WORKSHOP ON PREPARATIONS FOR AN-CONF/12 – ASBU METHODOLOGY (NAIROBI, 13-17 AUGUST 2012)

Hands-on Exercises on Performance Based Planning and use of IFSET

Presentation by KENYA

Participants

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Air Navigation Infrastructure

Communication

- VHF Area Cover

Location	Range
Ngong Hills	250 Nm
Poror	250 Nm
Mombasa	250 Nm
Wajir	250 Nm

Air Navigation Infrastructure

Communication

- HF

Location
Nairobi with 8 Frequencies

- AFS

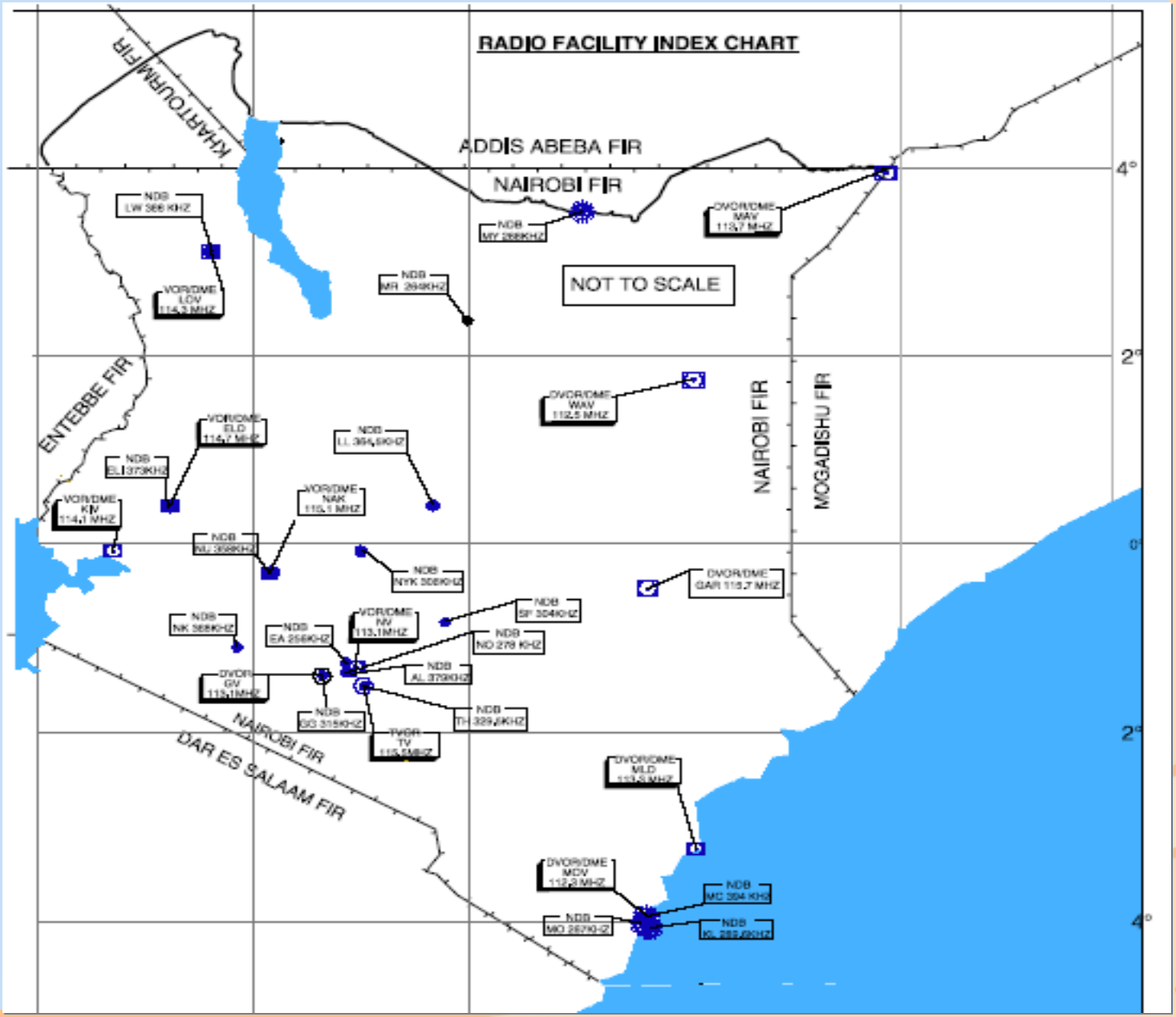
Facility
AFTN
ATS/DS
AIDPS

Air Navigation Infrastructure

Navigation

Facility	Number of Installations
VOR/DME	10
VOR	2
NDB	11
ILS/DME	3
VDF	4

Air Navigation Infrastructure



Air Navigation Infrastructure

Surveillance

SSR Mode ‘S’

Station	Range
Nairobi	250 Nm
Mua hills	250 Nm
Poror	250 Nm
Mombasa	250 Nm
Wajir	250 Nm
Eldoret	250 Nm

Air Navigation Infrastructure

Surveillance

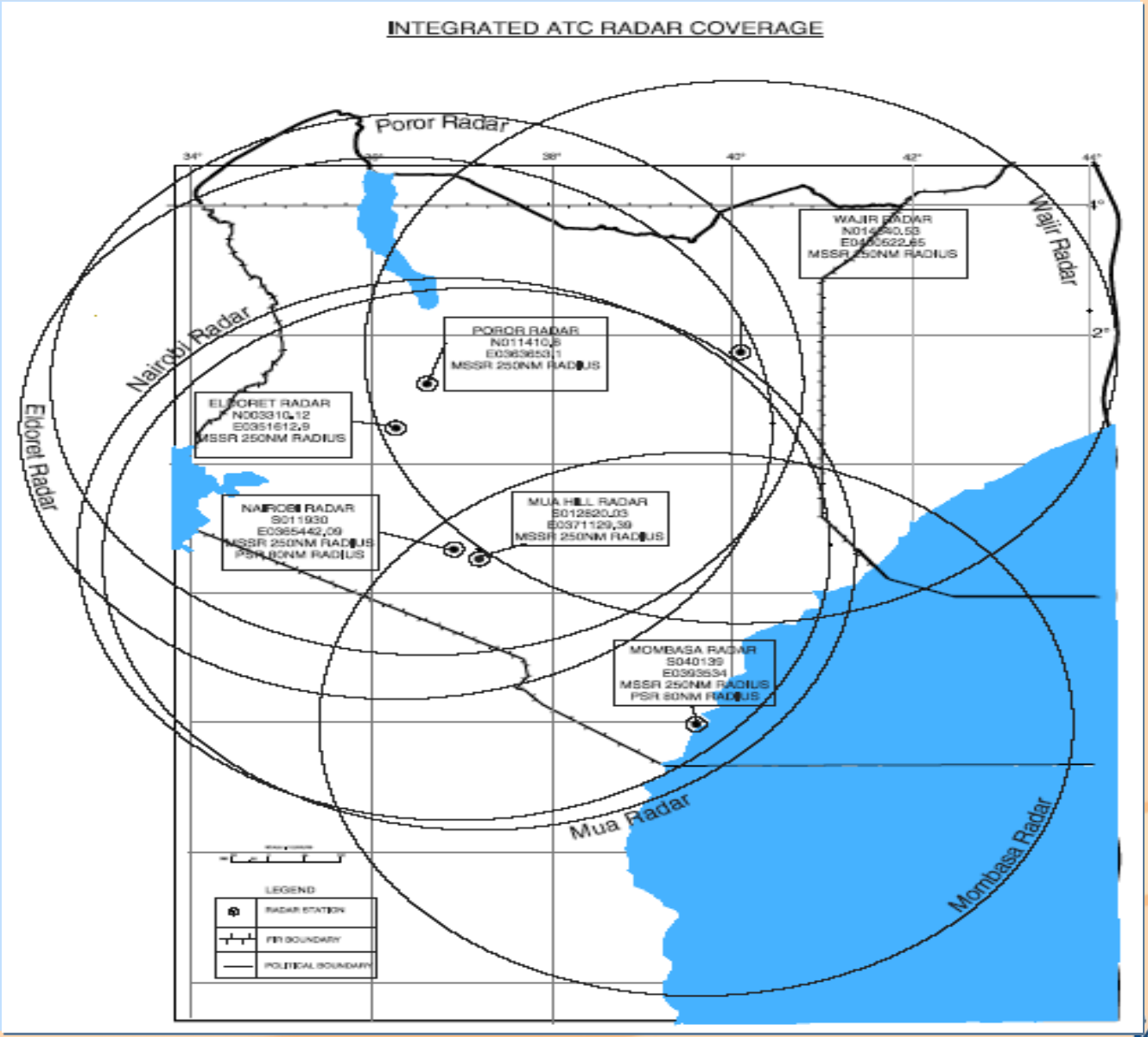
Primary

Station	Range
Nairobi	80 Nm
Mombasa	80 Nm

A-SMGCS

Station
Nairobi

Air Navigation Infrastructure



Air Navigation Infrastructure

Planned

- ADS-C/CPDLC
- ADS-B
- MLAT

Applicable Modules and Corresponding PIAs

PIA1	Module	Status	Justification
Airport Operations	B0-15- Improved Runway Traffic Flow through Sequencing (AMAN/DMAN)	Y	•Increased capacity •High traffic at peak times
	B0-75 Improved Runway Safety (A-SMGCS)	Y	•Enhanced safety •Weather challenges •Incursions
	B0-65 - Optimization of Approach Procedures including Vertical Guidance	Y	Reduced unstable approaches
	B0-80 Improved Airport Operations through ACDM	Y	Improved efficiency in airport operations
	B0-70 Increased Runway Throughput through Wake Turbulence Separation	N	Level of traffic low and current categorization suffices

Applicable Modules and Corresponding PIAs

PIA 2	Module	Status	Justification
Globally Interoperable Systems and Data	B0-25 Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration	Y	Enhanced data exchange between stations
	B0-30 Service Improvement through Digital Aeronautical Information Management	Y	▪ Access to accurate digital Information. ▪ Existing data inconsistencies
	B0-105 – Meteorological information supporting enhanced operational efficiency and safety	Y	Enhanced aircraft operational safety and efficiency

Applicable Modules and Corresponding PIAs

PIA 3	Module	Status	Justification
Optimum Capacity and Flexible Flights	B0-10: Improved Operations through Enhanced En-Route Trajectories	Y	• Economic operations and flexible use of airspace • Demand for PBN Operations
	B0-35:Improved Flow Performance through Planning based on a Network-Wide view	N	• Existence of low traffic
	B0-85: Air Traffic Situational Awareness (ATSA)	Y	• Enhanced operational safety • IFR / VFR traffic mix
	B0-86: Improved access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B	Y	• Enhanced aircraft operations and safety • Existence of Oceanic airspace without surveillance

Applicable Modules and Corresponding PIAs

PIA 3	Module	Status	Justification
Optimum Capacity and Flexible Flights	B0-101 ACAS Improvements	Y	Safety
	B0-84 – Initial surveillance capability ADS-B Out, MLAT	Y	Increase airspace surveillance
	B0-102 – Baseline Ground-based Safety Nets	Y	Enhanced operational safety

Applicable Modules and Corresponding PIAs

PIA 4	Module	Status	Justification
Efficient Flight Path	B0-05 Improved Flexibility and Efficiency in Descent Profiles (CDOs)	Y	Economic operations and reduction in CO_2emissions
	B0-20 Improved Flexibility and Efficiency in Departure Profiles(CCOs)	Y	Economic operations and reduction in CO_2emissions
	B0-40 Improved Safety and Efficiency through the initial application of Data Link En-Route	Y	Economic operations and reduction in CO_2emissions

Air Navigation Report Forms (ANRF)

REGIONAL/NATIONAL PERFORMANCE OBJECTIVE SAFETY AND EFFICIENCY OF SURFACE OPERATIONS (A-SMGCS LEVEL 1-2) (ASBU B0-75) Performance Improvement Area 1: Airport Operations					
ASBU B0- 75 : Impact on Main Key Performance Areas (KPA)					
	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	Y	Y	Y	Y	Y

Air Navigation Report Forms (ANRF)

ASBU B0-75: Implementation Progress	
Elements	**Implementation Status (Ground and Air)**
Visual aids	PAPI, CAT I Airfield Lighting Systems Planned CAT II Airfield Lighting Systems by 2015
Multilateration, SSR Mode S, and ADS-B;	Implemented SSR Mode S Planned - Multilateration December 2014 - ADS-B - December 2014
Transponder for both aircraft and vehicles	Transponder for all Aircraft already implemented. Vehicle Transponder December 2016
Alerting systems with flight identification information	- Runway incursion alert - Short term conflict alert - Area penetration alert - Deviation alert - Medium term alert

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ASBU B0-75: Implementation Roadblocks/Issues				
Elements	**Implementation Area**			
	Ground system Implementation	**Avionics Implementation**	**Procedures Availability**	**Operational Approvals**
1. Visual aids	Nil	Nil	Nil	Nil
2. Multilateration and ADS-B;	Nil	Kenya Registered Aircraft Equipage	Nil	Trained Personnel for approvals required.
3 Transponder for vehicles	Nil	Vehicle equipage	Nil	Nil
4 Alerting systems with flight identification information	Nil	Nil	Nil	Nil

Air Navigation Report Forms (ANRF)

ASBU B0-75: Performance Monitoring and Measurement (Infrastructure)	
Infrastructure/Implementation referring to elements of the Module	**Performance Metrics**
Visual aids	- Number of PAPIs Installed - Number of CAT II Airfield Lighting Systems installed
Multilateration, SSR Mode S, and ADS-B;	Number of Airports covered
Transponder for both aircraft and vehicles	Number of aircraft and vehicles equipped
Alerting systems with flight identification information	Percentage of correct alerts received

Air Navigation Report Forms (ANRF)

ASBU B0-75: Performance Monitoring and Measurement(KPAs)	
Module benefits to Key Performance Areas	**Performance Metrics**
Access & Equity	Reduced delays
Capacity	Enhanced airports operations
Efficiency	Minimal operational delays
Environment	Reduced Carbon emissions
Safety	Reduced runway incursions

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REGIONAL/NATIONAL PERFORMANCE OBJECTIVE

SERVICE IMPROVEMENT THROUGH DIGITAL AERONAUTICAL INFORMATION MANAGEMENT (ASBU B0-30)

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

ASBU B0- 30 : Impact on Main Key Performance Areas (KPA)

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

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ASBU B0-30: Implementation Progress	
Elements	**Implementation Status (Ground and Air)**
AIXM	AIXM version 4.5 compatible system installed at 2 stations
eAIP	eAIP implemented and due to be released to external clients by end of September 2012
Digital NOTAM	Digital NOTAM planned for implementation by 2015

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ASBU B0-30: Implementation Roadblocks/Issues				
Elements	**Implementation Area**			
	Ground system Implementation	**Avionics Implementation**	**Procedures Availability**	**Operational Approvals**
AIXM	System upgrades required	Nil	Procedures to be developed	Nil
eAIP	- Limited bandwidth - Data security	Nil	Procedures to be developed	Nil
Digital NOTAM	- System upgrades required - Limited bandwidth	Nil	- Procedures to be developed	Nil

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ASBU B0-30: Performance Monitoring and Measurement (Infrastructure)	
Infrastructure/Implementation referring to elements of the Module	**Performance Metrics**
AIXM	Number of stations covered
eAIP	Percentage of clients with access
Digital NOTAM	Percentage of clients with access

Air Navigation Report Forms (ANRF)

ASBU B0-30: Performance Monitoring and Measurement(KPAs)	
Module benefits to Key Performance Areas	**Performance Metrics**
Access & Equity	Not Applicable
Capacity	Not Applicable
Efficiency	Not Applicable
Environment	Environmental conservation
Safety	• Enhanced access to information • Elimination of data inconsistencies • Data of high quality

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REGIONAL/NATIONAL PERFORMANCE OBJECTIVE GROUND-BASED SAFETY NETS (ASBU B0-102) Performance Improvement Area 3: Optimum Capacity and Flexible Flights – Through Global Collaborative ATM					
ASBU B0- 102 : Impact on Main Key Performance Areas (KPA)					
	Access & Equity	**Capacity**	**Efficiency**	**Environment**	**Safety**
Applicable	N	N	N	N	Y

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ASBU B0-102: Implementation Progress	
Elements	**Implementation Status (Ground and Air)**
1. Short Term Conflict Alert (STCA)	Implemented through Eurocat C (ATM System) in 2 stations
1. Area Proximity Warning (APW)	Implemented through Eurocat C (ATM System) in 2 stations
1. Minimum Safe Altitude Warning (MSAW)	Implemented through Eurocat C (ATM System) in 2 stations

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ASBU B0-102: Implementation Roadblocks/Issues				
Elements	**Implementation Area**			
	Ground system Implementation	**Avionics Implementation**	**Procedures Availability**	**Operational Approvals**
Short Term Conflict Alert (STCA)	Unnecessary alerts	Nil	Nil	Nil
Area Proximity Warning (APW)	Nil	Nil	Nil	Nil
Minimum Safe Altitude Warning (MSAW)	Unnecessary alerts	Nil	Nil	Nil

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ASBU B0-102: Performance Monitoring and Measurement (Infrastructure)	
Infrastructure/Implementation referring to elements of the Module	**Performance Metrics**
1. Short Term Conflict Alert (STCA)	Percentage of correct alerts received
1. Area Proximity Warning (APW)	Number of alerts received
1. Minimum Safe Altitude Warning (MSAW)	Percentage of correct alerts received

Air Navigation Report Forms (ANRF)

ASBU B0-102: Performance Monitoring and Measurement(KPAs)	
Module benefits to Key Performance Areas	**Performance Metrics**
Access & Equity	Not Applicable
Capacity	Not Applicable
Efficiency	Not Applicable
Environment	Not Applicable
Safety	• Improved situational awareness • Reduced number of ATS incidents

IFSET Operations 1, 2 and 3

See graphs on word document

Fuel Savings Report

Estimated Fuel Savings Report

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Scenario	Old Fuel Consumption (Kg)	New Fuel Consumption (Kg)	Savings (Kg)	Savings (%)
AAAA	127600	110800	-16800	-13.2
BBBB	47300	47300	0	0.0
KENYA3	694900	592400	-102500	-14.8
KENYA4	87500	74500	-13000	-14.9

Export to Excel

Detailed Fuel Savings Report

16 August 2012

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IFSET Operations 1, 2 and 3

See graphs on word document

Fuel Savings Operations 1= 16,800 Kg
CO_2 reduction = 16,800 X 3.157 = 53,037.6

Fuel Savings Operations 2= 0
CO_2 reduction = 0

Fuel Savings Operations 3 (a) =102,500Kg
CO_2 reduction = 102, 500 X 3.157 = 323,592.5

Fuel Savings Operations 3 (b) = 13,000Kg
CO_2 reduction = 13,000 X 3.157 = 41,041

THANK YOU FOR YOUR ATTENTION

QUESTIONS

KCAA
efficiently managing air safety