CIVIL AVIATION AUTHORITY OF ZIMBABWE
Safety, Security, Quality and Efficiency

ASBU METHODOLOGY WORKSHOP
13 - 17 AUGUST 2012

Hands-on Exercise on Performance Based Planning and IFSET

CIVIL AVIATION AUTHORITY OF ZIMBABWE
Safety, Security, Quality and Efficiency

PRESENTATION ON ZIMBABWE

By

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Agenda

1 : CURRENT INFRASTRUCTURE

2 : BLOCK - 0 MODULES ASSESSMENT

3 : PERFORMANCE IMPROVEMENT AREA EXERCISE

4 : IFSET

5 : FEEDBACK

1 : CURRENT INFRASTRUCTURE IN ZIMBABWE

Overview of Infrastructure in Zimbabwe

COMMUNICATION INFRASTRUCTURE

VHF

- Charles Prince – CTR
- Harare Airport – FIS, CTR, TMA and ACC
- J.M. Nkomo Airport – CTR and TMA
- Victoria Falls - CTR and TMA
- Kariba - CTR and TMA
- Masvingo- CTR and TMA
- Buffalo Range - CTR and TMA
- Hwange National Park -CTR and TMA

Overview of Infrastructure in Zimbabwe

NAVIGATION INFRASTRUCTURE

VOR/DME:	Harare
	Masvingo
	Gokwe
	J.M. Nkomo
NDBs	Harare Airport(6)
	J.M. Nkomo Airport (5)
	Victoria Falls (2)
	Kariba – (2)
	Masvingo- (2)
	Buffalo Range (2)
	Hwange National Park (2)

Overview of Infrastructure in Zimbabwe

NAVIGATION INFRASTRUCTURE

APPROACH PROCEDURES

PRECISION APPROACH (ILS CAT 1)

- Harare
- J.M. Nkomo
- Victoria Falls Airport

CONVENTIONAL APPROACHES

- Kariba
- Masvingo
- Buffalo Range
- Hwange National Park

Overview of Infrastructure in Zimbabwe

SURVEILLANCE INFRASTRUCTURE

Primary and Secondary Radar

2 : ASSESSMENT ON BLOCK – 0 MODULES

AIRPORT OPERATIONS - PIA1

MODULES	CONTENTS	NEEDS (Y/N)	OBSERVATIONS
B0-15	Improved Runway Traffic Flow through Sequencing (AMAN/DMAN)	N	Traffic volume low
B0-65	Optimization of Approach Procedures including Vertical Guidance	Y	
B0-70	Increased Runway Throughput through Wake Turbulence Separation	Y	
B0-75	Improved Runway Safety (A-SMGCS)	N	Traffic Volume low
B0-80	Improved Airport Operations through ACDM	Y	

GLOBALLY INTEROPERABLE SYSTEMS AND DATA PIA 2 (GISWIM)

MODULES	CONTENTS	NEEDS (Y/N)	OBSERVATIONS
B0-25	Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration	Y	
B0-30	Service Improvement through Digital Aeronautical Information Management	Y	
B0-105	Meteorological information supporting enhanced operational efficiency and safety	Y	

OPTIMUM CAPACITY AND FLEXIBLE FLIGHTS – PIA3

MODULES	CONTENTS	NEEDS (Y/N)	OBSERVATIONS
B0-10	Improved Operations through Enhanced En-Route Trajectories	Y	
B0-35	B0-35: Improved Flow Performance through Planning based on a Network-Wide view	N	Traffic volume low
B0-84	Initial surveillance capability ADS-B	Y	
B0-86	Improved access to Optimum Flight Levels through Climb/Descent Procedures	Y	
B0-85	Air Traffic Situational Awareness (ATSA)	N	Not yet necessary
B0-102	Baseline Ground-based Safety Nets	N	Not yet necessary
B0-101	B0-101 ACAS Improvements	Y	

3 : PERFORMANCE IMPROVEMENT AREA EXERCISE

Performance Improvement Area Exercise

B0-65: Optimization of Approach Procedures Including Vertical Guidance

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

ASBU B0-65: Implementation Progress	
Elements	Implementation Status (Ground and Air)
1. RNAV and RNP (PBN)	On going – GNSS approach procedures designed but awaiting implementation at Harare and Victoria Falls.
2. Runway Operations	N/A
3. WGS84	Completed

Performance Improvement Area Exercise

B0-65: Optimization of Approach Procedures Including Vertical Guidance : Performance Monitoring and Measurement

Main KPAs	Performance Metrics
Capacity	• Number of aircraft movements per day per aerodrome
Efficiency	• Kilograms of fuel saved per operation • Percentage of PBN Routes
Environment	• Kilograms of CO_2 emissions reduced per operation
Safety	• Number of incidents/accidents which are met related per aerodrome. • Number of runway excursions per aerodrome per year.

Performance Improvement Area Exercise

B0-80: Improved Airport Operations through Airport-CDM

ASBU B0-80: Impact on Main Key Performance Areas (KPA)					
	Capacity	Efficiency	Environment	Safety	
Applicable	Y	Y	Y	Y	

ASBU B0-80: Implementation Progress	
Elements	Implementation Status (Ground and Air)
1. Aerodrome certification	Completed
2. Aeronautical information	Nil
3. Communication infrastructure	In progress

Performance Improvement Area Exercise

B0-80: Improved Airport Operations through Airport-CDM: Implementation Roadblocks

Elements	Implementation Area			
	Ground system Implementation	Avionics Implementation	Procedures Availability	Operational Approvals
1. Aerodrome certification	NIL	N/A	CDM Procedures to be developed.	Aerodrome certificate obtained
2. Aeronautical information	NIL	NIL	NIL	NIL
3. Communication infrastructure	Acquire and install facilities	NIL	To be developed	N/A

Performance Improvement Area Exercise

B0-80: Improved Airport Operations through Airport-CDM: Performance Monitoring and Measurement

Main KPAs	Performance Metrics
Capacity	Number of movements per day per aerodrome
Efficiency	Kilograms of fuel saved per operation
Environment	Kilograms of CO_2 emissions reduced per operation
Safety	Average delay per arrival/departure.

Performance Improvement Area Exercise

B0-84: Initial Capability for Ground-Based Surveillance supported by ADS-B

ASBU B0-84: Impact on Main Key Performance Areas (KPA)					
		Capacity	Efficiency	Environment	Safety
Applicable		Y	N	N	Y

ASBU B0-84: Implementation Progress	
Elements	Implementation Status (Ground and Air)
1. ADS-B	Not implemented but under consideration.
2. Multilateration	No. Low traffic volume.

Performance Improvement Area Exercise

B0-84: Initial Capability for Ground-Based Surveillance supported by ADS-B

Elements	Implementation Area			
	Ground system Implementation	Avionics Implementation	Procedures Availability	Operational Approvals
1. ADS-B	Installation of ground based infrastructure	Aircraft equipment and capabilities	Procedure development Training ATC/Air Crew	Regulatory legislation.
2. Multilateration	N/A	N/A	N/A	N/A

Performance Improvement Area Exercise

B0-84: Initial Capability for Ground-Based Surveillance supported by ADS-B

Main KPAs	Performance Metrics
Capacity	Number of aircraft entering a specified volume of airspace per hour
Efficiency	N/A
Environment	N/A
Safety	Number of air proximity incidents per year.

4 : IFSET EXERCISE

IFSET Scenario 1- CCO (Airport AAAA)

Fuel consumptions calculations (kgs)

With old procedures	:	284 600
After improvement	:	280 200
Savings	:	4 400
Percentage Savings	:	1.5%

IFSET Scenario 2- CDO (Airport BBBB)

Fuel consumptions calculations (kgs)

With old procedures	:	46 100
After improvement	:	46 100
Savings	:	Nil
Percentage Savings	:	0%

IFSET Scenario 3- PBN (Flights at FL350)

Fuel consumptions calculations (kgs)

With old procedures	:	694 900
After improvement	:	692 400
Savings	:	102 500
Percentage Savings	:	14.8%

IFSET Scenario 3- PBN (Flights at FL310)

Fuel consumptions calculations (kgs)

With old procedures	:	87 500
After improvement	:	74 500
Savings	:	13 000
Percentage Savings	:	14.9%

5. FEEDBACK.

A well presented, interesting and beneficial concept

THANK YOU FOR YOUR ATTENTION

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