NIGERIA

NATIONAL PERFORMANCE FRAMEWORK FOR AIR NAVIGATION SYSTEMS (NAIROBI, 6-10 DECEMBER 2010)

HANDS-ON EXERCISE: PFF EXPLANATION FOR SAFETY, CAPACITY AND EFFICIENCY WITHIN NIGERIAN AIRSPACE

1. Characteristics of the industry

Nigerian Airspace territorial area coverage is 988,885 square kilometres of land mass and adjourning territorial water up to 250nm of the coastline. The country has 25 operational Airports at the moment with four major/ international airports and two area control sectors of Kano/Lagos(ACC`s) to handle the aircraft movements in and out of the various airports as well as those traffic overflying the country's airspace. The current and projected air traffic growth in our State is as presented below.

NTERNATIONAL AIRCRAFT MOVEMENT (Movement in/out of Africa between 2005 and 2009)

TOTAL YEARLY TRAFFIC	INCREASE/DECREASE `TFC`	%	5YR%
2005 = 22,249	+766	3.4	
2006 = 23,015	+ 995	4.3	
2007 = 24,010	+2091	8.7	4.7
2008 = 26,101	+ 1911	7.3	
2009 = 28012			

Regional Traffic movement within Africa.

2005	3,310	+391		
2006	3,701	+87	11.8	
2007	3,788		2.4	
2008	6,565	+2777	73.3%	21.9%
2009	8020	+1455	22.2	

Domestic aircraft movement

COMERCIAL FLIGHTS.

2005	150,903			
2006	172,201	+21298	14.1%	
2007	181,344	9,143	5.3	
2008	205,501	+24,157	13.4	14.4%
2009	286,000	80,499	39.2	

General Aviation Flights

2005	7020			
2006	8,066	1046	14.9%	
2007	10,200	2134	26.5	
2008	11,001	801	7.9	
2009	15,102	4,101	37.3	

OVERFLIGHT growth

2005	15,948	1697	10.6	
2006	17645	1947	11.0	
2007	19,592	5020	25.6	
2008	21,612			9.8%
2009	22,012	400	1.9	

Efficiency challenges: - NGAP, CNS infrastructure, BASA and open sky issues.

2. **The air navigation service provider**

NAMA – Nigerian Airspace Management Agency a government Parastatal is in charge of the Nigerian ANSP.

The agency is headed by MD/CE and governing board appointed by the federal government of Nigeria. Funding is partially by the government and from internally generated revenue – IGR.

The management structure consists of the MD/CE, and three directors; DOO – Director of Operations, which handles ATM, AIMandCOMMs, DSES – Director of safety electronics services for CNS and the DAF in charge of Administration and finance.

3. Major stakeholders/partners

The major stakeholders in my State are; NCAA – Nigerian Civil Aviation Authority – the Regulator, NAMA – Nigerian Airspace Management Agency (ANSP), FAAN – Federal Airport Authority of Nigeria is in charge of the National Airport operation, as well as state government airports, privately owned airports and Helipads. Other stakeholders are NIMET for MET, AIB for Accident Investigations and Prevention Bureau, Ground Handlers- NAHCO and SAHCOL; Airspace users – International &Domestic, Business &General Aviation airline operators and the Military (NAF&NAVY). Funding is partially by Government and through IGR.

4. Problem definition

Conventional ANS limitations in Nigeria

> Routes are still point – to – to point and inflexible
> Airspace requirement for protection areas is large
> Conventional routing is not cost effective to Users
> " " is not expeditious
> It is expensive to establish as the cost of installation and maintenance is enormous
> Accuracy is limited with distance away from Navaid
> Availability and reliability is not guaranteed

5. PBN – Implementation

Scope; - National: Beginning with the TMAs, 25operational airports – 4 major international airports.2ACC sectors in one large FIR.
> Traffic flow is mainly East to West & North to South in nature.

Vision: - The creation of uni– directional routes to enhance safety, capacity building & airspace efficiency in the short term

- National PBN implementation.
- WGS -84 implemented in24 out of the 25 AIRPORTS
- Required performance Based communication through total VHF coverage of the entire airspace – Voice/Data – installation nearing completion
- Implementation of Total Radar coverage of the entire FIR, which can be collaboratively harmonized and interoperable with contiguous FIRs.

5. Performance based Navigation Plan

List of current ANS Projects:-

1. Communication VHF coverage of the airspace project
2. Navigation – Installation of conventional Navaids – VOR/DME, ILS/DME. PBN – WGS – 84, SIDS& STARs for 4major airports, RNAV/RNP, VNAV approaches in Terminal areas.
3. Total Radar coverage of the airspace – MSSR.
4. NEAR TERM: - All CNS Projects above to be completed & implemented by June 2011.
5. MEDIUM TERM: - 1.AIS AUTOMATION with capacity for AMHS. 2.ADS –B/C, CPDLC – Dec.2011.
6. **Performance framework forms** (PFFs)

   OBJECTIVE 1.

   ENHANCE SAFETY, CAPACITY&EFFICIENCY OF ENROUTE TRAFFIC BETWEEN KANO & LAGOS OF NIGERIAN AIRSPACE.

PERFORMANCE BENEFITS

1. **SAFETY – Safety level improved through the elimination of AIRPROX by creation of uni – directional routes R/UR778 & V/UV377 link both sectors.**
2. **ENVIRONMENT;-Reduced emissions through use of optimum routes.**
3. **CAPACITY ;- Increased capacity through better utilisation airspace resources that facilitate un – interrupted climb/descent to required level/altitude**
4. **Cost Effectiveness :- Fuel cost reduction through clean climb & descent**
5. **Ability of aircraft to conduct flight close to preferred trajectory.**

Strategy **Medium term *(2010 - 2015)***				
ATM Operational Concept Components	**Projects/Tasks**	**Timeframe Start/End**	**Responsibility**	**Status (as of …)**
AOM, DCB, TS and CM	1. To develop airspace concept that is safe, efficient of time, money &seamless to operate through	May 2009 – Dec 2011.	States /Territories NCAA/NAMA	DEC 2010-12-09 WGS 84 for 24 airports completed.
	2. Establish RNAV routes through State.UM114,UM998,UT149,UT269&UT 365	21 OCT 2010 – Dec2010-12-09	NAMA	Oct 2010,AIP Supplement published'
	3Reduced horizontal separation between A/C through RNAV10	On going	NAMA	Ongoing
	4.Implement electronic flight strips – operational in Lagos,Abuja &Port-harcourt towers.Kano yet to be completed	Jan2011 june2011	NAMA	DEC 2010 Civil work at Kano TWR on – going
	5.Alingment of airspace classification to class A above FL 245.		NAMA	DEC.2010 Completed.
	6.			Work in progress
	7		NAMA	WIP
	8			
	9			ON –GOING

	10. 11.AXIM 12. 13.eAIP DEC 2011 14 DIGITAL NOTAM 15. QNS for AIM 16. DATA/VOICE COM 17.GNSS 18. SITUATIONAL AWARENESS	 N/A DEC 2011 MAR.2012 ON –GOING DEC2011 JUNE 2011 TRACON ON – GOING DEC2011	 STATE DEC2011 MAR 2011 NAMA/NCAA NAMA NAMA	ON -GOING ON -GOING NAMA/NCAA NAMA/NCAA NAMA/NCAA WGS-84 Done procedure designed and charting ongoing

NATIONAL PERFORMACE OBJECT 2

ENHANCEMENT OF SAFETY, CAPACITY AND EFFICIENCY OF ABUJA TMA

1 SAFETY; Safety level improved through the segregation of arrival and departure traffic e.g. UV456 and UH206 for traffic in/out Abuja from the East and BDA DCT ABC and H/UH 340 in/out of Abuja

2 ENVIRONMENT; Reduced emission through use of optimum routes and uninterrupted climb/descent out/in of Abuja

3 CAPACITY; Increase capacity through better utilisation of airspace resources – uninterrupted descent/climb

4 COST EFFECTIVENESS; Fuel cost reduction through clean climb/descent through uni-directional arrival and departure routes

MEDIUM TERM STRATEGY 2010 – 2015

ATM OPS CONCEPT COMPONENTS	PROJECT/TASKS	TIME FRAME START/END	RESPONSIBILITY	STATUS AS AT...
AOM, DCB, TS & CM	WGS-84, RNAV/RNP, SIDs & STARS	APRIL 2010 TO JUNE 2011	NAMA	DEC 2010 PROCEDURES DRAWN. CHARTING INPROGRESS
	ILS/DME RWY22	SEPT. 2010 – MARCH 2011	NAMA	DEC 2010 INSTALLATION IN PROGRESS
		FUNCTIONAL		DEC 2010 ALREADY INSTALLED AND FUNCTIONAL
RISK MGT, RISK FACTORS; INADEQUATE TECHNICAL/OPS MANPOWER				
LINKAGE TO GPIs	GPI/5: PBN, GPI/8; COLLABORATIVE AIRSPACE DESIGN & MANAGEMENT GPI/12; SITUATIONAL AWARENESS WITH TRACON; GPI/20; WGS-84, GPI/21; NAV SYSTEMS, GPI/22 COMMUNICATION INFRASTRUCTURE			

NATIONAL PERFORMANCE OBJECTIVE 3

ENHANCEMENT OF SAFETY, CAPACITY AND EFFICIENCY IN THE NIGERIAN AIRSPACE THROUGH THE TOTAL RADAR COVERAGE TO ACHIEVE REQUIRED SURVEILANCE PERFORMANCE (RSP)

PERFORMANCE BENEFITS:

SAFETY: Safety level improved within entire FIR covered by radar to enhance situational awareness and provide STCAS of traffic.

ENVIRONMENT: Reduced emission through shorter vectors for arriving/departing aircrafts to avoid delay associated with procedural holding patterns.

CAPACITY: Increased ATM capacity through enhanced situational awareness and provision of vectors to traffic.

COST EFFECTIVENESS: Potential cost reduction through elimination of delays associated with procedural control.

PROVIDES AUTOMATIC BULLING FACILITY WHICH ENHANCE ACCOUNTABILITY AND TRANSPARENCY

STRATEGY – MEDIUM TERM 2010 – 2015

ATM OPS CONCEPTS	PROJECT/TASKS	TIMEFRAME START/END	RESPONSIBILITY	STATUS AS OF...
AOM, DCB, TS & CM	INTEGRATION OF 9 RADAR STATIONS TO ACHIEVE TOTAL COVERAGE	DEC 2010 – MARCH 2011	NAMA	DEC 2010 ALL 9 SITES INSTALLED AND TESTED
	ESTABLISHMENT OF 2 AREA RADAR CONTROL CENTRES IN KANO AND LAGOS	DEC 2010 – JUNE 2011	NAMA	DEC 2010 EQUIPMENT INSTALLATION COMPLETED AND COMMISSIONED
	CERTIFICATION OF AREA RADAR ATCOs TO MAN THE CENTRES	JAN 2011 – JUNE 2011	NAMA	DEC 2010 IDENTIFICATION OF TRG FACILITIES
	INTERFACE WITH ADS –B/C	2011-2012	NAMA	DEC 2010 PROPOSED
	CPDLC	2011-2013	NAMA	PROPOSED

OBJECTIVE 4

ACHIEVENMENT OF REQUIRED COMMUNICATION PERFORMANCE WITHIN THE NIGERIAN AIRSPACE

BENEFITS

SAFETY: Safety improved by seamless communication. Air/ground, ground/ground real time within the FIR and with contiguous FIRs through effective co-ordination.

CAPACITY: Improved ATM capacity and situational awareness

MEDIUM TERM STRATEGY 2010 – 2015

ATM OPS CONCEPT COMPONENTS	PROJECT/TASK	TIME FRAME START/END	RESPONSIBILITY	STATUS AS OF....
AOM, DCB, TS & CM	TOTAL VHF RADIO COVERAGE OF NIGERIAN AIRSPACE	MARCH 2010 – MARCH 2011	NAMA	DEC 2010 INSTALLATION IN 9 SITES NEARING COMPLETION
	INTERFACE WITH EXISTING SATCOM BACKBONE FOR LONG-RANGE VOICE AND DATA COMMUNICATION VIA SATELITE	DEC 2010-MARCH 2011	NAMA	DEC 2010 SOME SITES ALREADY CONNECTED
	CPDLC	2011-2013		PROPOSED

OBJECTIVE 5: AIM TO USE THE AUTOMATED ENVIRONMENT TO ACHIEVE IMPROVED AND SEAMLESS AERONAUTICAL INFORMATION MANAGEMENT

BENEFITS.

EFICIENCY: There will be efficiency in information collation, editing and production.

DESSEMINATION OF INFORMATION: Will be real time on time.

NOTAM PROMULGATION: NOTAM Accuracy and mgt will improve

CHARTING: Production of aeronautical charts as at when due.

e-AIP: AIP amendments, suppliments, AIC's etc, will be easier to achieve.

e-FLIGHT PLAN: Airline operations and operators will be able to file there flight plans electronically from any location.

MEDIUM TERM STRATEGY 2010 – 2011

AIM OPS CONCEPT	**PROJECT/TASK**	**TIME FRAME START/END**	**RESPONSIBILITY**	**STATUS AS OF....**
AOM, DCB	AUTOMATION OF ALL AIS SYSTEMS AND STATIONS TO ACHIEVE IMPROVED INFORMATION MGT	2010 – 2011	NAMA	EQUIPMENT MANUFACTURED AND AWAITING SHIPMENT TO NIGERIA
	AXIM 5.3 INCORPORATED INTO THE SYSTEM FOR IMPLEMENTATION	JAN 2011 – JUNE 2011	NAMA	DEC 2010 STILL ONGOING
	e-AIP IS AN INTEGRAL PART OF EQUIPMENT TRAINING COMPLETED	JAN 2011-JUNE 2011	NAMA	STILL ONGOING
	DIGITAL NOTAM PROSESSING IS ASWELL INCORPORATED	JAN 2011-JUNE 2011	NAMA	STILL ONGOING

	INTO THE SYSTEM			
	e-FLIGHT PLAN	JAN 2011-JUNE 2011	NAMA	STILL ONGOING