NIGERIA'S NATIONAL ASBU PLAN

NIGERIA'S NATIONAL PLAN

FOR

IMPLEMENTATION OF ICAO AVIATION SYSTEMS BLOCK UPGRADE

September 2017

Overview

NIGERIA'S NATIONAL AIR NAVIGATION PLAN

(ASBU IMPLEMENTATION)

2015 - 2030

NIGERIA'S NATIONAL ASBU PLAN

Overview

Overview

- Executive Summary
- Objectives of the ASBU Plan
- Safety Targets
- Operational Targets
- Historical Background: CNS/ATM Plan, Aviation Master Plan, Aviation Policy
  - Structure of the Nigerian Aviation Industry (NCAA, FAAN, NAMA, NIMET, Airlines)
- Existing Infrastructure (ANS, AGA, MET, etc.)

NIGERIA'S NATIONAL ASBU PLAN

ASBU Implementation Plan Outline

ASBU Implementation National Plan Outline:

- Background
- Strategic Objectives for Implementation of ASBU
- Review of Global Air Navigation Plan
- Review of Regional Air Navigation Plan
- National Air Navigation Plan
- Statistics on Current Traffic and Future Trend
- State of Existing Facilities, Services, Procedures and Regulations
- Short and Medium Term

NIGERIA'S NATIONAL ASBU PLAN

ASBU Implementation Plan Outline

- ASBU Priorities Based on National Objectives
- ASBU Block 0 Modules
- ASBU Block 1 Modules
- ASBU Block 2 Modules
- ASBU Block 3 Modules
- Communication, Navigation and Surveillance Facilities
- Air Traffic Management Facilities
- Aeronautical Information Management Facilities

NIGERIA'S NATIONAL ASBU PLAN

ASBU Implementation Plan Outline

- Regulations
- Safety (SSP and SMS)
- Airport Operations (Security, Facilitation and ARFS)
- Meteorology
- Environment
- Avionics

NIGERIA'S NATIONAL ASBU PLAN

ASBU Implementation Plan Outline

- Technology Roadmap for CNS
- Technology Roadmap for ATM
- Technology Roadmap for AIM
- Technology Roadmap for Meteorology
- Technology Roadmap for Avionics

NIGERIA'S NATIONAL ASBU PLAN

OBJECTIVE OF NATIONAL ASBU PLAN

Executive Summary:

- The National Aviation System Block Upgrade Implementation Plan is designed in line with the concept and objective of the Global and Regional Air Navigation Plans. The Nigerian ASBU Implementation Plan therefore seeks to provide guidance for all air navigation service providers and related stakeholders in the implementation of operational improvements in the aviation industry, in line with the ASBU timelines and technological roadmaps.

Objective of ASBU Implementation Plan

- The objective of ASBU implementation planning is to harmonize the implementation of facilities, services or procedures amongst various air navigation stakeholders in line with the Regional and Global Air Navigation Plans towards the attainment of a harmonized, interoperable and seamless global air traffic management system.

NIGERIA'S NATIONAL ASBU PLAN

SAFETY TARGETS

Regional Safety Targets Based on Abuja Ministerial Declaration:

- **Nigeria is Committed to the following Safety Targets established by Ministerial Conference of African Ministers of Transportation on 12th July 2012 at Abuja, Nigeria, known as the Abuja Declaration:**

- 1. Reduction of aircraft fatal accidents associated to Runway incursions, excursion and confusion by 50% by December 2015;

- 2. Reduction of aircraft fatal accidents associated to Loss of Control in Flight (LOC-I) by 50% by December 2015;

Regional Safety Targets Based on *Abuja Ministerial Declaration*

***Contd*:**

- 3. Reduction of aircraft fatal accidents associated to Controlled Flight Into Terrain (CFIT) by 50% by December 2015;
- 4. Resolution of all Significant Safety Concerns within the AFI Region by December 2015;
- 5. Ensure at least 50% of AFI States achieve greater 60% Effective Implementation (EI) of Safety Oversight by December 2015.

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SAFETY TARGETS

National Safety Targets:

The Nigerian Air Navigation Safety Targets:

- *1. To achieve and maintain a Zero Airprox Level*
- *2. To reduce total annual air safety incidents by 50%.*
- *3. To attain and sustain a Zero Fatal Accident Level.*
- *4. Reduce Air Navigation Services related incidents by 50%.*
- *5. To increase ATM and airspace capacity by 50%.*

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OPERATIONAL TARGETS

- **1.** To enhance Air Traffic Management and airspace capacity to safely and efficiently accommodate between 500 – 1000 flights daily at Lagos, Abuja, Port Harcourt and Kano, from the current daily maximum of 300 flights (arrival & departure)daily in Lagos.
- **2.** To develop capacity that can Safely and efficiently handle peak traffic operations at the Rate of 1 flight per minute at Lagos and Abuja, that is 60 flights per hour.
- **3.** To ensure the provision of Total Radar Control Service (Approach and Area Control services) nationwide for 24 hours daily.

NIGERIA'S NATIONAL ASBU PLAN

OPERATIONAL TARGETS

- **4.** To reduce by 50% all Air Navigation Services related Air Traffic Services incidents,
- **5**. To safely transit from Aeronautical Information Services to Aeronautical Information Management in 2017,
- **6.**To effectively implement QMS and SMS in all safety services,
- **7.** To develop safety critical manpower capacity that will cope with the increased demand for the provision of air navigation services at all Federal, State or Privately owned airports nationwide,

NIGERIA'S NATIONAL ASBU PLAN

OPERATIONAL TARGETS

- **8.** To reduce flight delays and flight times at both terminal and enroute,
- **9**. To reduce operational cost to users,
- **10**. To enhance automation of business process,
- **11**. To achieve certification of all Nigerian international aerodromes,
- **12**. To achieve the certification of the ANSP (NAMA),
- **13**. To achieve the certification of the Aeronautical Meteorological Services Provider (NIMET).

SAFETY PERFORMANCE INDICATORS

Nigerian Aviation Key Performance Indicators:

- The Key Performance Indicators for monitoring and measuring air safety levels shall include the following:
- 1. Number of Air Safety Reports.
- 2. Percentage of Airprox to total Number of Air Safety Reports.
- 3. Percentage reduction in Flight delays at en-route and in terminal areas.

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SAFETY PERFORMANCE INDICATORS

Nigerian Aviation Key Performance Indicators Contd:

- 4. Percentage Reduction in CO_2 emissions
- 5. Percentage of PBN Approaches implemented
- 6. Number of Uni-directional routes, PBN Routes and iflex routes
- 7. Reduction in the Number of TCAS Resolution Advisories
- 8. Percentage of aircraft fatal accidents to total annual aircraft movements.

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Flight Statistics (2011 – 2016)

Actual Flight Statistics from 2011 – 2016:

Year	Total Flights
2011	284,926
2012	221,803
2013	275,827
2014	298,793
2015	327,905
2016	253,333

NIGERIA'S NATIONAL ASBU PLAN

Forecast Flight Statistics (2017 – 2026)

Year	Total Flights
2017	266,000
2018	279,300
2019	293,265
2020	307,928
2021	323,324
2022	339,490
2023	356,465
2024	374,288
2025	393,003
2026	412,653

NIGERIA'S NATIONAL ASBU PLAN

INTRODUCTION TO GANP

- The 4th Edition of the Global Air Navigation Plan (GANP) represents a rolling, 15-year strategic framework which leverages on existing technologies and anticipates future developments based on State/industry agreed operational objectives. The Block Upgrades are organized in five-year time increments starting from 2013 and continuing through 2028 and beyond.

NIGERIA'S NATIONAL ASBU PLAN

INTRODUCTION TO GANP

- This structured approach provides a basis for sound investment strategies and will generate commitment from States, equipment manufacturers, operators, regulators and service providers.
- The ASBU Blocks consists of Modules that represents elements for operational improvements in key performance areas.

NIGERIA'S NATIONAL ASBU PLAN

INTRODUCTION TO GANP

- The 2013–2028 ICAO Global Air Navigation Plan presents all States with a comprehensive planning tool supporting a harmonized global Air Navigation system.
- It identifies all potential performance improvements available today, details the next generation of ground and avionics technologies that will be deployed worldwide, and provides the investment certainty needed for States to make strategic decisions for their individual planning purposes.

NIGERIA'S NATIONAL ASBU PLAN

INTRODUCTION TO GANP

- ICAO has also released the 5th Edition of GANP (Doc 9750) effective from 2016 – 2030.
- The objective of the 5th GANP is to increase capacity and improve efficiency of the global civil aviation system whilst improving or at least maintaining safety. The GANP also includes strategies for addressing the other ICAO Strategic Objectives.
- The 5th Edition of the GANP also reviewed the timeframe of the ASBU Blocks from 5 year rolling plans to 6 year rolling plans to accommodate the triennial nature of the ICAO Assembly.

NIGERIA'S NATIONAL ASBU PLAN

INTRODUCTION TO GANP

- The 5th Edition of the GANP indicate that ICAO priority over the next three years will focus on the development and implementation of Performance-Based Navigation (PBN), Continuous Descent Operations (CDO), Continuous Climb Operations (CCO) and Air traffic Flow Management (ATFM), including Runway Sequencing capabilities (AMAN/DMAN).

NIGERIA'S NATIONAL ASBU PLAN

INTRODUCTION TO GANP

- **Strategic Objectives of The Global Air Navigation Plan:**
- **Safety:**

  Enhance global civil aviation safety.

- **Air Navigation Capacity and Efficiency:**

  Increase capacity and improve efficiency of the global civil aviation system.

- **Security and Facilitation:**

  Enhance global civil aviation security and facilitation.

- **Economic Development of Air Transport:**

Foster globally harmonized development of a sound and economically-viable civil aviation system.

- **Environmental Protection:**

Minimize the adverse environmental effects of civil aviation activities.

Focus Areas of The GANP:

- **Air Navigation Services:**

  Communication, Navigation, Surveillance and Air Traffic Management,

  Aeronautical Information Management, and

  Meteorological Information Management

NIGERIA'S NATIONAL ASBU PLAN

INTRODUCTION TO GANP

Regulation:

Performance Based Regulations

- **Operators:**

Avionics Technology Roadmap

- **Airport Operations:**

Security and Facilitation

NIGERIA'S NATIONAL ASBU PLAN

Regional Air Navigation Plan

- The ICAO Africa and Indian Ocean Regional Air Navigation Plan November 2012 was developed in line with the 4th & 5th Edition of Global Air Navigation Plan.
- The AFI RAN (Doc 7474) provides framework for the development of National Air Navigation Plans by AFI member states.
- The AFI RAN clearly states the strategic objectives and priorities of the ICAO AFI Region.

NIGERIA'S NATIONAL ASBU PLAN

Regional Air Navigation Plan - Focus

The AFI RAN is divided into 11 Parts covering the following areas:

- Part 1 – General Regional Planning
- Part 2 – Aerodrome Operations
- Part 3 – Communications, Navigation, Surveillance
- Part 4 – Air Traffic Management

NIGERIA'S NATIONAL ASBU PLAN

Regional Air Navigation Plan - Focus

- Part 5 – Meteorology
- Part 6 – Search and Rescue
- Part 7 – Aeronautical Information Management
- Part 8 – Safety
- Part 9 – Human Resources and Training
- Part 10 - Contingency Planning
- Part 11 – Environment.

NIGERIA'S NATIONAL ASBU PLAN

AFI Region ASBU Categorisation and Priotization

- **APIRG/19** (Dakar, Senegal, 28 to 31 October 2013) has established a Draft AFI Air Navigation System Implementation Action Plan For The Africa Indian Ocean (AFI) Region.
- On the basis of operational requirements and taking into account benefits associated, AFI region has chosen all 18 Block 0 Modules for implementation.
- A module categorization and implementation priority was developed for the AFI region.

NIGERIA'S NATIONAL ASBU PLAN

AFI Region ASBU Categorisation and Priotization

The ASBU Categories are as follows:

- a) **Essential (E)**: These are the ASBU modules that provide substantial contribution towards global interoperability, safety or regularity. (5)
- b) **Desirable (D)**: These are the ASBU modules that, because of their strong business and/or safety case, are recommended for implementation almost everywhere. (8)
- c) **Specific (S)**: These are the ASBU modules that are recommended for implementation to address a particular operational environment in specific countries of AFI region (for example South Africa). (3)
- d) **Optional (O)**: These are the ASBU modules that address particular operational requirements in specific countries of AFI region and provide additional benefits that may not be common everywhere. (2)

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AFI Region ASBU Categorisation and Priotization

The ASBU Priorities for implementation are:

- Priority 1 = immediate implementation (7)
- Priority 2 = recommended implementation (11)
- NB: Only 7 Modules will have priority 1 as they cover most of the AFI States.
- Remaining Modules are priority 2 and apply to only specific State(s) of AFI region.

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AFI Region ASBU Categorisation and Priotization

Performance Improvement Areas	Module	Module Title	Priority	Categorisation
Airport Operations	B0-15 RSEQ	Improve Traffic flow through Runway Sequencing (AMAN/DMAN)	2	Optional
	B0-65 APTA	Optimization of Approach Procedures including vertical guidance	1	Essential
	B0-70 WAKE	Increased Runway Throughput through optimized Wake Turbulence Separation	2	Specific
	B0-75 SURF	Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)	2	Optional
	B0-80 ACDM	Improved Airport Operations through Airport-CDM	1	Desirable

NIGERIA'S NATIONAL ASBU PLAN

AFI Region ASBU Categorisation and Priotization

Performance Improvement Areas	Module	Module Title	Priority	Categorisation
Globally Interoperable Systems and Data - Through Globally Interoperable System Wide Information Management	B0-25 FICE	Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration	1	Essential
	B0-30 DATM	Service Improvement through Digital Aeronautical Information Management	1	Essential
	B0-105 AMET	Meteorological information supporting enhanced operational efficiency and safety	2	Desirable

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AFI Region ASBU Categorisation and Priotization

Performance Improvement Areas	Module	Module Title	Priority	Categorisation
Efficient Flight Path – Through Trajectory-based Operations	B0-10 FRTO	Improved Operations through Enhanced En-Route Trajectories	1	Essential
	B0-35 NOPS	Improved Flow Performance through Planning based on a Network-Wide view	2	Desirable
	B0-84 ASUR	Initial capability for ground surveillance	2	Desirable
	B0-85 ASEP	Air Traffic Situational Awareness (ATSA)	2	Specific
	B0-86 OPFL	Improved access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B	2	Specific
	B0-101 ACAS	ACAS Improvements	1	Essential
	B0-102 SNET	Increased Effectiveness of Ground-Based Safety Nets	2	Desirable

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AFI Region ASBU Categorisation and Priotization

Performance Improvement Areas	Module	Module Title	Priority	Categorisation
Optimum Capacity and Flexible Flights – Through Global Collaborative ATM	B0-05 CDO	Improved Flexibility and Efficiency in Descent Profiles (CDO)	2	Desirable
	B0-40 TBO	Improved Safety and Efficiency through the initial application of Data Link En-Route	2	Desirable
	B0-20 CCO	Improved Flexibility and Efficiency Departure Profiles - Continuous Climb Operations (CCO)	2	Desirable

NIGERIA'S NATIONAL ASBU PLAN

National Air Navigation Plan

National Civil Aviation Policy:

- The Nigerian Civil Aviation Policy was first developed in 2006 and revised in 2013.
- **The main focus of the Civil Aviation Policy include:**
- Develop airport cities through massive infrastructural deployment.
- Develop an aviation university to enhance manpower capacity
- Encourage foreign direct investment into airports through concessions.
- Provide incentives for the development of regional hubs at Lagos and Kano.
- Establishment of a national carrier or flag carrier airline for Nigeria.

Nigerian Aviation Master Plan:

Objectives of the Master Plan:

- Institutionalizing world class safety and security standards.
- Institutional Reforms.
- Infrastructure Development.
- Development of Airport Cities to transform airports into major employment, shopping, trading, business, leisure and cargo village destinations.

NIGERIA'S NATIONAL ASBU PLAN

National Air Navigation Plan

Aviation Master Plan:

Objectives of the Master Plan Contd:

- Transform Nigeria Airport Network into domestic and international Hubs.
- Transformation of the Nigerian College of Aviation Technology to become a regional center of excellence in aviation training and capacity building towards self sustenance.
- Designation of Economic Free Zones and Agro-Allied Focused airports based on local endowments and competitive advantage.
- Creating economic free zones is one of the strategies for rapid growth, inflow of foreign direct investment, employment generation and maximal utilization of airport infrastructure.

Aviation Master Plan:

Objectives of the Master Plan Contd:

- Development of perishable cargo infrastructure facilities including customs and cargo sheds, Cooling rooms, etc.
- Designation of airports for economic leverage.
- Capacity development and increasing professionalism in the industry.
- Improving passenger welfare.
- Growing Domestic Airlines.
- Creation of National Carriers.

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National Air Navigation Plan

Strategic Elements of the Aviation Master Plan:

- Safety and Security
- Infrastructural Development
- Growing Domestic Airlines
- National Flag Carrier
- Aviation Fuel
- Customer Protection

NIGERIA'S NATIONAL ASBU PLAN

National Air Navigation Plan

Introduction CNS/ATM Plan:

In 2003, the Nigerian Airspace Management Agency developed a CNS/ATM Plan that provided a Roadmap for the short, Medium and Long Term development of the Nigerian Air Navigation System. The CNS/ATM Plan focused on the deployment of technologies and procedures for the enhancement of Communications, Navigation, Surveillance and Air Traffic Management infrastructures in Nigeria in line with the Global and Regional CNS/ATM Plans.

NIGERIA'S NATIONAL ASBU PLAN

CNS/ATM Plan

The National CNS/ATM Plan successfully facilitated the implementation of the following key projects:

- Total Radar Coverage of Nigeria with Ground Surveillance,
- Total VHF Coverage of Nigeria with Extended Range,
- Ongoing automation of the Aeronautical Information System,
- Safe Tower Project at Lagos, Abuja, Port and Kano for the automation of ATM systems at Tower and Ground Control.

NIGERIA'S NATIONAL ASBU PLAN

CNS/ATM Plan

- World Geodetic Systems 84 Survey (WGS 84 Survey) - 2012
- Performance Based Navigation Implementation in 2012
- Deployment of Automatic Dependent Surveillance (ADS-C) and Controller Pilot Data Link Communications (CPDLC) in 2015,
- Implementation of Safety Management Systems in 2006,
- Safety Critical Manpower development, etc.

NIGERIA'S NATIONAL ASBU PLAN

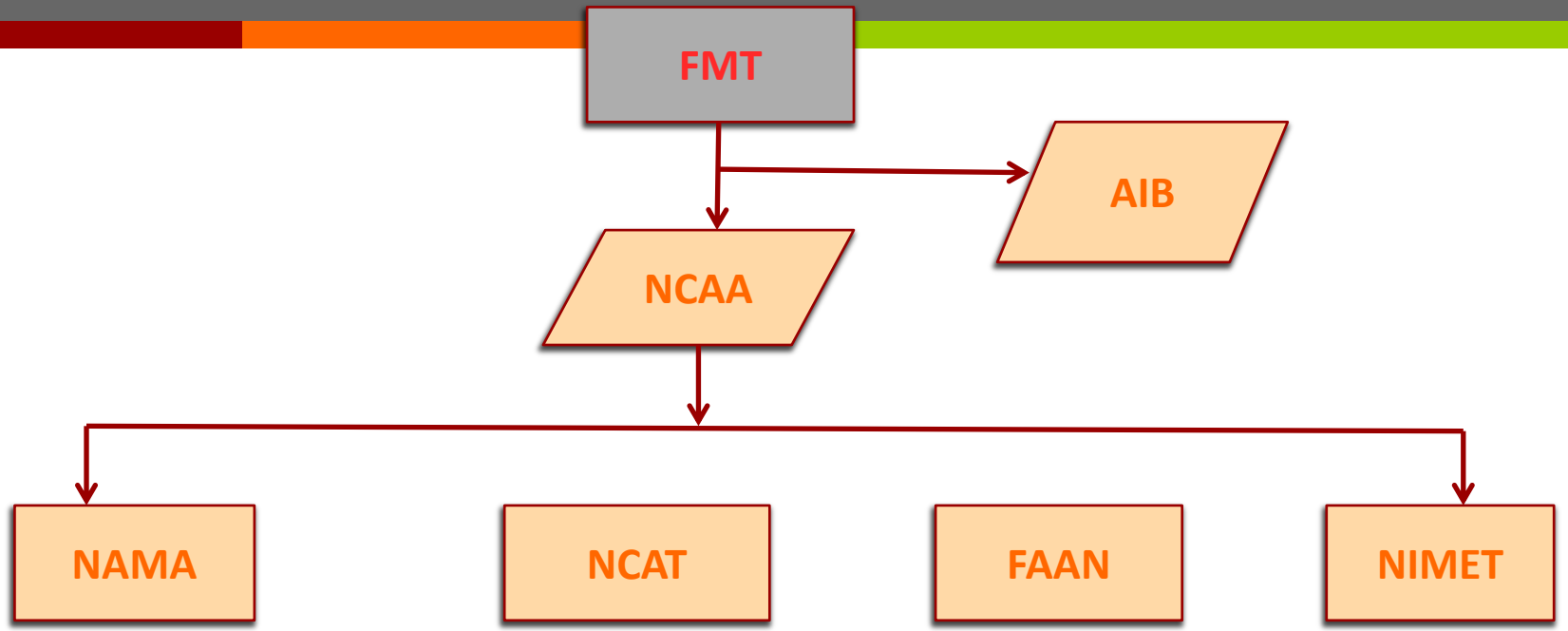
CNS/ATM Plan

However, the CNS/ATM Plan was limited in scope as it focused only on air navigation services (communication, navigation, surveillance and air traffic management).

Therefore the CNS/ATM Plan did not address the avionics requirements, regulations, airport operations (security and facilitation), meteorology, manpower development for the aviation industry, etc.

NIGERIA'S NATIONAL ASBU PLAN

Structure of Nigerian Aviation Industry:



Legend:

- FMT – Federal Ministry of Transportation
- NCAA – Nigerian Civil Aviation Authority
- NCAT – Nigerian College of Aviation Technology
- FAAN – Federal Airport Airports of Nigerian
- AIB - Accident Investigation Bureau
- NIMET - Nigerian Meteorological Agency
- NAMA - Nigerian Airspace Management Agency

STRUCTURE OF THE NIGERIAN AIR NAVIGATION SYSTEM

Federal Ministry of Transportation:

- The Nigerian Federal Ministry of Transportation is a ministry of the Nigerian Government that regulates air travel and aviation services in Nigeria. The ministry is responsible for formulation and management of the government's aviation policies in Nigeria. It is directly responsible for overseeing air transportation, airport development, maintenance, provision of aviation infrastructural services and other needs. The ministry is headed by a Minister appointed by the President, assisted by a Permanent Secretary, who is a career civil servant.

STRUCTURE OF THE NIGERIAN AIR NAVIGATION SYSTEM

Vision and Mission of Federal Ministry of Transportation:

- **Vision:**
- To be the best Aviation Industry in Africa and one of the best in the world.
- **Mission:**
- To build a safe, secured and efficient aviation industry focused on making Nigeria a hub that meets International Standards and Best Practices for the African continent.

NIGERIA'S NATIONAL ASBU PLAN

STRUCTURE OF THE NIGERIAN AIR NAVIGATION SYSTEM

Agencies Under The Federal Ministry of Transportation:

- The following Agencies are under the Federal Ministry of Transportation:
- Nigerian Civil Aviation Authority
- Accident Investigation Bureau
- Federal Airports Authority of Nigeria
- Nigerian Airspace Management Agency
- Nigerian Meteorological Agency
- Nigerian College of Aviation Technology.

NIGERIA'S NATIONAL ASBU PLAN

NIGERIAN CIVIL AVIATION AUTHORITY

- **Nigerian Civil Aviation Authority (NCAA) Establishment Act:**
- The Nigerian Civil Aviation Authority (NCAA) was established in 1999 with the objective of regulating the aviation industry, as well as carry out oversight functions over the airport service providers, air navigation service providers, meteorological service providers, the airlines, as well as economic regulations.
- **Vision of NCAA**
- To be one of the leading civil aviation authorities in the world
- **Mission of NCAA**
- "To provide aviation safety and economic regulation in the most efficient, effective, quality and technology driven manner to the satisfaction and benefit of all stakeholders, consistent with the highest international standards and the sustainable development of the industry and national economy"

NIGERIA'S NATIONAL ASBU PLAN

NIGERIAN CIVIL AVIATION AUTHORITY

Responsibilities of NCAA

1. Regulation of safety of aircraft operations, air navigation and aerodrome operations,
2. Monitoring of aircraft operating environment for safety and security,
3. Regulating of methods of entry and conduct of air transport business,
4. Advising the ministry on policy formulation on aviation related matters
5. Balancing the economic interest of operators, users of aviation services as well as the general public and the nation as a whole,
6. Setting of Aviation Training Standards and approval of Training Institutions,
7. Facilitating take off and operation of E-Ticketing and Billing Settlement Plan.

NIGERIA'S NATIONAL ASBU PLAN

NIGERIAN CIVIL AVIATION AUTHORITY

- **Services Provided by NCAA:**
- 1.Developing standards,
- 2.Oversight of the service provision,
- 3.Certification of Service Providers,
- 4.Licensing of safety critical personnel,
- 5.Inspection and assessment of facilities,
- 6.Conducting Licensing or Qualifying examinations for safety critical personnel,
- 7.Issuance Airworthiness certificates,

NIGERIA'S NATIONAL ASBU PLAN

NIGERIAN CIVIL AVIATION AUTHORITY

Services Provided by NCAA Contd:

- 7.Issuance Airworthiness certificates,
- 8.Registration of Nigerian aircraft,
- 9.Investigation of air incidents,
- 10.Issuance of Air Operators Certificates,
- 11.Granting of approval for non scheduled flight operations,
- 12.Regulation of fees, charges, commissions chargeable within the industry,
- 13.Aero – Medical services for the licensing of safety critical personnel,
- 14.Consumer protection.

NIGERIA'S NATIONAL ASBU PLAN

NIGERIAN CIVIL AVIATION AUTHORITY

The Flight Safety Group:

The Flight Safety Group consists of directorates with joint safety oversight responsibilities. The objective of the FSG is to ensure coordination and communication through the harmonization of processes and safety standards that will ensure effective and efficient certification, licensing and surveillance of aviation organizations and personnel.

Directorate of Airworthiness Standards (DAWS):

The DAWS is responsible for ensuring that all aircraft in Nigeria are airworthy or fit to fly. The DAWS also inspects and certifies aircraft according to established procedures; proposes, reviews and approves designs, repairs and modifications; ensures that safety requirements are complied with and, where deficiencies are identified, corrective measures are taken (through letters, fines, suspensions of certificates, etc); supervises the whole aviation industry in order to align it with global aviation trends and proposes corrective measures to ensure air safety.

NIGERIA'S NATIONAL ASBU PLAN

NIGERIAN CIVIL AVIATION AUTHORITY

- **Directorate of Licensing (DOL):**

- The Directorate of Licensing is responsible for licensing of all personnel in line with the Nigerian Civil Aviation Regulations that in turn, are aligned with ICAO Annex 1 Standards and Recommended Practices (SARPs).

- **Directorate of Operations & Training (DOT):**

- The Directorate of Operations and Training (DOT) is responsible for the effective oversight activities and setting of standards in all areas of flight operations and training in the Nigerian air transport industry.

- **Directorate of Aerodrome and Airspace Standards (DAAS):**

- The primary responsibility of the DAAS is to ensure safety and security at all Nigerian aerodromes in conformance with the relevant standards and recommended practices of ICAO Annexes.

NIGERIA'S NATIONAL ASBU PLAN

NIGERIAN CIVIL AVIATION AUTHORITY

- **Directorate of Finance and Administration (DFA):**

- The Directorate is responsible for all financial, administrative, human resources, corporate affairs/planning functions while projecting the image of the organization and articulating policies for effective and efficient service delivery in the Authority.

- **Directorate of Air Transport Regulation (DATR):**

- The Nigerian Civil Aviation Authority (NCAA) is statutorily responsible for the safety and economic regulation of the civil aviation industry. The Directorate is responsible for the economic regulation of the aviation industry. The DATR is also responsible for granting of approvals to non scheduled foreign aircraft to operate into Nigeria in conjunction with the Directorate of Airworthiness and the Nigerian Airspace Management Agency.

NIGERIA'S NATIONAL ASBU PLAN

NIGERIAN AIRSPACE MANAGEMENT AGENCY

- **Nigerian Airspace Management Agency (NAMA):**

- The Nigerian Airspace Management Agency (NAMA) was also established through Act of the National Assembly No. 49 in 1999, but became operational in 2000 with a Managing Director/CEO appointed by the President and Commander In Chief.

- The primary responsibility of the Nigerian Airspace Management Agency (NAMA) is the provision of safe, effective, efficient and economic air navigation services in accordance with international standards. The Agency currently has 7 Directorates.

- **Vision of NAMA:**

- "To be one of the leading Air Navigation Service Providers (ANSPs) in the world"

- **Mission of NAMA:**

- "To provide safe, effective, efficient and economic air navigation services to all airspace users through the deployment of new technologies and dedicated workforce"

NIGERIA'S NATIONAL ASBU PLAN

NIGERIAN AIRSPACE MANAGEMENT AGENCY

Directorate of Operations:

The Directorate of Operations is responsible for the day to day operations of the Agency through the provision of Air Navigation Services nationwide as necessary for the safety, efficiency and economy of air transportation. The Directorate consists of the following 8 Departments:

- Department of Air Traffic Control Operations,
- Department of Air Traffic Control Standards,
- Department of Technical Evaluation,
- Department of Airspace Planning,
- Department of Aeronautical Search and Rescue,
- Department of Aeronautical Information Services,
- Department of Aeronautical Maps and Charts,
- Department of Aeronautical Communications.

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NIGERIAN AIRSPACE MANAGEMENT AGENCY

Directorate of Safety Electronics and Engineering Services (DSEES):

This Directorate is one of the two core Directorates and it is statutorily responsible for the provision of technical or engineering support to the entire Agency. The Directorate therefore provides the Technical, Engineering or Technological support required for the provision of air navigation services. The Directorate of Safety Electronics and Engineering Services consist of the following 5 Departments:

1. Department of Surveillance,
2. Department of Electronic Communications,
3. Department of Terrestrial Communication Services,
4. Department of Navigation Services,
5. Department of Electro – Mechanical,
6. Department of Flight Inspection Services.

- ***The other support Directorates in the Agency are:***

- 1.Directorate Finance,
- 2.Directorate of Human Resources,
- 3.Directorate of Administration,
- 4.Legal Adviser Office
- 5.Company Secretary.

NIGERIAN METEOROLOGICAL AGENCY

Nigerian Meteorological Agency (NIMET):

- The Nigerian Meteorological Agency was established by an Act of the National Assembly in 2003 after the creation of other sister Agencies in 1999. The Nigerian Meteorological Agency had hitherto its establishment as a corporate entity, existed under the then Ministry of Communications, Ministry of Transport and finally under the Ministry of Aviation as the Department of Meteorological Services. The Agency is quite unique in the sense that her services cut across various sectors including Aviation, Agriculture, Maritime, Environment, Information and Tourism, Water Resources, Hydro Power, etc.

NIGERIA'S NATIONAL ASBU PLAN

NIGERIAN METEOROLOGICAL AGENCY

Vision of NIMET:

"To ensure the provision of world standard weather prediction and services for sustainable national socio-economic development for safety of life and property".

Mission of NIMET:

"To transform the meteorological services in Nigeria to international standards as specified by the World Meteorological Organization using the combination conventional methods with information technology and satellite technology to provide products and services for agriculture, early warnings and drought vulnerability assessment in aid of natural food security and management of water resources in Nigeria".

NIGERIA'S NATIONAL ASBU PLAN

NIGERIAN METEOROLOGICAL AGENCY

- **NIMET consists of 7 Directorates headed by a Director General:**
- 1.Directorate of Weather Forecasting Services,
- 2.Directorate of Applied Meteorological Services,
- 3.Directorate of Research and Training,
- 4.Directorate of Engineering and Technical Services,
- 5.Directorate of Legal Services,
- 6.Directorate of Finance and Accounts,
- 7.Directorate of Administration and Supplies.

NIGERIA'S NATIONAL ASBU PLAN

NIGERIAN METEOROLOGICAL AGENCY

Directorate of Applied Meteorological Services:

- The directorate is responsible for the provision of meteorological information as required for effective operations in the agro, maritime, oil and gas, as well as hydro sectors of the economy. The directorate is responsible for the managing the safe operation of the Remote sensing and Geographic Information facilities of the Agency. The Directorate utilizes her Information Technology and satellite facilities to early warnings to aid effective utilization of water, food resources.

Directorate of Weather Forecasting Services:

- The Directorate is responsible for provision of adequate and accurate weather data and forecast for safe and efficient navigation over waters or in the air. The services of this Directorate are aimed enhancing the functions of sister Agencies such as NEMA, NAMA, AIB, Maritime, etc.

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NIGERIAN METEOROLOGICAL AGENCY

Directorate of Engineering and Technical Services:

- The Directorate is responsible for the provision of required technical or engineering support for the entire Agency to aid in the generation, collation, analysis, storage and dissemination of meteorological data in order to achieve the vision and mission of the Agency. The directorate is therefore responsible for the design, fabrication, installation, and maintenance facilities of the Agency nationwide. The directorate also provides and maintains facilities required for the exchange of meteorological data internationally.

Directorate of Research and Training:

- The Directorate is responsible for the conduct of meteorological researches as necessary for long term planning. The Directorate is also responsible for the design and conduct of trainings as required for sustainability of operations of the Agency's manpower.

NIGERIAN METEOROLOGICAL AGENCY

Directorate of Legal Services:

- The Directorate's primary responsibility is to discharge all the Agency's legal obligations in accordance with established rules and regulations, as well as international best practices.
- In addition to the above, the Nigerian Meteorological Agency is supported by the:
- Directorate of Finance and Accounts,
- Directorate of Administration and Supplies.

NIGERIA'S NATIONAL ASBU PLAN

NIGERIAN METEOROLOGICAL AGENCY

- **Services Provided by the Nigerian Meteorological Agency:**
- Prevailing Meteorological information,
- Forecast weather conditions,
- Weather charts,
- Forecast rainfall,
- Analysis and interpretation of Weather Forecast,
- Live presentation of Weather reports and forecast on television,
- Flight Crew Briefing on prevailing or expected weather conditions,
- Warnings and alerts on expected significant meteorological changes,
- Drought vulnerability reports.

NIGERIA'S NATIONAL ASBU PLAN

FEDERAL AIRPORTS AUTHORITY OF NIGERIA

Federal Airports Authority of Nigeria:

- The Nigerian Airports Authority (NAA) which later became Federal Airports Authority of Nigeria, FAAN was set up by the Nigerian government by Decree 45 of 1976, to oversee the operations and maintenance of all Federal airports.
- The Airport Authority was re-named, Federal Airports Authority of Nigeria, FAAN in August, 1995, following a major restructuring and reforms of the Nigerian Aviation sector by the Federal Government.

NIGERIA'S NATIONAL ASBU PLAN

FEDERAL AIRPORTS AUTHORITY OF NIGERIA

- **Federal Airports Authority of Nigeria:**
- **vision**
- To be amongst the best airport groups in the world.
- **mission**
- To develop and profitably manage customer-centric airport facilities for safe, secure and efficient carriage of passengers and goods at world-class standards of quality.

NIGERIA'S NATIONAL ASBU PLAN

FEDERAL AIRPORTS AUTHORITY OF NIGERIA

- **Directorates in FAAN:**
- 1. Directorate of Airport Operations
- 2. Directorate of Finance
- 3. Directorate of Human Resources
- 4. Directorate of Legal Services
- 5. Directorate Security Services
- 6. Director Commercial and Business Development
- 7. Director Engineering Services.

NIGERIA'S NATIONAL ASBU PLAN

DOMESTIC AIRLINES IN NIGERIA

- **Domestic Airlines**

- Nigeria currently does not have a national carrier nor a flag carrying airline even though the state had in the past operated a national carrier (Nigerian Airways) and Air Nigeria, all of which have folded up. However, one of the major policies of the current government is to establish a national carrier and develop regional hubs at Lagos and Abuja.

- The following are some of the operational domestic Nigerian airlines, some of which have had a fair share of unprofitable performance over the years:

NIGERIA'S NATIONAL ASBU PLAN

DOMESTIC AIRLINES IN NIGERIA

- **Domestic Airlines in Nigeria:**
- Arik Airlines
- Medview Airlines
- Dana Airlines
- Air Peace Airlines
- Aero Contractors
- Azman Air
- Kabo Air
- Overland Airways
- Max Air

NIGERIA'S NATIONAL ASBU PLAN

DOMESTIC AIRLINES IN NIGERIA

- **General Aviation in Nigeria**
- General Aviation refers non-scheduled flight operations such as Business Jets, Charter flights, Private Jets, Commercial non-passenger flight operations, etc.
- General aviation operators include:
- Executive Jet
- Afrijet
- Sky Jet
- Premium Air Shuttle

NIGERIA'S NATIONAL ASBU PLAN

DOMESTIC AIRLINES IN NIGERIA

- Premium Air Shuttle
- Bristow Helicopters
- Caverton Helicopters
- Police Air Wing
- Air Ambulance
- Sky Express
- Mobile Air Wing
- OAS Helicopters Ltd
- Sky Power Express

NIGERIA'S NATIONAL ASBU PLAN

NIGERIAN AERODROMES

Nigerian Aerodromes:

S/No.	Aerodrome	S/No.	Aerodrome	S/No.	Aerodrome
1	Lagos	11	Jos	21	Makurdi
2	Abuja	12	Katsina	22	Uyo (State)
3	Kano	13	Akure	23	Asaba (State)
4	Port Harcourt	14	Ibadan	24	Gombe (State)
5	Benin	15	Minna	25	Dutse (State)
6	Calabar	16	Yola	26	Eket (Private)
7	Enugu	17	Sokoto	27	Osubi (Private)
8	Kaduna	18	Ilorin	28	Escravos (Private)
9	Owerri	19	Zaria	29	Finima – Bonny (Private)
10	Maiduguri	20	Bauchi	30	Kebbi (State)

NIGERIA'S NATIONAL ASBU PLAN

ASBU Implementation Planning Processes

ASBU Implementation Planning Processes:

- Establish ASBU Implementation Team (2012).
- Review and Analyse AFI adopted ASBU Modules based on our operational needs (2013).
- Establish National Strategic Objectives (2013).
- Develop National Implementation Plan and obtain high level approval from NCAA and FMA (2017).

NIGERIA'S NATIONAL ASBU PLAN

ASBU Implementation Planning Processes

- Develop National Implementation Action Plan and obtain approval from NCAA (2013).
- Conduct Trainings and Sensitization Workshops (2014)
- Implementation of National ASBU Plan (2014).
- Provide progress reports to ICAO using the Air Navigation Report Forms (ANRF) - 2015.
- Monitor Implementation and Conduct Periodic Review of the Plan (2017).

NIGERIA'S NATIONAL ASBU PLAN

ASBU Implementation Planning Processes

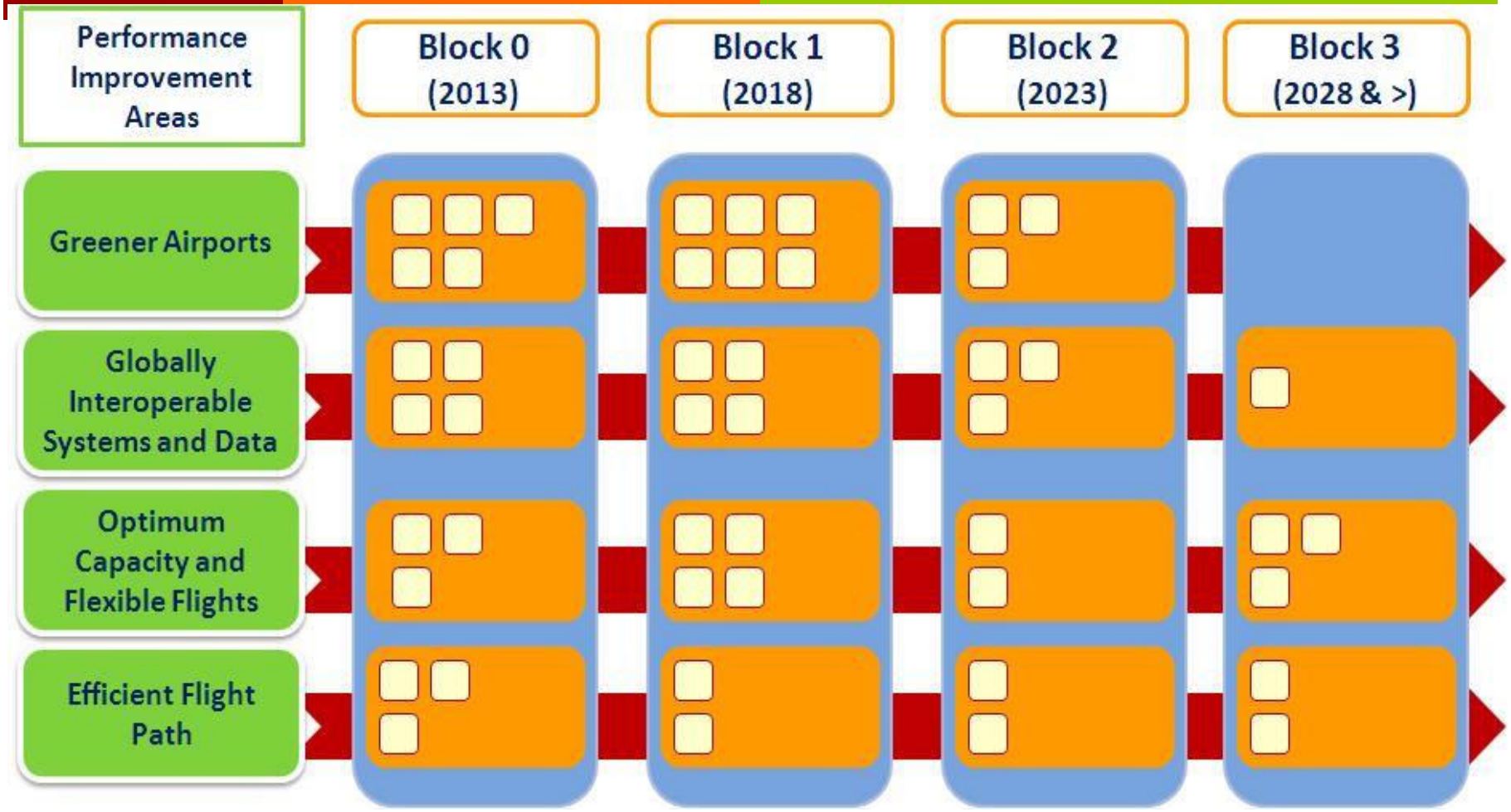
- Coordinate Planning and Implementation with adjacent states (2018).
- Coordinate Planning and Implementation with users and other stakeholders such as military, equipment manufacturers, airport community, etc. (2017).

ASBU Block 0

- ASBU Block 0 is composed of Modules containing technologies and capabilities which have already been developed and can be implemented from 2013. Based on the milestone framework established under the overall Block Upgrade strategy, ICAO Member States are encouraged to implement those Block 0 Modules applicable to their specific operational needs.

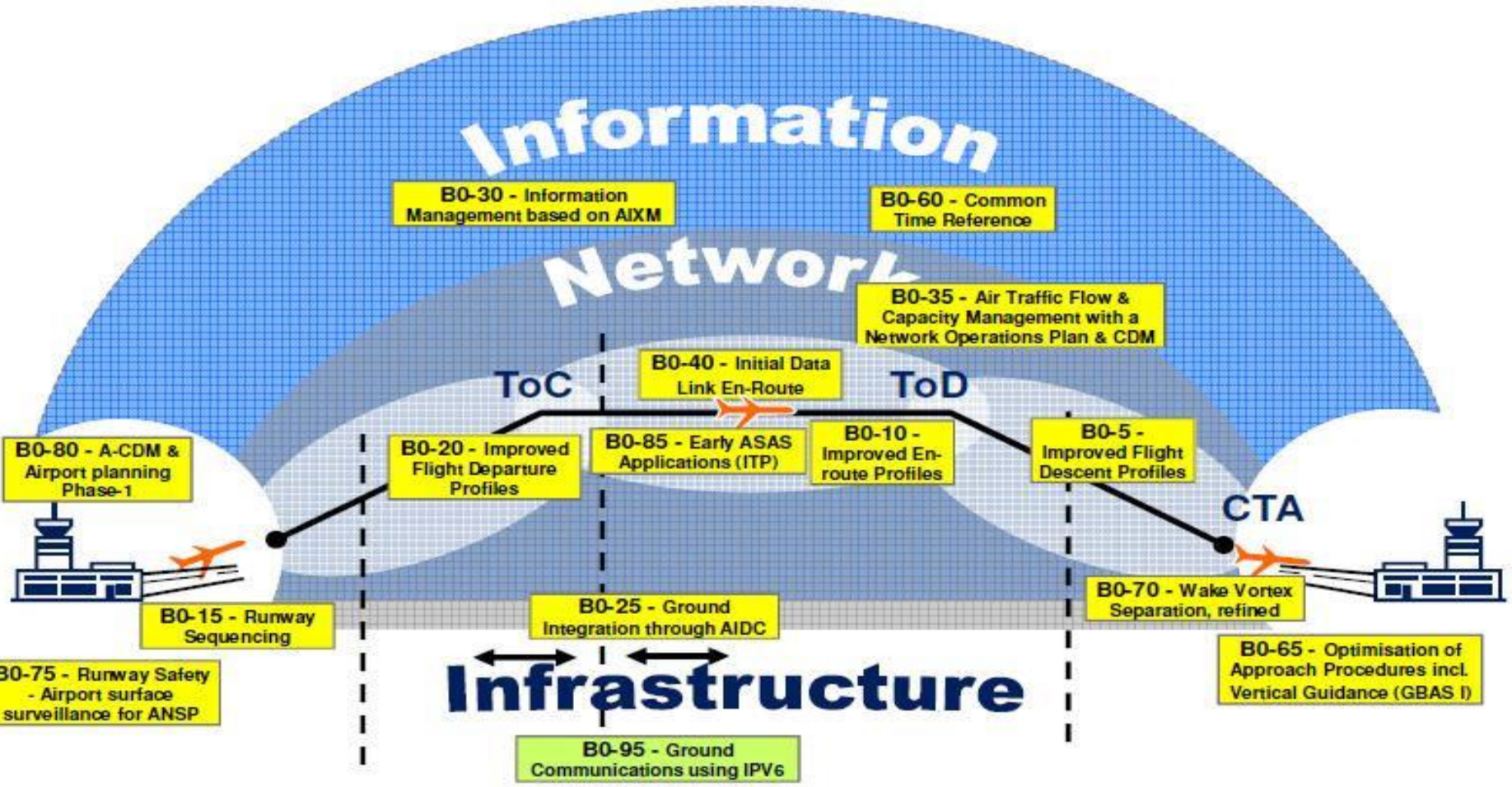
NIGERIA'S NATIONAL ASBU PLAN

ASBU Block 0 Modules 2013 - 2018



NIGERIA'S NATIONAL ASBU PLAN

ASBU Block 0 Modules



NIGERIA'S NATIONAL ASBU PLAN

2. NATIONAL PEROFRMANCE OBJECTIVE – B0-RSEQ
Improved Traffic Flow through Runway Sequencing (AMAN/DMAN)

Performance Improvement Area 1: Airport Operations

3. ASBU B0-RSEQ: Impact on Main Key Performance Areas (KPA)					
	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	Y	Y	Y	Y	N

4. ASBU B0-15/B0-RSEQ: Planning Targets and Implementation Progress	
Elements	**Implementation Status (Ground and Air)**
1. AMAN and time-based metering (Lagos and Abuja airport)	December 2017 – To be implemented at Lagos and Abuja
2. Departure Management (Lagos and Abuja Airport)	December 2017 – To be implemented at Lagos and Abuja
3. Movement Area Capacity Optimization (Lagos and Abuja airport)	Surface Movement and Ground Control Services implemented in Lagos on 13th November 2014 and in Abuja in May 2015.

NIGERIA'S NATIONAL ASBU PLAN

NATIONAL PERFORMANCE OBJECTIVE:

Performance Improvement Through B0-65/APTA: Optimization of Approach Procedures Including Vertical Guidance

Performance Improvement Area 1: Airport Operations

ASBU B0-65/APTA: Impact on Main Key Performance Areas (KPA)					
	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	Y	Y	Y	Y	Y

ASBU B0-65/APTA: Planning Targets and Implementation Progress	
Elements	**Implementation Status (Ground and Air)**
1. APV with Baro VNAV	December 2017 – Service Providers and user
2. APV with SBAS	Collaborating with SAFIR and the Nigerian Space Research and Development Agency for implementation in December 2018
3. APV with GBAS	December 2018 – Initial implementation.
4. LPV, SIDs and STARs	LPV implemented at 24 airports (4 SIDs & STARs).

NIGERIA'S NATIONAL ASBU PLAN

2. NATIONAL PEROFRMANCE OBJECTIVE – B0-70/WAKE
Improved Runway Throughput, Through Wake Turbulence Separation

Performance Improvement Area 1: Airport Operations

3. ASBU B0-70/WAKE: Impact on Main Key Performance Areas (KPA)

	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	N	Y	N	Y	Y

4. ASBU B0-70/WAKE: Planning Targets and Implementation Progress

Elements	Implementation Status (Ground and Air)
1. Revision of current ICAO wake separation minima	December 2018
2. Increasing Aerodrome Arrival Operational Capacity	December 2018
3. Increasing Aerodrome Departure Operational Capacity	December 2018
4.	

NIGERIA'S NATIONAL ASBU PLAN

2. NATIONAL PEROFRMANCE OBJECTIVE – B0-75/B0-SURF

Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)

Performance Improvement Area 1: Airport Operations

3. ASBU B0-75/SURF: Impact on Main Key Performance Areas (KPA)

	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	Y	Y	Y	Y	Y

4. ASBU B0-75/B0-SURF: Planning Targets and Implementation Progress

Elements	Implementation Status (Ground and Air)
1. Surveillance system for Surface Movement and Ground Control (PSR, SSR, ADS-B or MLAT)	December 2017 - To be implemented at Lagos and Abuja by Air Navigation Service provider (NAMA)
2. Surveillance system on board (SSR transponder, ADS-B capacity)	December 2017 Airlines, NCAA
3. Surveillance system for vehicles	December 2017 Airlines, NCAA, FAAN, NAMA
4. Visual aids for navigation (Approach and Runway Lights, PAPIS, Markings, Signage,)	Implemented at all international airports by Aerodrome Operator (FAAN)
5. Runway Incursion and Excursion (Runway Safety Team)	Local Runway Safety Teams established at Lagos, Abuja, Kano, Port and Enugu in 2016.

NIGERIA'S NATIONAL ASBU PLAN

2. NATIONAL PEROFRMANCE OBJECTIVE – B0-80/B0-ACDM
Improved Airport Operations through Airport CDM

Performance Improvement Area 1: Airport Operations

3. ASBU B0-80/B0-ACDM: Impact on Main Key Performance Areas (KPA)					
	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	Y	Y	Y	Y	N

4. ASBU B0-80/B0-ACDM: Planning Targets and Implementation Progress	
Elements	**Implementation Status (Ground and Air)**
1. Airport – CDM	December 2017 – NCAA, FAAN, NIMET, NCAA
2. Aerodrome certification	Lagos Certified 18th Sept 2017 – NCAA, FAAN
3. Airport planning	Implemented
4. Heliport operation	Implemented
5. SMS implementation	Implemented by NAMA, FAAN, and NIMET,
6. Regulations and technical guidance on RST	Regulations and Technical Guidance in 2015

NIGERIA'S NATIONAL ASBU PLAN

2. NATIONAL PEROFRMANCE OBJECTIVE – B0-25/B0-FICE
Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration

Performance Improvement Area 2: Global Interoperable Systems and Data Through Globally Interoperable System-Wide Information Management

3. ASBU B0-25/B0-FICE: Impact on Main Key Performance Areas (KPA)

	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	N	Y	Y	Y	Y

4. ASBU B0-25/FICE: Planning Targets and Implementation Progress

Elements	Implementation Status (Ground and Air)
1. Complete AMHS implementation	December 2017 for 11 airports – (NAMA)
2. AMHS interconnection (Gateway)	December 2017 Lagos and Kano – (NAMA)
3. Implement AIDC/OLDI at international airports	OLDI implemented in Lagos, Abuja, Kano and Port in 2010. AIDC in December 2017
4. Implement operational AIDC/OLDI between adjacent ACCs	December 2017 – NAMA

NIGERIA'S NATIONAL ASBU PLAN

2. NATIONAL PEROFRMANCE OBJECTIVE – B0-105/B0-AMET
Meteorological Information Supporting Enhanced Operational Efficiency and Safety

Performance Improvement Area 2: Global Interoperable Systems and Data Through Globally Interoperable System-Wide Information Management

ASBU B0-10: Impact on Main Key Performance Areas (KPA)					
	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	Y	Y	Y	Y	Y

4. ASBU B0-105/B0-AMET: Planning Targets and Implementation Progress	
Elements	**Implementation Status (Ground and Air)**
1. WAFS and IAVW	Migrated to Secured SADIS FTP Internet File Service
2. Tropical cyclone watch (Volcanic Ash)	Implementing Volcanic Ash Alerting
3. Aerodrome warnings	Completed at all international airports - (NIMET)
4. Wind Share, OPMET, SIGMET, TAF, METAR	Implemented at all international airports
5. QMS	QMS Implemented and ISO 9001 Certification 2017

NIGERIA'S NATIONAL ASBU PLAN

2. NATIONAL PEROFRMANCE OBJECTIVE – B0-30/B0-DATM
Service Improvement through Digital Aeronautical Information Mgt

Performance Improvement Area 2: Global Interoperable Systems and Data Through Globally Interoperable System-Wide Information Mgt

ASBU B0-30/B0-DATM: Impact on Main Key Performance Areas (KPA)					
	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	N	N	N	Y	Y

3. ASBU B0-30/B0-DATM: Impact on Main Key Performance Areas (KPA)	
Elements	**Implementation Status (Ground and Air)**
1. QMS for AIM	December 2017
2. e-TOD Implementation	December 2018
3. WGS-84 Implementation	Implemented 2012
4. AIXM, e-AIP, e-NOTAM, e-Flight Plan	December 2017

NIGERIA'S NATIONAL ASBU PLAN

2. NATIONAL PEROFRMANCE OBJECTIVE – B0-10/B0-FRTO
Improved Operations through Enhanced En-route Trajectories

Performance Improvement Area 3: Optimum Capacity and Flexible Flights Through Global Collaborative ATM

3. ASBU B0-10/B0-FRTO: Impact on Main Key Performance Areas (KPA)					
	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	Y	Y	Y	Y	N

4. ASBU B0-10/B0-FRTO: Planning Targets and Implementation Progress	
Elements	**Implementation Status (Ground and Air)**
1. Airspace planning	Implemented December 2015
2. Flexible use of airspace	Implemented December 2015
3. Flexible routing	Implemented December 2015
4. Flexible Routing – Enroute PBN	Implemented December 2015

NIGERIA'S NATIONAL ASBU PLAN

2. NATIONAL PEROFRMANCE OBJECTIVE – B0-35/B0-NOPS
Improved Flow Performance through Planning based on a Network-Wide view

Performance Improvement Area 3: Optimum Capacity and Flexible Flights – Through Global Collaborative ATM

3. ASBU B0-35/B0-NOPS: Impact on Main Key Performance Areas (KPA)					
	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	Y	Y	Y	Y	Y

4. ASBU B0-35/NOPS: Planning Targets and Implementation Progress	
Elements	**Implementation Status (Ground and Air)**
1. Air Traffic Flow Management	December 2018
2.	
3.	
4.	

NIGERIA'S NATIONAL ASBU PLAN

2. NATIONAL PEROFRMANCE OBJECTIVE – B0-101/ACAS
ACAS Improvements

Performance Improvement Area 3: Optimum Capacity and Flexible Flights Through Global Collaborative ATM

3. ASBU B0-101/ACAS: Impact on Main Key Performance Areas (KPA)					
	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	N	N	Y	N	Y

4. ASBU B0-101/ACAS: Planning Targets and Implementation Progress	
Elements	**Implementation Status (Ground and Air)**
1. ACAS II (TCAS Version 7.1)	Guidance Materials developed in 2015 on implementation of TCAS Version 7.0. Operators already equipped with TCAS 7.0.
2.	Development of Guidance Materials and implementation of TCAS 7.1 scheduled for 2018.

NIGERIA'S NATIONAL ASBU PLAN

2. NATIONAL PEROFRMANCE OBJECTIVE – B0-84/ASUR
Improved Flow Performance through Initial capability for ground surveillance

Performance Improvement Area 3: Optimum Capacity and Flexible Flights Through Global Collaborative ATM

3. ASBU B0-84/ASUR: Impact on Main Key Performance Areas (KPA)					
	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	N	Y	Y	Y	Y

4. ASBU B0-84/ASUR: Planning Targets and Implementation Progress	
Elements	**Implementation Status (Ground and Air)**
1. Implementation of ADS-B	December 2018 – NCAA, NAMA and Airlines
2. Implementation of Multilateration	December 2018 – NCAA, NAMA and Airlines
3. Implementation of Ground Radar systems (PSR, MSSR)	Total Radar coverage of Nigerian airspace with Ground Radar system in 2010
3. Automation System (Presentation)	ATM Tower systems automated at Lagos, Abuja, Kano and Port Harcourt

NIGERIA'S NATIONAL ASBU PLAN

2. NATIONAL PEROFRMANCE OBJECTIVE – B0-102/SNET
Increased Effectiveness of Ground-based Safety Nets

Performance Improvement Area 3: Optimum Capacity and Flexible Flights Through Global Collaborative ATM

3. ASBU B0-102/SNET: Impact on Main Key Performance Areas (KPA)

	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	N	N	N	N	Y

4. ASBU B0-102/SNET: Planning Targets and Implementation Progress

Elements	Implementation Status (Ground and Air)
1. Short Term Conflict Alert (STCA)	Implemented in 2010
2. Area Proximity Warning (APW)	Implemented in 2010
3. Minimum Safe Altitude Warning (MSAW)	Implemented in 2010
4. Danger Area Infringement Warning (DAIW)	Implemented in 2010
5. Medium Term Conflict Detection (MTCD)	Implemented in 2010

NIGERIA'S NATIONAL ASBU PLAN

2. NATIONAL PEROFRMANCE OBJECTIVE – B0-05/CDO
Improved Flexibility and Efficiency in Descent Profiles: Continuous Descent Operations (CDO)

Performance Improvement Area 4: Efficient Flight Path – Through Trajectory-based Operations

3. ASBU B0-05/CDO: Impact on Main Key Performance Areas (KPA)					
	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	N	Y	Y	Y	Y

4. ASBU B0-05/CDO: Planning Targets and Implementation Progress	
Elements	**Implementation Status (Ground and Air)**
1. CDO implementation	Implemented CDO in Lagos, Abuja, Kano and Port Harcourt in 2012
2. PBN STARs implementation	Implemented PBN STARs in Lagos, Abuja, Kano and Port Harcourt in 2012

NIGERIA'S NATIONAL ASBU PLAN

2. NATIONAL PEROFRMANCE OBJECTIVE – B0-20/CCO
Improved Flexibility and Efficiency in Departure Profiles: Continuous Climb Operations (CCO)

Performance Improvement Area 4: Efficient Flight Path – Through Trajectory-based Operations

3. ASBU B0-20/CCO: Impact on Main Key Performance Areas (KPA)					
	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	N	Y	Y	Y	Y

4. ASBU B0-20/CCO: Planning Targets and Implementation Progress	
Elements	**Implementation Status (Ground and Air)**
1. CCO implementation	Implemented CCO in Lagos, Abuja, Kano and Port Harcourt in 2012
2. PBN SIDs implementation	Implemented PBN SIDs in Lagos, Abuja, Kano and Port Harcourt in 2012

NIGERIA'S NATIONAL ASBU PLAN

2. REGIONAL /NATIONAL PEROFRMANCE OBJECTIVE – B0-40/TBO

Improved Safety and Efficiency through the initial application of Data Link en-Route

Performance Improvement Area 4: Efficient Flight Path – Through Trajectory-based Operations

3. ASBU B0-40/TBO: Impact on Main Key Performance Areas (KPA)					
	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	N	Y	Y	Y	N

4. ASBU B0-40/TBO: Planning Targets and Implementation Progress	
Elements	**Implementation Status (Ground and Air)**
1. ADS-C over oceanic and remote areas	Implemented November 2015
2. Continental CPDLC	Implemented November 2015
3.	
4.	

NIGERIA'S NATIONAL ASBU PLAN

2. NATIONAL PEROFRMANCE OBJECTIVE – B0-86/OPFL

Improved access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B

Performance Improvement Area 3:

Optimum Capacity and Flexible Flights – Through Global Collaborative ATM

3. B0-86/OPFL: Improved KPA-Access/Equity to Optimum Flight Levels through Climb/Descent Procedures using ADS-B

	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	N	Y	Y	Y	Y

4. ASBU B0-86/OPFL: Planning Targets and Implementation Progress

Elements	Implementation Status (Ground and Air)
1. ITP Using ADS-B	The use of ADS-B for Climb and Descent Procedures to increase efficiency on oceanic and potentially continental en-route is currently not required within the Kano FIR as Radar and ADS-C is currently fully implemented over the entire airspace.
2.	

NIGERIA'S NATIONAL ASBU PLAN

2. NATIONAL PEROFRMANCE OBJECTIVE – B0-85/ASEP

Performance Improvement Area 3:
Optimum Capacity and Flexible Flights – Through Global Collaborative ATM

3. B0-85/ASEP: Air Traffic Situational Awareness (ATSA)					
	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	N	N	Y	N	Y

4. ASBU B0-85/ASEP: Planning Targets and Implementation Progress	
Elements	**Implementation Status (Ground and Air)**
1. ATSA - AIRB	Most operators already equipped with ADS-B IN and OUT and Air Traffic Display
2. ATSA - VSA	December 2018 for implementation
3.	NCAA to develop guidance materials for implementation in 2018
4.	

NIGERIA'S NATIONAL ASBU PLAN

Summary of ASBU Implementation

Summary of Aviation Systems Block Upgrade in Nigeria:

The implementation by Nigeria of the 18 ASBU Block 0 modules scheduled by ICAO for implementation between 2013 – 2018 can be summarized as follows:

- Completed Modules – 8 (TBO, CCO, CDO, SNET, FRTO, ACDM, ASUR, AMET),
- Ongoing Modules – 7 (DATM, ACAS, FICE, SURF, APTA, RSEQ, NOPS),
- Not Yet Implemented Modules – 3 (ASEP, WAKE, OPFL).

NIGERIA'S NATIONAL ASBU PLAN

Existing Communication Infrastructure

Communication Infrastructure:

- VHF Air – Ground Voice Communication Systems
- Voice Communication and Control Systems (VCCS) for Lagos, Abuja, Kano and Port Harcourt
- Controller Pilot Data Link Communication system (CPDLC)
- ATS/DS Links (Inter and Intra FIR)
- Voice Recording Systems
- AFTN
- HF Ground to Ground Voice Communication system
- Telephone systems

NIGERIA'S NATIONAL ASBU PLAN

Planned Communication Infrastructure

Planned Communication Infrastructure:

- Completion of AIS Automation project (52 VSAT nodes, AIM Database, AFTN/AMHS, Maps & Charts, e-AIP, ATS/DS) in all Nigerian airports) – 2017 – 2018.
- Implementation of ER – VHF systems to add 5 RCAG sites to the existing 8 sites to eliminate radio communication blind spots within the airspace.
- Pre-Fab AIS Joint Briefing facilities for deployment from 2017.
- Installation of high power VHF standalone radio in Lagos and Kano.
- Deployment of AIDC at Lagos and Kano for coordination in 2018.

NIGERIA'S NATIONAL ASBU PLAN

Existing Ground Based Air Navigation Infrastructure

Ground Based Navigation Infrastructure:

- Conventional VOR/DMEs
- Doppler VORs
- Instrument Landing Systems Cat II at Lagos, Abuja, Kano, Kaduna and Port Harcourt
- Instrument Landing Systems Cat I at other airports
- Non Directional Beacons
- Locators Beacons
- Conventional Uni-directional routes implemented between Lagos, Abuja, Kano and Port Harcourt to reduce conflicts and enhance traffic flow.
- Conventional ATS Routes connecting all Nigerian aerodromes

NIGERIA'S NATIONAL ASBU PLAN

Planned Air Navigation Infrastructure

Planned Ground Based Navigation Infrastructure:

- Installation of Modern Navigational Aids systems (CAT II ILS and DVOR all with remote monitoring facilities) in a total of 15 Airports simultaneously. Installation work starts in June 2017.
- 6 new Doppler VORs and DMEs as well as 6 ILS and DMEs procured and awaiting installation.
- Provision of navaids spares and maintenance tool kits.

NIGERIA'S NATIONAL ASBU PLAN

Existing Satellite Navigation Infrastructure

Satellite Based Navigation Infrastructure:

- PBN RNAV 1 Approaches at 22 airports including 5 international
- PBN SIDs at 5 airports (Lagos, Abuja, Kano, Port and Benin)
- PBN STARs at 5 airports (Lagos, Abuja, Kano, Port and Benin)
- 10 PBN RNAV 10 Regional Routes
- 3 Flexible RNAV 10 Regional Routes

NIGERIA'S NATIONAL ASBU PLAN

Planned Satellite Navigation Infrastructure

Planned Satellite Based Navigation Infrastructure:

- Additional PBN RNAV Approaches for the remaining 8 domestic airports under development.
- PBN Approaches with Vertical Guidance (BARO VNAV) for all airports to be completed by December 2018.
- PBN Precision Approaches with Ground Based Augmentation System (GBAS) and SBAS planned implementation under ASBU Block 1 from 2019.
- Conversion of Conventional Uni-directional routes implemented between Lagos, Abuja, Kano and Port Harcourt to PBN RNAV 10 Routes to enhance safety and efficiency in 2018.

NIGERIA'S NATIONAL ASBU PLAN

Existing Surveillance Infrastructure:

- Total Radar Coverage of Nigeria with Ground Surveillance with PSR and MSSR.
- 24 hours Enroute Radar Control Services at Lagos and Kano ACCs.
- 4 Terminal Approach Radar Control units at Lagos, Abuja, Kano and Port Harcourt with PSR and MSSR.
- ADS-C at Lagos and Kano covering oceanic and remote continental airspace.
- Fully Implemented Ground Safety Nets.
- EUROCAT ATC Simulator in Lagos.

NIGERIA'S NATIONAL ASBU PLAN

Planned Surveillance Infrastructure

Planned Surveillance Infrastructure:

- Upgrade of the TRACON Radar system to TopSky to accommodate ICAO 2012 flight plan format, paperless strip etc
- Installation of Surface Movement and Ground Control Radar in Abuja and Lagos in 2018.
- Installation of ADS-B/MLAT surveillance for low level flights in the Gulf of Guinea from 2018.
- Activation of Mode S at 9 Radar sites by December 2017.
- Installation of Space Based ADS-B surveillance systems at Non Radar ATC units to enhance ATM Situational awareness.

NIGERIA'S NATIONAL ASBU PLAN

Existing Air Traffic Management Infrastructure:

- Automated and paperless Aerodrome and Ground Control Tower systems at Lagos, Abuja, Kano and Port Harcourt.
- Area Control Centres at Lagos and Kano
- Terminal Approach Radar Control units at Lagos, Abuja, Kano, and Port Harcourt.
- ADS-C and CPDLC systems for backup at Lagos and Kano.
- Surface Movement and Ground Control units at Lagos and Abuja.
- Terminal Approach Control Radar Monitors at Lagos, Abuja, Kano and Port Harcourt Towers for enhanced Tower situational awareness.
- EUROCAT Simulator and CBT for in-house ATC Training at Lagos.

NIGERIA'S NATIONAL ASBU PLAN

Planned Air Traffic Management Infrastructure:

- Incorporation of AMAN and DMAN in the existing ADS-C/CPDLC system for Lagos and Abuja.
- Installation 3D Virtual Tower Simulator in Lagos for ACTOs in 2018.
- Sectorization of Lagos Control into East and West by December 2017.
- Installation of Spaced Based ADS-B surveillance systems for other non radar stations in 2019.
- Upgrade of Radar Systems to provide Electronic Strip systems for ATC at Lagos and Kano ACCs, as well as at Lagos, Abuja, Kano and Port Approach.
- Digital ATIS for Lagos, Abuja, Kano and Port Harcourt in 2018.
- Digital VOLMET for Lagos, Abuja, Kano and Port Harcourt in 2018.

NIGERIA'S NATIONAL ASBU PLAN

Existing Meteorological Infrastructure

Existing Meteorological Infrastructures:

- Low Level Wind Shear Alerting systems implemented at 13 airports, while 5 additional airports to be completed by December 2017.
- 6 Doppler Weather Radars – 2 installed at Abuja and Port, while 4 awaiting installation due to security challenges.
- 13 airports with Integrated AWOS implemented and 4 airports for Dec 2017.
- World Area Forecast System fully implemented with Secured SADIS FTP at Lagos, Abuja, Kano and Port Harcourt.
- QMS fully implemented with ISO 9001 2015 certification achieved in May 2017.
- Aerodrome Warnings, SIGMET, METAR available at all airports.

NIGERIA'S NATIONAL ASBU PLAN

Existing Aerodrome and Ground Infrastructure

Existing Aerodrome and Ground Aids:

- Birds and Wildlife Control established at all airports
- Runway Safety Teams established at Lagos, Abuja, Kano, Port Harcourt and Enugu in 2016.
- Runway edge lights, Runway Centre line lights, PAPIs, Runway End Lights, Runway Threshold lights and Approach Cat II Lighting systems available at Lagos and Abuja.
- Runway Edge, Runway End, Runway Threshold Lights, PAPIs Approach Cat I Lighting system available at Kano and Port Harcourt.

NIGERIA'S NATIONAL ASBU PLAN

Existing Aerodrome and Ground Infrastructure

Existing Aerodrome and Ground Aids Contd:

- Perimeter Fence at Lagos, Abuja, Kano and Port Harcourt.
- Avio Bridges provided at Lagos and Abuja.
- New Terminals developed at Lagos, Abuja, Kano, Port Harcourt and Enugu, undergoing finishing.
- Solar Runway Lighting System procured for 10 airports awaiting installation.
- Conventional airfield lighting systems procured for 8 airports awaiting installation.
- Aerodrome flood lights procured for 15 airports awaiting installation.

NIGERIA'S NATIONAL ASBU PLAN

Planned Aerodrome and Ground Infrastructure

Planned Aerodrome and Ground Aids:

- New Avio Bridges for Lagos, Abuja, Kano and Port Harcourt.
- Re-enforcement of perimeter fencing at Lagos, Port Harcourt.
- Procurement additional Fire Tenders.
- Procurement of Derubberisation equipment.
- Procurement of additional Friction Testing facilities.
- Procurement of Disabled aircraft recovery equipment.

Thank You Very Much

NIGERIAN NATIONAL ASBU IMPLEMENTATION COMMITTEE