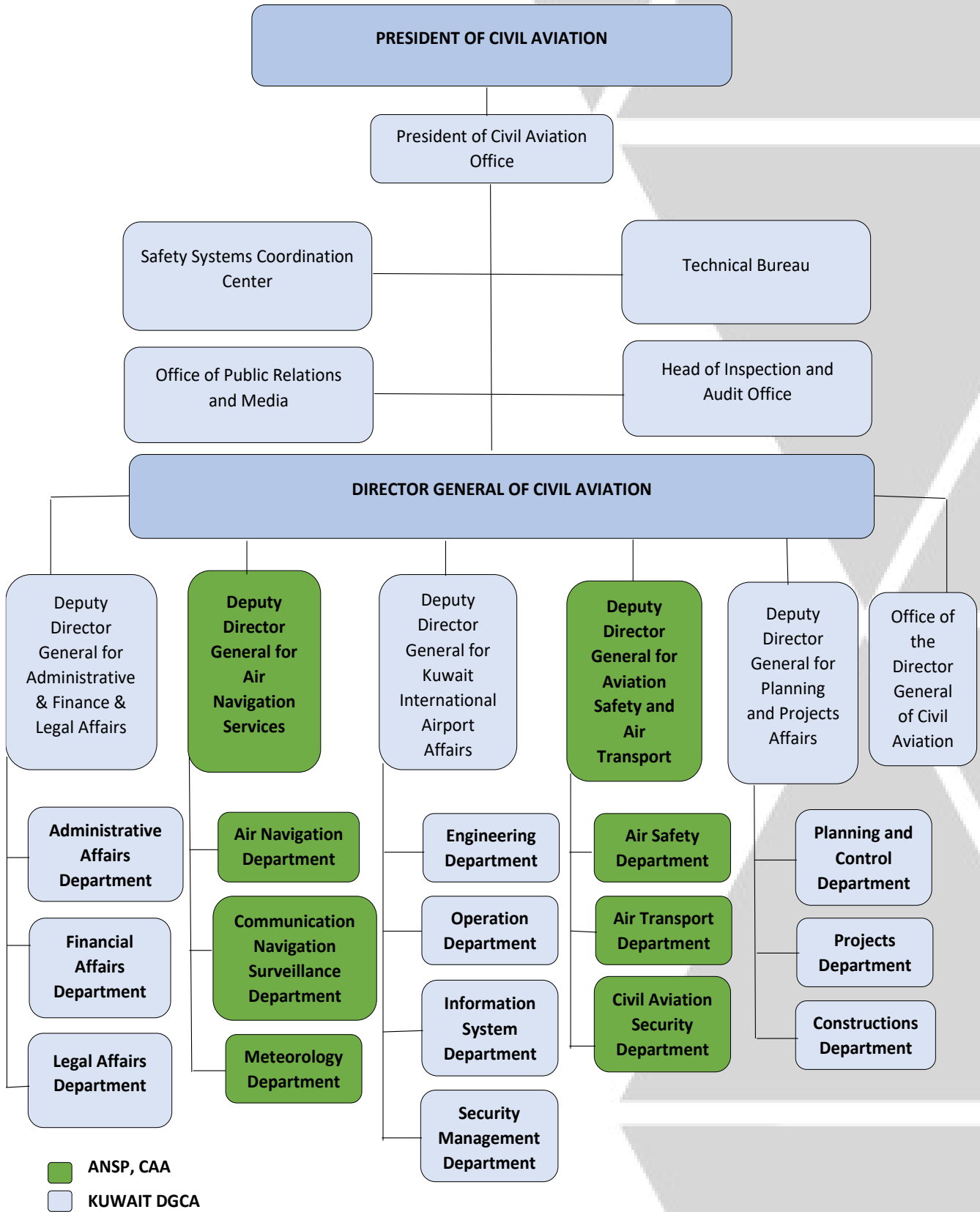
2.1 Kuwait DGCA

2.1.1 Overview of the Directorate General of Civil Aviation (DGCA) was established on 1956, signed the International Civil Aviation Organization (ICAO) agreement in 1960, And Based on Law No. 30/60, the DGCA was empowered by the Kuwaiti government to oversee and manage the civil aviation activities.

The Kuwait DGCA structure consists of two main components: Air Navigation service providers, Aerodrome Operator and the regulatory body, to ensure transparency and accountability, the executive accountable has issued a clear statement segregating the service provider functions from the regulatory responsibilities of the DGCA. This separation ensures that the DGCA can regulate and monitor aviation activities in Kuwait while providing essential services for a safe and efficient air transport system.

The government plays a crucial role in supporting the DGCA by managing its financial matters, ensuring the organization has the resources necessary to fulfill its mission and maintain its position as a leading authority in the global aviation community. As the aviation industry continues to evolve, the DGCA remains dedicated to upholding ICAO's SARPs and achieving higher levels of success through ongoing development projects and initiatives. Through its focus on safety, efficiency, and innovation, the DGCA strives to maintain its position as a leading authority in the global aviation community.

DGCA STRUCTURE



2.2 Aviation Safety Department

2.2.1 Aviation Safety Department is delegated to represent the Authority body, committed to implementing ICAO's standards and recommended practices (SARPs) to ensure the safety and efficiency of civil aviation within Kuwait. Its primary functions include:

- a) Developing and enforcing safety regulations and standards for aircraft operations, maintenance, and manufacturing.
- b) Licensing pilots, air traffic controllers, engineers, and other aviation professionals.
- c) Conducting periodic inspections and audits of airlines, aircraft, and aviation facilities.
- d) Collaborating with international aviation organizations, such as the International Civil Aviation Organization (ICAO), to harmonize safety standards and regulations. oversees civil aviation safety matters, such as registration, certification, oversight, Investigation activities, and license issuing.

2.3 Kuwait ANSP

2.3.1 Air Navigation Department is responsible for ensuring the safe, orderly, and efficient movement of aircraft within Kuwait airspace and on the Aerodrome. It plays a critical role in managing traffic movements and maintaining high levels of safety in the aviation industry. Key responsibilities include:

- a. Air Traffic Control (ATC): oversees air traffic controllers, who are responsible for controlling aircraft movements in Kuwait airspace and KIA.
- b. Air Traffic Management (ATM): responsible for implementing procedures and technologies to optimize the use of airspace, improve efficiency, and minimize delays. This includes route planning, airspace design, and management of air traffic flow.
- c. Aeronautical Information Services (AIS): responsible for collecting, processing, and disseminating aeronautical information necessary for safe and efficient flight operations. This includes aeronautical charts, Notices to Airmen (NOTAMs), and other relevant data.
- d. Communication systems: manages and maintains communication systems essential for air traffic control, including ground-to-air and air-to-ground communication networks.
- e. Safety and regulatory compliance work to ensure compliance with national and international aviation safety regulations and standards, collaborating with other aviation organizations and regulatory bodies.
- f. Training and development: responsible for the training and professional development of personnel for air traffic controllers and aeronautical information services officer to maintain high levels of competency and expertise.

2.3.2 By managing air traffic and maintaining the necessary infrastructure for safe traffic movements, the Air Navigation Department plays a crucial role in the overall safety and efficiency of airspace and Aerodrome operations and the aviation industry.

2.4 Navigation Equipment Department (NED)

2.4.1 NED at Kuwait International Airport (KIA) plays a crucial role in ensuring the safety and efficiency of air traffic in the region. Their primary responsibilities include the installation, maintenance, and calibration of various navigational aids and communication systems required for the smooth operation of the airport and its airspace, works closely with other departments at KIA, as well as with regional and international aviation organizations, to ensure the highest safety and operational standards. Their dedication to maintaining Kuwait's airspace navigational equipment 24/7, regardless of the challenging conditions, contributes significantly to the country's reputation as a leading aviation hub in the Region.

2.5 Metrological Department

2.5.1 The Metrological Department plays a vital role in ensuring the safety and efficiency of airport operations by providing accurate weather information and forecasts. Their services are crucial for pilots, air traffic controllers, and airport management in making informed decisions regarding flight operations and planning.

2.5.2 Key responsibilities:

- a. Weather observation and monitoring continuously monitors weather conditions, including temperature, humidity, wind speed and direction, cloud cover, precipitation, and visibility. This information is essential for pilots and air traffic controllers to make decisions related to take-offs, landings, and flight routes.
- b. Weather forecasting: Meteorologists analyze data collected from various sources, such as satellite imagery, weather radars, and ground-based observations, to provide accurate short-term and long-term weather forecasts for the airport and the surrounding airspace.
- c. Aviation weather reports prepares and disseminates aviation-specific weather reports, such as METARs (aviation routine weather reports).

2.6 Kuwait FIR

2.6.1 Kuwait FIR operates by ATS division which provide radar services for aircraft using Kuwait airspace. (Kuwait FIR CHART Figure (02):

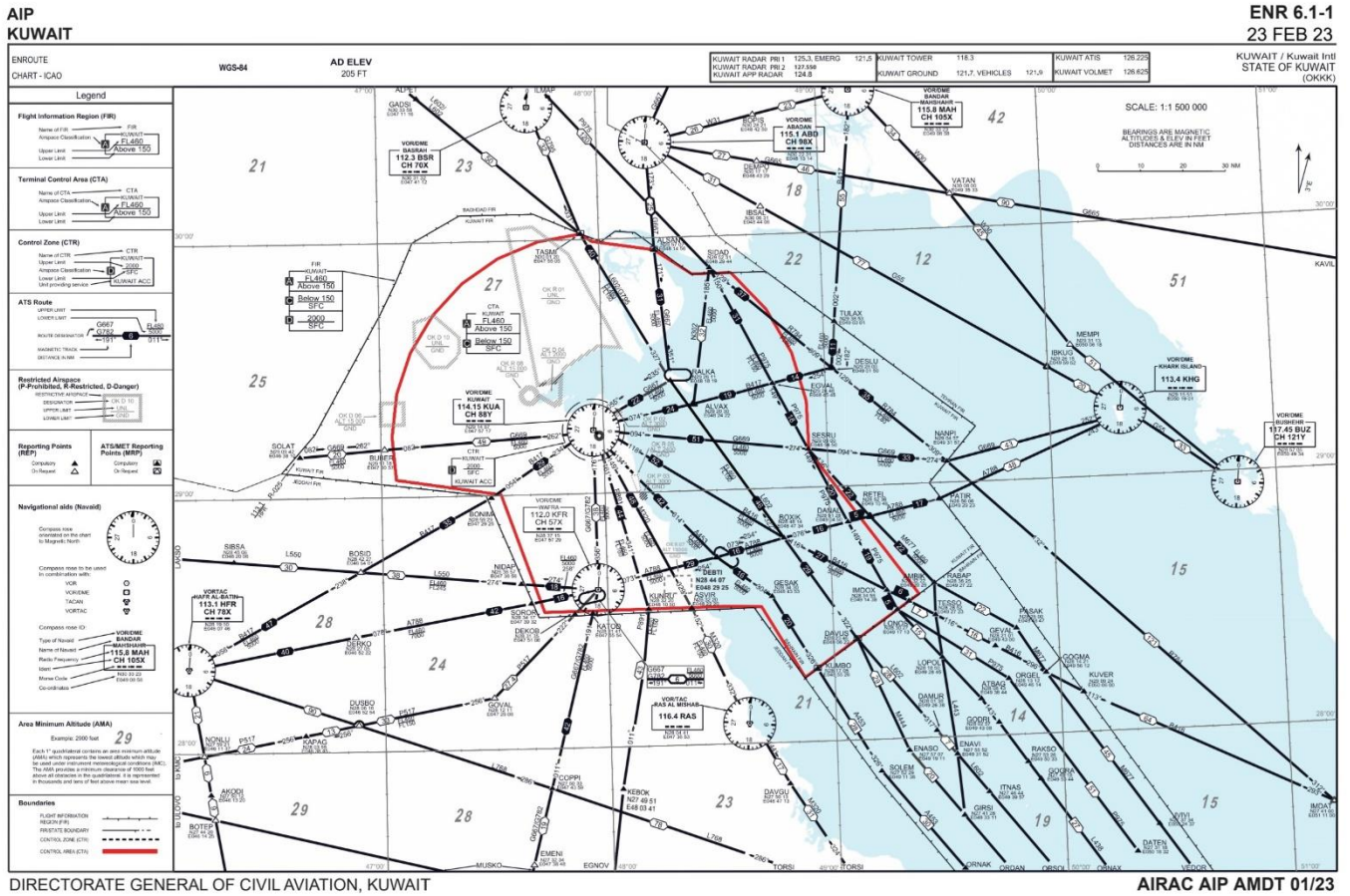
2.6.2 ATS division:

- a) Aerodrome Control Tower.
- b) Area, Approach Radar.

2.6.3 Air Traffic Control is exercised:

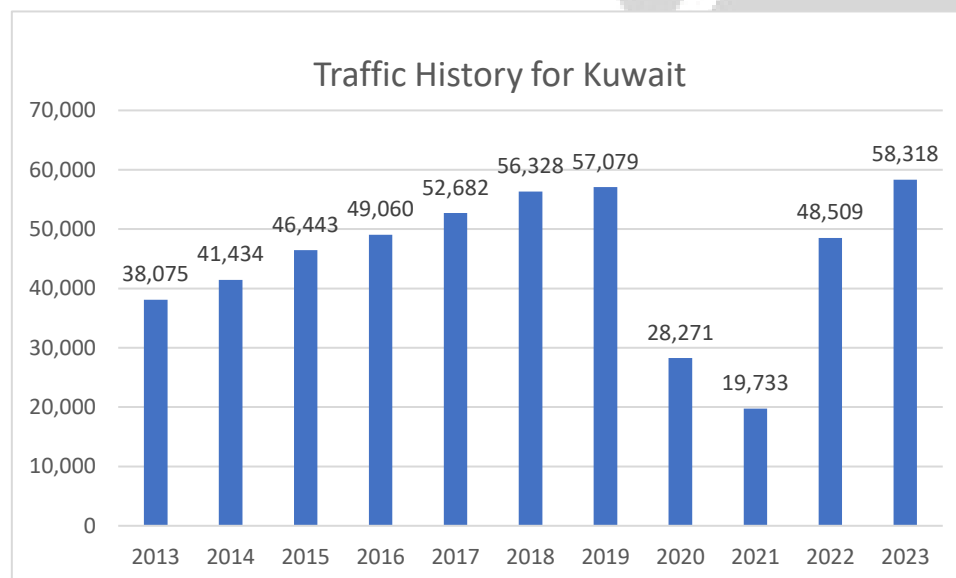
- a) In Class A airspace which is in the Kuwait FIR encompasses all controlled airspace at and above FL150-unlimited.
- b) In Class C airspace which is in the Kuwait FIR encompasses all controlled airspace SFC – Below FL150 within Kuwait CTA.
- c) In class D airspace, which is in Kuwait FIR, encompasses all controlled airspace SFC to 2000FT within Aerodrome CTR.

Kuwait FIR chart Figure (02)



2.7 Traffic History and forecast in Kuwait

2.7.1 Traffic History:



2.7.2 Traffic Forecast:

2.7.2.1 Assuring the safe, secure, and sustainable operations of air services; it will be key to provide aviation's ability to act as a catalyst for sustainable development at the local, national and global levels, and will consequently be vital to recover from the broader impacts of the COVID-19 pandemic.

ICAO forecasted that air passenger demand in 2023 will rapidly recover to pre-pandemic levels on most international routes by the first quarter and that growth of around 3% on 2019 figures will be achieved by year end.

In line with earlier ICAO predictions, the strong recovery in air passenger demand has resulted in 2022 passenger numbers reaching an estimated 74% of pre-pandemic levels. The number of passenger aircraft in service in 2022 mirrors the overall traffic recovery, with current estimates suggesting 75% of pre-pandemic levels.

Looking further ahead, airlines are expected to return to operating profitability in the last quarter of 2023, after three consecutive years of losses. Air passenger demand in 2024 is expected to be stronger, at around 4% higher than 2019. In terms of Compound Annual Growth Rate (CAGR), this translates to a growth of 0.7% over the 2019-2024 period.

2.7.2.2 In the MID Region, the traffic growth is expected to be 6.7% in 2024 compared with the traffic volume of 2023. Kuwait is identified as one of the main FIRs in the Region, as one of the main regional and international traffic flow is routing via the available route structure within Kuwait FIR.

CHAPTER 3

Planning & Implementation

3.1 Stakeholders Consultation

3.1.1 To insure Effective Implementation, Kuwait Air Navigation Service provider shall Coordinate the Kuwait National Air Navigation Plan with following stakeholders:

- a) Aviation Safety Department. (regulator)
- b) Aviation Security Department. (regulator)
- c) Kuwait Airways.
- d) JAZEERA Airways.
- e) Kuwait International airport.

3.2 Roles and Responsibilities

3.2.1 Regulator

3.2.1.1 Kuwait DSGCA developed national air navigation plans to ensure the provision of essential air navigation services for international civil aviation and the modernization of their air navigation system based on local performance and operational needs, taking into consideration regional requirements. In addition, the DGCA should share best practices and lessons learned from implementation challenges, performing cost-benefit analyses and assessing environmental impact, human performance and safety.

3.2.1.2 Moreover, the DGCA plays a crucial role in the implementation and supervision of the national air navigation plan. Some of the DGCA key responsibilities include:

- a) **Policy Development:** The DGCA is responsible for formulating policies and regulations that govern the modernization of ANS systems. This involves setting objectives and guidelines for the implementation of new technologies and processes.
- b) **Safety Oversight:** Ensuring the safety of the ANS system is a key duty of the DGCA. They have the responsibility to oversee the implementation of new technologies and assess their impact on safety.
- c) **Performance Monitoring:** Monitoring the performance of the modernized ANS system is essential for the DGCA. They need to establish performance indicators, collect data, and analyze it to assess the efficiency, effectiveness, and reliability of the newly implemented technologies and processes.
- d) **Stakeholder Collaboration:** The DGCA plays a critical role in facilitating collaboration among various stakeholders involved in the modernization process. This includes ANS service providers, airspace users, and international organizations. Collaboration aims to ensure that everyone's interests are considered and that the modernization efforts align with national and international aviation strategies.

3.2.1.3 Overall, the DGCA plays a vital role in overseeing and facilitating the modernization of ANS systems, ensuring safety, efficiency, and compliance with regulations.

3.2.2 ANSPs

3.2.2.1 In the context of the NANP, ANSPs refer to all stakeholders involved in the provision of air navigation services in the areas of aerodrome operations, ATM, meteorology, aeronautical information and search and rescue. ANSPs are responsible for planning, organizing and efficiently managing the air navigation system so that it achieves its optimum performance.

3.2.2.2 The ANSPs play a critical role in the modernization of ANS systems by taking on various responsibilities, including planning, procurement, safety management, training, operational efficiency, collaborations, system monitoring, and regulatory compliance. Their roles and responsibilities include:

- a) **Continuous Improvement and Modernization:** ANSPs are responsible for continuously improving and modernizing their air navigation systems and services to meet evolving aviation needs and standards. This includes adopting new technologies, implementing performance-based navigation procedures, enhancing operational efficiency, and participating in regional and international initiatives for harmonization and interoperability.
- b) **Regulatory Compliance:** ANSPs are required to comply with national and international regulations and standards related to air navigation. This includes adhering to norms set by the International Civil Aviation Organization (ICAO), national aviation authorities, and other regulatory bodies. ANSPs are responsible for implementing and maintaining the necessary processes, procedures, and documentation
- c) to demonstrate compliance with these requirements.

3.2.3 Airport Operators

3.2.3.1 Airport operators support the development of the NANP with the aim of increasing the efficiency of their operations for the benefit of all the stakeholders that they serve. Airport operators also contribute to the implementation of the NANP by providing data, forecasts and resources so that the infrastructure and services of the air navigation system can be optimally designed, developed and operated and can provide sustainable benefits to the communities being served.

3.2.3.2 The aerodrome operator plays a crucial role in the implementation of the national air navigation plan. Their roles and responsibilities include:

- a) **Compliance with Air Navigation Plan:** The operator must align the aerodrome's operations, facilities, and services with the national air navigation plan. This involves coordinating with air navigation service providers, implementing the required navigational aids, communication systems, and surveillance infrastructure, and ensuring seamless integration with the national airspace system.
- b) **Infrastructure Development and Maintenance:** The operator is responsible for the development, expansion, and maintenance of the aerodrome infrastructure. This includes runways, taxiways, aprons, terminal buildings, navigation aids, and other facilities. They must ensure that the infrastructure meets the operational and safety requirements specified in the national air navigation plan.

- c) **Emergency Response:** The operator must establish and maintain an emergency response plan. This plan should outline procedures for handling various types of emergencies, such as aircraft incidents, accidents, natural disasters, and security threats. The operator is responsible for coordinating emergency services, conducting drills and exercises, and continuously improving the emergency response capabilities of the aerodrome.
- d) **Stakeholder Engagement:** The operator must engage and collaborate with various stakeholders, such as airlines, air navigation service providers, regulatory authorities, local communities, and environmental agencies. This involves regular communication, addressing concerns and feedback, and participating in industry forums and committees to contribute to the development and implementation of national air navigation plans.
- e) **Continuous Improvement:** The operator should continuously monitor and evaluate the aerodrome's performance, identify areas for improvement, and implement corrective actions. This involves conducting regular inspections, audits, and quality control assessments to ensure adherence to national air navigation plan requirements and achieve operational excellence.

3.3 Planning Method

3.3.1 The Thirteenth Air Navigation Conference recommended that ICAO encourage the planning and implementation regional groups (PIRGs) to embrace a performance-based approach (PBA) for implementation and adopt the six-step performance management process, as described in the Manual on Global Performance of the Air Navigation System (Doc 9883), by reflecting the process in Volume III of all regional air navigation plans. Recommendation 4.3/1 — Improving the performance of the air navigation system.

3.3.2 This Plan has been developed based on Performance based Approach using the ICAO 6-steps methods depicted in figure (01).

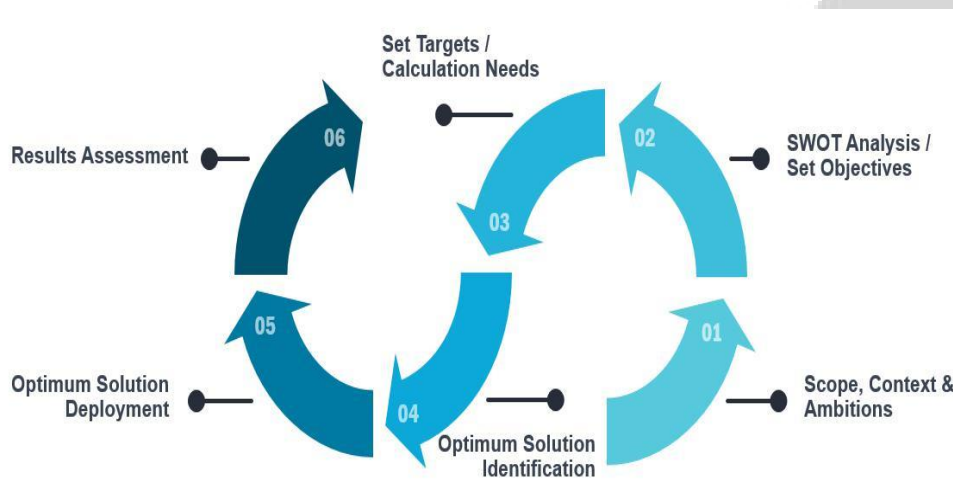


Figure (01)

3.4 Scope, Context and Ambitions

3.4.1 Kuwait DGCA decided to implement the performance-based approach on Kuwait FIR and selected the following performance ambitions (Capacity, Efficiency and Safety) from the catalogue of performance objectives that is part of the GANP global performance framework.

KPA	Ambitions
Capacity, throughput and utilization	En-route Airspace Capacity
Predictability	Punctuality
Safety	Maintain or improve safety

3.5 SWOT Analysis

- Strengths: internal attributes of a system or an organization that can help in the realization of ambitions or in meeting expectations.
- Weaknesses: internal attributes of a system or an organization that are a detriment to realizing ambitions or meeting expectations.
- Opportunities: are external conditions that help in the realization of ambitions or in meeting expectations.
- Threats: external conditions that are a detriment or harmful to realizing ambitions or meeting expectations.

Strengths

Experienced committed Staff and supportive management
New runway, terminal, airport
Modern CNS/ATM infrastructure
ATC Simulator
Outsourcing maintenance
Supporting CAT III operation
Mature ANS safety oversight system

Weaknesses

No ANS Master plan
No planning team/department within ANS
Training challenges
Lengthy administrative process/procedure
Shortage of staff in ATC & MET
Difficulty to implement some of priority 1 ASBU elements included in the MID ANP Vol III
No contingency plan for overflying
unbalanced ATCO workload “ATFM Implementation”
No in-house capability for IFP design
Frequent GNSS interference reports
Concentrated traffic flow into two unidirectional routes
Ground movement complexities
Obsolete MET systems and lack of sufficient backup

Opportunities

Kuwait’s Vision 2035
Traffic growth is foreseen
Environmental Ambition “reduction of CO2 emission (fuel saving)”

Threats

Contingency situation (Service interruption due to natural disaster, cyber-attack,..etc)
Low visibility condition

3.6 Performance targets, baseline and optimum solutions

3.6.1 Based on national performance and operational needs, differences, constraints and opportunities, the national planning and implementation priorities, aligned with the GANP and MID ANP have been identified as in Table (**attachment 1**).

3.6.2 The functional description, enablers deployment, applicability of each ASBU element as well as performance impact assessment can be found at the ICAO GANP portal, link <https://www4.icao.int/ganportal/ASBU>

3.6.3 In accordance with the MID Region Air Navigation Strategy (ICAO MID Doc 002) Additional ASBU threads/Elements have been identified by MIDANPIRG as priority 1 for implementation in the MID Region, those Threads/Elements that have the highest contribution to the improvement of air navigation safety and/or efficiency in the MID Region. These applicable Elements for Kuwait are at Table (**attachment 2**) and will be used for the purpose of regional air navigation monitoring and reporting at Regional level.

3.6.4 Several challenges and opportunities have emanated from SWOT analysis in previous step, some of which are addressed in the Performance based framework and/or Regional requirements, in attachment 1 and 2 respectively. However, the area of concerns – organizational or Technical issues - that are not directly addressed in both tables and their solutions, status and timeline are at (**attachment 3**) - Miscellaneous Areas of Concern.

3.7 Monitoring the implementation

3.7.1 Step 5 is the execution phase of the performance management process. This is where the changes and improvements that were decided upon during the previous steps are organized into detailed plans, implemented, and begin delivering benefits.

3.7.2 Once the optimum solutions have been identified, it is the moment to start the execution phase of the performance management process. The changes and improvements that have been identified as the optimum solutions to maintain the expeditious of aircraft operations and to enhance ATM capacity during the previous steps are organized into plans, implemented and begin delivering services to achieve the expected performance. During this execution phase, it is important to keep track of the project deployments (time, budget, etc.). Table (Performance based Framework) will be used for implementation monitoring on annual basis.

3.8 Assess Achievement

3.8.1 The purpose of this Step is to continuously keep track of performance and monitor whether performance gaps are being closed as planned and expected.

3.8.2 Once the project is implemented, it is time to assess the benefits from the implementation. This means measuring the performance of the operational environment under analysis once the solution/s has/have been deployed. First and foremost, this implies data collection to populate the supporting metrics with the data needed to calculate the performance indicators. The indicators are then compared with the targets defined to draw conclusions on the speed of progress in achieving the objectives.

3.8.3 This step also includes monitoring progress of the implementation projects, particularly in those cases where the implementation of solutions takes several years, as well as checking periodically whether all assumptions are still valid and the planned performance of the solutions is still meeting the (perhaps changed) requirements.

3.8.4 With regard to the review of actually achieved performance, the output of this step is simply an updated list of performance gaps and their causes. In practice, the scope of the activity is often interpreted as being much wider and includes recommendations to mitigate the gaps.

Attachment 1: ANS Performance Based Framework

- (1) ICAO defined 11 Key Performance Areas. Include the list of KPAs and its definition
- (2) Performance Objectives. These objectives have been selected from the catalogue of performance objectives.
- (3) KPIs based on the ICAO list of KPIs
- (4) The selected Variant to measure KPI
- (5) The Baseline of each KPI
- (6) The Status of each KPI
- (7) The Target of the KPI
- (8) Selected ASBU elements /operational improvements for each operational environment.
- (9) Target Implementation Date.

Note: cells highlighted with blue are ASBU Elements

KPA	Performance Objective	KPI	Variant	baseline	Status	Target	Operational Improvements (ASBU Elements/Enablers & Non ASBU)	Target Date
1	2	3	4	5	6	7	8	9
Capacity	Increase Planned En-route Airspace Capacity	KPI06	Movements/ hour	79 Per hour		30 %	Reduce lateral separation through the implementation of RNAV1 parallel routes	2025
							FICE B0/1 with Bahrain, Iraq and Saudi Arabia	2025
							Increase individual sector capacity by reducing ATCO workload FRTO B0/4	2026
							FRTO B0/4 - Basic conflict detection and conformance monitoring	2026

KPA	Performance Objective	KPI	Variant	baseline	Status	Target	Operational Improvements (ASBU Elements/Enablers & Non ASBU)	Target Date
1	2	3	4	5	6	7	8	9
							Improve ATS routes network interface with Iraq	2026
							Increase maximum sector configuration by Application of vertical sector splitting	2026
Predictability / Punctuality	Improve Departure Punctuality	KPI01	% of departures within ± 15 minutes of scheduled time of departure	52%		90%	Prevent early take-offs by delaying pushback of flights ready at the gate/stand	2025
							Airport runway expansion (Third runway)	2026
							Optimize the number of scheduled flights adhering to the push-back tolerance window by reducing the number of scheduled flights with push-back before the tolerance window	2025

KPA	Performance Objective	KPI	Variant	baseline	Status	Target	Operational Improvements (ASBU Elements/Enablers & Non ASBU)	Target Date
1	2	3	4	5	6	7	8	9
							<p>NOPS B0/1 - Initial integration of collaborative airspace management with air traffic flow management</p> <p><i>Enablers:</i> <i>AMET</i> <i>B0/1 (implemented)</i> <i>FRTO B0/2 (Not implemented)</i></p>	2026
							Reduce Taxi-out time by implementing SURF B0/1	Implemented
							Delay take-off clearance for flights arriving too early at the departure RWY	2025
							RSEQ B0/2– Departure Management	2026
	Maintain or improve Arrival Punctuality	KPI14	% of arrivals within ± 15 minutes of scheduled time of arrival	97.2%		98%	<i>No action is required at this stage, the performance will be monitored regularly, and appropriate action(s) will be identified when needed.</i>	-

KPA	Performance Objective	KPI	Variant	baseline	Status	Target	Operational Improvements (ASBU Elements/Enablers & Non ASBU)	Target Date	
1	2	3	4	5	6	7	8	9	
Safety	Reduce the risk of non-collision related occurrences associated with incorrect or unsafe usage of runways	KPI21	Number of runway incursions	14		0	SURF B0/1 – Basic ATCO Tools to manage traffic during ground Operations	Implemented	
							SURF B0/2 - Comprehensive situational awareness of surface operations	2025	
							SURF B1/5 - Enhanced vision systems for taxi operations	2026	
							SURF B2/2 - Comprehensive vehicle driver situational awareness on the airport surface	2028	
	Maintain or improve safety in the air	KPI23	TCAS Alert	8 Pear year			0	SNET B0/1: Short Term Conflict Alert <i>Enablers (ASUR B0/1 or ASUR B0/2)</i>	Implemented
								SNET B1/1: Enhanced STCA with aircraft parameters	Implemented
								SNET B1/2: Enhanced STCA in complex TMA	Implemented
								ACAS B1/1	Implemented

KPA	Performance Objective	KPI	Variant	baseline	Status	Target	Operational Improvements (ASBU Elements/Enablers & Non ASBU)	Target Date
1	2	3	4	5	6	7	8	9
							FRTO B0/4: Basic conflict detection and conformance monitoring Enabler FRTO B0/1 (implemented)	2026

Attachment 2: Priority 1 ASBU Threads/Elements applicable for Kuwait

Element		Status	Target Date
<i>Information Threads</i>			
DAIM			
DAIM B1/1	Provision of quality-assured aeronautical data and information	50%	2026
DAIM B1/3	Provision of digital terrain data sets	66%	2026
DAIM B1/4	Provision of digital obstacle data sets	66%	2026
AMET			
AMET B0/1	Meteorological observations products	78%	2027
AMET B0/2	Meteorological forecast and warning products	75%	2027
AMET B0/3	Climatological and historical meteorological products	100%	2027
AMET B0/4	Dissemination of meteorological products	80%	2027
FICE			
FICE B0/1	Automated basic inter facility data exchange (AIDC)	0%	2025

Operational Threads			
APTA			
APTA B0/1	PBN Approaches (with basic capabilities)	100%	
APTA B0/2	PBN SID and STAR procedures (with basic capabilities)	100%	
APTA B0/7	Performance based aerodrome operating minima – Advanced aircraft	100%	
FRTO			
FRTO B0/2	Airspace planning and Flexible Use of Airspace (FUA)	0%	2026
FRTO B0/4	Basic conflict detection and conformance monitoring	0%	2026
NOPS			
NOPS B0/1	Initial integration of collaborative airspace management with air traffic flow management	0%	2026
ACAS			
ACAS B1/1	ACAS Improvements Operational	100%	Implemented

SNET			
SNET B0/1	Short Term Conflict Alert (STCA)	100%	Implemented
SNET B0/2	Minimum Safe Altitude Warning (MSAW)	100%	Implemented
GADS			
GADS B1/2	Operational Control Directory	0%	2023
SURF			
SURF-B0/1	Basic ATCO tools to manage traffic during ground operations	100%	Implemented
ACDM			
ACDM B0/1	Airport CDM Information Sharing (ACIS)	0%	2027
ACDM B0/2	Integration with ATM Network function	0%	2027
ACDM B1/1	Airport Operations Plan (AOP)	0%	2027
Technology Threads			
ASUR			
ASUR B0/1	Automatic Dependent Surveillance – Broadcast (ADS-B)	100%	Implemented

ASUR B0/2	Multilateration cooperative surveillance systems (MLAT)	0%	2024
ASUR B0/3	Cooperative Surveillance Radar Downlink of Aircraft Parameters (SSR-DAPS)	100%	Implemented
NAVS			
NAVS B0/3	Aircraft Based Augmentation Systems (ABAS)	100%	Implemented
NAVS B0/4	Navigation Minimal Operating Networks (Nav. MON)	0%	2025
COMI			
COMI B0/7	ATS Message Handling System (AMHS)	100%	Implemented
COMI B1/1	Ground-Ground Aeronautical Telecommunication Network/Internet Protocol Suite (ATN/IPS)	0%	2025

Attachment 3: Miscellaneous areas of concern

Area of Concern	Solution(s)	Target Date	Status/ Progress
Organizational Issues			
No planning team/department within ANS	Establish ANS Planning Team	2024	
Training challenges	Outsource training	2023	
Shortage of staff in ATC & MET	Recruit new staff for ATC and MET	2024- 2025	
Obsolete MET systems and lack of sufficient backup	Purchase new MET systems (main and backup)	2024-2026	
Difficulty to implement some of priority 1 ASBU elements included in the MID ANP Vol III	<ul style="list-style-type: none"> - Allocate required financial and human sources to implement regional requirements - Participation to ICAO MID events 	2023-2027	
Technical Issues			
No in-house capability for IFP design	Make use of MID FPP services	2023-2025	
Frequent GNSS interference reports	Implement mitigation measures in accordance with RSA-MID 14: GNSS vulnerabilities	2023-2024	
Contingency situation (Service interruption due to natural disaster, cyber-attack,,etc)	Develop contingency plan to ensure service continuity in case of service disruption due to external factors (natural disaster, cyber security, etc)	2023 – 2024	

END