ASBU METHODOLOGY WORKSHOP (Nairobi) 13 – 17 August 2012

Hands-on Exercices
Performance Based Planning
and
Use of IFSET

ZAMBIA ASBU TEAM

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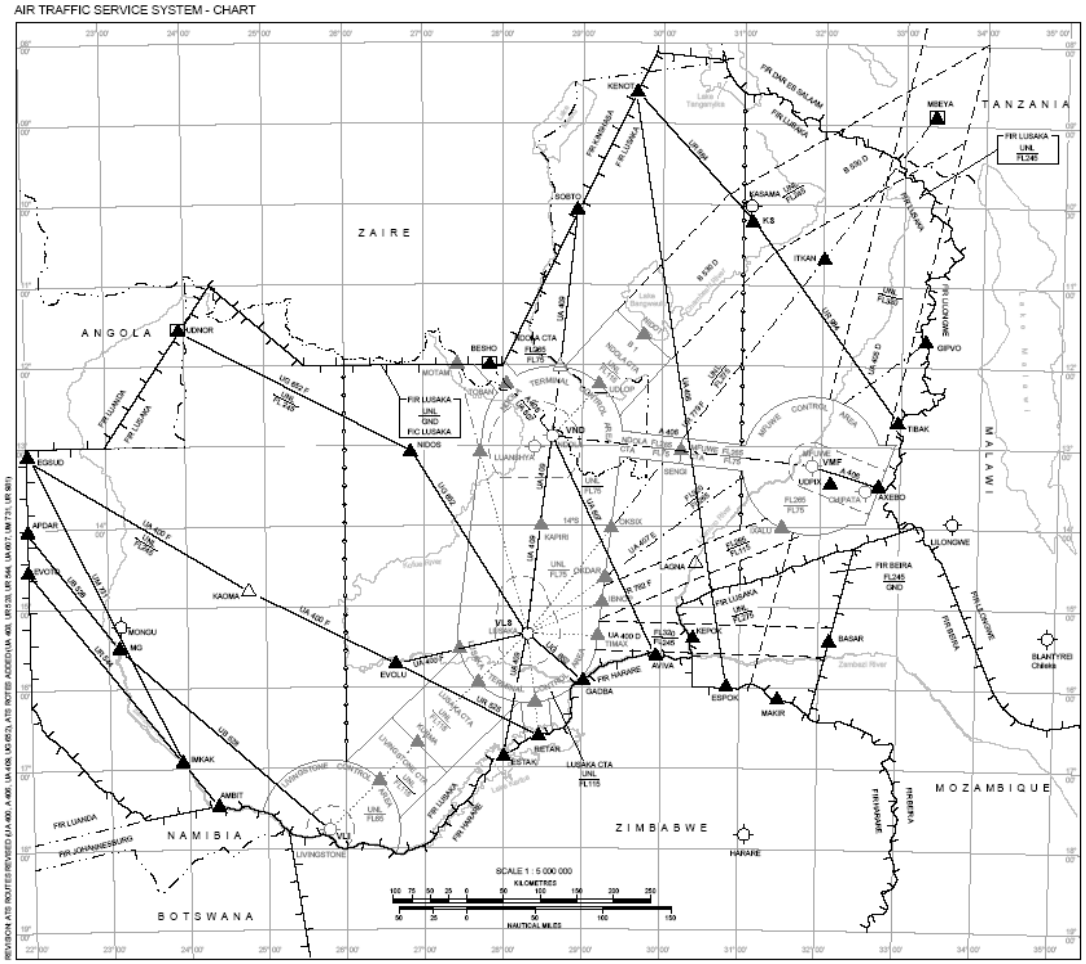
Table of Content

1. Part 1: Overview of Zambia CNS Infrastructure
2. Part 2 : Assessment on Block - 0 Modules
3. Part 3 : Performance Improvement Area (PIA) Exercise
4. Part 4 : IFSET Exercise
5. Part 5 : Feedback on ASBU Workshop

Part 1: Overview of Zambia CNS Infrastructure

Overview of Zambia CNS Infrastructure



AIR NAVIGATION INFRASTRUCTURE

1. APP AIDS

1.1 ILS – KKIA
1.2 NDB – KKIA, HMKIA, SMKIA, MFUWE, CP, KS, MS, MG SW
1.3 VOR - KKIA, HMKIA, SMKIA, MFUWE

2. NAVAIDS

2.1 NDB – KKIA, HMKIA, SMKIA, MFUWE, CP, KS, MS, MG SW
2.2 VOR/DME - KKIA, HMKIA, SMKIA, MFUWE

3. COMMS

- RCAG – KKIA, SMKIA, MG, KS
- VHF -
  CTR, TMA - KKIA, HMKIA, SMKIA, MFUWE, CP, KS, MS, MG SW

AIR NAVIGATION INFRASTRUCTURE

4. APPROACH PROCEDURES

- PRECISION APPROACH ILS CAT 2) : KKIA,
- CONVENTIONAL : KKIA, HMKIA, SMKIA, MFUWE, CP, KS, MS, MG, SW
- RNAV/GNSS : KKIA, HMKIA

Part 2 : Assessment on Block - 0 Modules

(PIA1) AIRPORT OPERATIONS

MODULES	PERFORMANCE OBJECTIVE	APPLICABILITY (Y/N)	OBSERVATIONS
B0-65	Optimization of Approach Procedures including Vertical Guidance	Y	Gradually implement PBN procedures
B0-70	Increased Runway Throughput through Wake Turbulence Separation	N	No change to current separation of three minutes
B0-75	Improved Runway Safety (A-SMGCS)	N	Low traffic average
B0-80	Improved Airport Operations through ACDM	Y	Need to create common data base & improve accessibilty of information
B0-15	Improved Runway Traffic Flow through Sequencing (AMAN/DMAN)	N	One r/w in use at all airoports Low traffic average

(PIA 2) Globally Interoperable Systems

MODULES	PERFORMANCE OBJECTIVE	APPLICABILITY (Y/N)	OBSERVATIONS
B0-25	Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration	Y	Need to improve ATSU cordination by possible introduction of AIDC
B0-30	Service Improvement through Digital Aeronautical Information Management	Y	Upgrade of AIM to AIXM 5.1 & replacement of AFTN with AMHS in progress
B0-105	Meteorological information supporting enhanced operational efficiency and safety	Y	Aquisition of AWOS and intergration with AIM data base in progress

(PIA 3) Optimum Capacity and Flexible Flights

MODULES	PERFORMANCE OBJECTIVE	NEEDS (Y/N)	OBSERVATIONS
B0-10	Improved Operations through Enhanced En-Route Trajectories	Y	To be implemented gradually as traffic density increases
B0-35	B0-35: Improved Flow Performance through Planning based on a Network-Wide view	N	To be considered as traffic density increase
B0-84	Initial surveillance capability ADS-B Out, MLAT	Y	Plans to implement ADS-B under consideration
B0-86	Improved access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B	Y	To be considered when traffic density justifies its application
B0-85	Air Traffic Situational Awareness (ATSA)	N	To be considered
B0-102	Baseline Ground-based Safety Nets	Y	To be considered as traffic density and complexity increase
B0-101	B0-101 ACAS Improvements	Y	Desirable, collaboration with aircraft operators to be be considered

(PIA 4) Efficient Flight Path

MODULES	PERFORMANCE OBJECTIVE	NEEDS (Y/N)	OBSERVATIONS
B0-05	Improved Flexibility and Efficiency in Descent Profiles (CDOs)	Y	To be considered as PBN implementation progresses and traffic density increases
B0-20	Improved Flexibility and Efficiency in Departure Profiles	Y	To be considered as PBN implementation progresses and traffic density increases
B0-40	Improved Safety and Efficiency through the initial application of Data Link En-Route	Y	To be considered as tarffic densty increases

Part 3 : Performance Improvement Area (PIA) Exercise

Selected modules

- B0-65: Optimization Of Approach Procedures Including Vertical Guidance
- B0-80: Improved Airport Operations Through ACDM
- B0- 30: Service Improvement Through Digital AIMS

B0-65: Optimization of Approach Procedures Including Vertical Guidance

REGIONAL/NATIONAL PERFORMANCE OBJECTIVE

OPTIMISATION OF APPROACH PROCEDURES INCLUDING VERTICAL GUIDANCE (ASBU B0-65)

Performance Improvement Area 1: AIRPORT OPERATION

ASBU B0-65: Impact on Main Key Performance Areas (KPA)

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

ASBU B0- 65: Implementation Progress

Elements	Implementation Status
1. RNAV and RNP (PBN)	On going
2. Runway Operations	On Going
3.. WGS-84	On Going

ASBU B0- 65: Implementation Roadblocks/Issues

Elements	Implementation Area			
	Ground system Implementation	Avionics Implementation	Procedures Availability	Operational Approvals
1. RNAV and RNP (PBN)		Few Local A/Craft are Equipped	GNSS Procedures Available at KKIA and HMKIA	Operational Approvals Awaited from DCA – the Regulator
2. Runway Operations	N/A	N/A	N/A	N/A
3. WGS-84	Nil	Nil	Nil	Nil

B0-65: Optimization of Approach Procedures Including Vertical Guidance

ASBU B0- 65: Performance Monitoring and Measurement (Infrastructure)	
Infrastructure/Implementation referring to elements of the Module	**Performance Metrics**
1. RNAV and RNP (PBN)	Project Completion Timeline, Project Cost Variation against Budget
2. Runway Operations	Project Completion Timeline
3. WGS-84	Project Completion Timeline

ASBU B0- 65: Performance Monitoring and Measurement(KPAs)	
Module benefits to Key Performance Areas	**Performance Metrics**
Access/Equity	1. KPA/Access: Percentage of instrument runway ends having an APV 2. KPA/Access: Duration of Special Use Airspace (SUA) limits Civil Operations
Capacity	1. Number of movements per day per aerodrome 2. Average ATFM delay per flight at an airport 3. Number of aircraft entering a specified volume of airspace per hour 4. Average en-route ATFM delay generated by airspace volume
Efficiency	1. Kilograms of fuel saved per operation 2. Average ATFM delay per flight in the airport 3. Percentage of PBN routes
Environment	1.Kilograms of CO2 emissions reduced per operation
Safety	1. Number of runway incursions per aerodrome per year 2. Number of incidents/accidents due to MET conditions

B0-30: Service Improvement Through Digital Aeronautical Information Management

REGIONAL/NATIONAL PERFORMANCE OBJECTIVE

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

Performance Improvement Area 2: Globally Interoperable Systems and Data

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

	Cost-Effectiveness	Global Interoperability	Efficiency	Environment	Safety
Applicable	Y	Y	Y	Y	Y

ASBU B0-30: Implementation Progress

Elements	Implementation Status
1. AIM Implementation	Basic AIM Completed. Upgrade in Progress
2. Use Of AIXM	On Going
3. Migration To Electronic AIP	On Going
4. WGS-84	On Going
5. eTOD	On Going
6. QMS for AIM	Completed

ASBU B0-30: Implementation Roadblocks/Issues

Elements	Implementation Area			
	Ground system Implementation	Avionics Implementation	Procedures Availability	Operational Approvals
1. AIM Implementation	Nil			
2. Use Of AIXM	Nil			
3. Migration To Electronic AIP	Nil			
4. WGS-84	FIR WGS84 Survey Not Completed			
5. eTOD	Nil			
6. QMS for AIM	Nil			

B0-30: Service Improvement Through Digital Aeronautical Information Management

ASBU B0-30: Performance Monitoring and Measurement (Infrastructure)	
Infrastructure/Implementation referring to elements of the Module	**Performance Metrics**
1. AIM Implementation	Project Completion Timeline, Project Cost Variation against Budget
2. AIXM	Project Completion Timeline
3. Migration To Electronic AIP	Project Completion Timeline
4. WGS-84	No of Airports Surveyed
5. eTOD	Project Completion Timeline
6. QMS for AIM	ISO 2008 Certification

ASBU B0-30: Performance Monitoring and Measurement(KPAs)	
Module benefits to Key Performance Areas	**Performance Metrics**
Cost-Effectiveness	1. IFR movements per ATCO hour on duty 2. IFR flights (en-route) per ATCO hour duty
Global Interoperability	1. Number of ATC automated systems that are interconnected
Efficiency	1. Kilograms of fuel saved per operation 2. Average ATFM delay per flight in the airport 3. Percentage of PBN routes
Environment	1.Kilograms of CO_2 emissions reduced per operation
Safety	1. Number of runway incursions per aerodrome per year 2. Number of incidents/accidents due to MET conditions

B0-80: Improved Airport Operations Through Airport - CDM

REGIONAL/NATIONAL PERFORMANCE OBJECTIVE

IMPROVED AIRPORT OPERATIONS THROUGH AIRPORT - CDM (ASBU B0- 80)

Performance Improvement Area 1:
AIRPORT OPERATION

ASBU B0- 80: Impact on Main Key Performance Areas (KPA)

	Capacity	Efficiency	Environment		
Applicable	Y	Y	Y		

ASBU B0- 80: Implementation Progress

Elements	Implementation Status
1. Collaborative Airspace Design And Management	To Initiate Airspace ATM Study
2. Aeronautical Information	On Going
3.. Communication infrastructure	On Going

ASBU B0- 80: Implementation Roadblocks/Issues

Elements	Implementation Area			
	Ground system Implementation	Avionics Implementation	Procedures Availability	Operational Approvals
1. Collaborative Airspace Design And Management	Need for an Airspace Study	N/A	An Airspace Study to recommend Joint Military/Civil use of Restricted Airspace	Nil
2. Aeronautical Information	Nil	Nil	Nil	Nil
3.. Communication infrastructure	Nil	Nil	Nil	Nil

B0-80: Improved Airport Operations Through Airport - CDM

ASBU B0- 80: Performance Monitoring and Measurement (Infrastructure)	
Infrastructure/Implementation referring to elements of the Module	Performance Metrics
1. Collaborative Airspace Design And Management	Project Completion Timeline, Project Cost Variation against Budget
2. Aeronautical Information	Project Completion Timeline
3.. Communication infrastructure	Project Completion Timeline

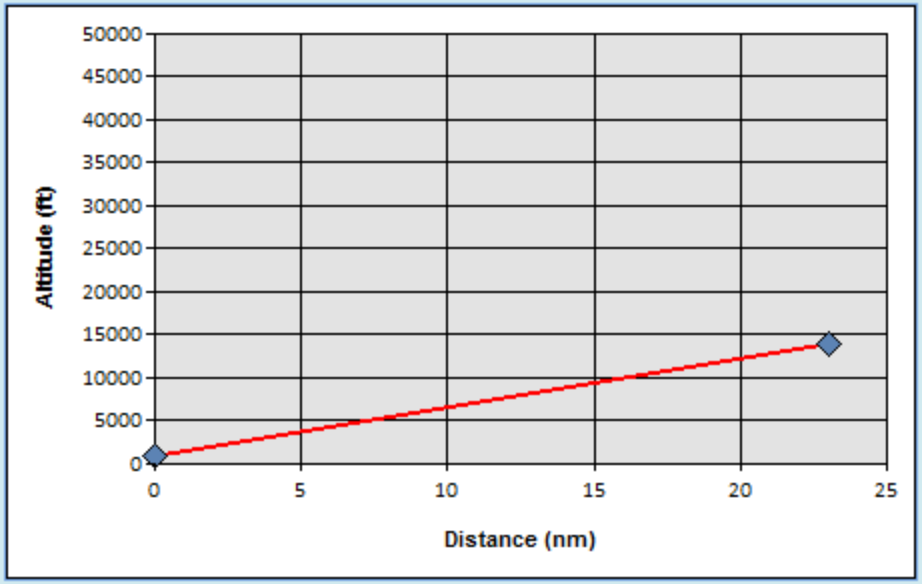
ASBU B0- 65: Performance Monitoring and Measurement(KPAs)	
Module benefits to Key Performance Areas	Performance Metrics
Capacity	1. Number of movements per day per aerodrome 2. Average ATFM delay per flight at an airport 3. Number of aircraft entering a specified volume of airspace per hour 4. Average en-route ATFM delay generated by airspace volume
Efficiency	1. Kilograms of fuel saved per operation 2. Average ATFM delay per flight in the airport 3. Percentage of PBN routes
Environment	1.Kilograms of CO2 emissions reduced per operation

Part 4 : IFSET Exercise

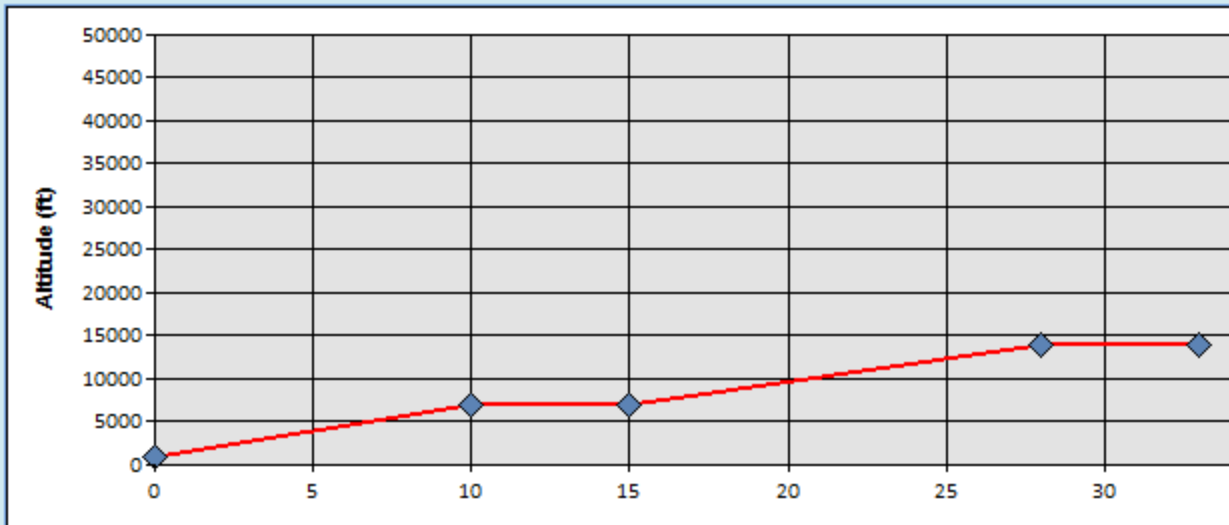
GRAPHICAL VIEW OF SCENARIOS

Scenario ZAMBIA

New Procedure



Old Procedure

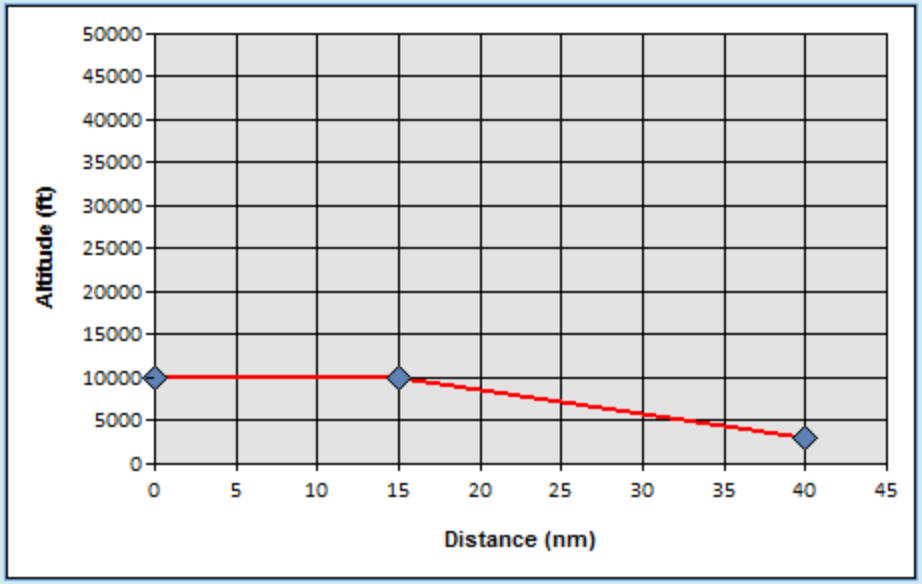


Form View

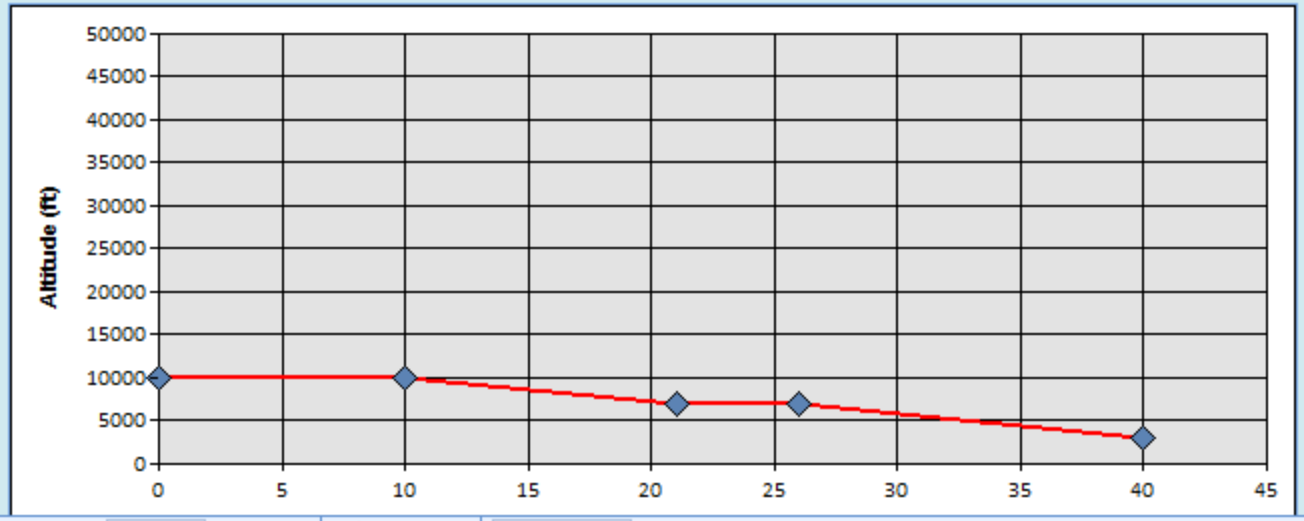
GRAPHICAL VIEW OF SCENARIOS

Scenario ZAMBIA2

New Procedure



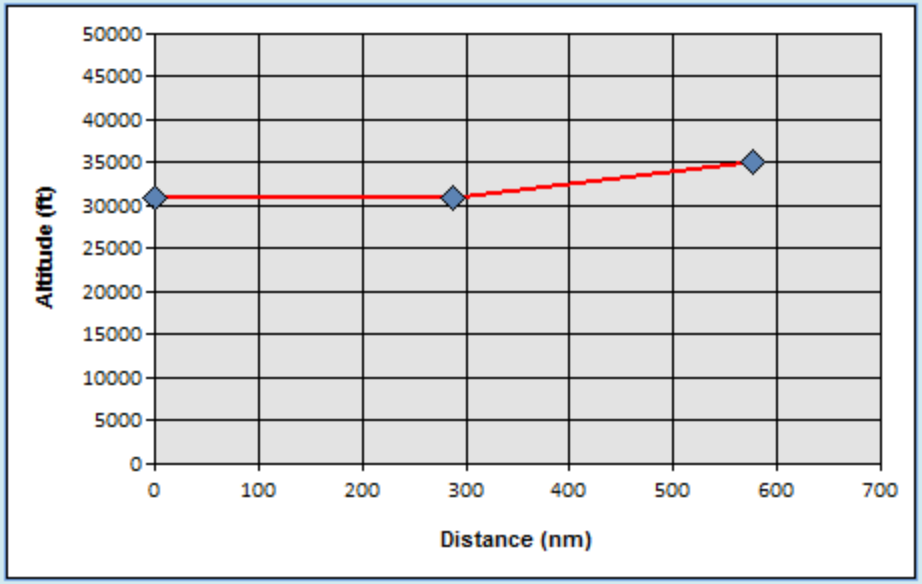
Old Procedure



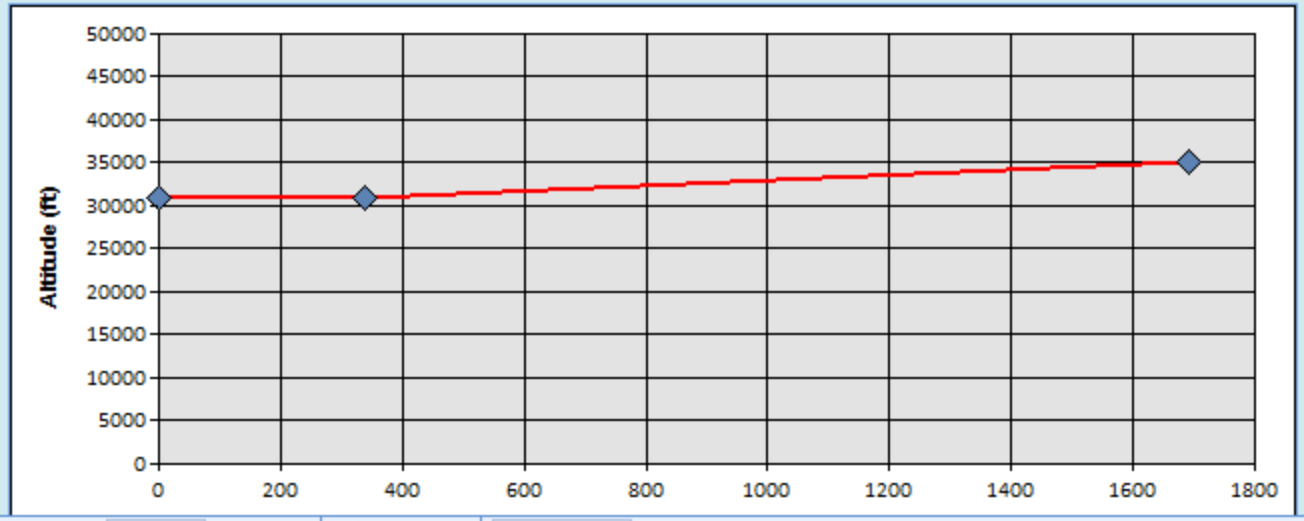
GRAPHICAL VIEW OF SCENARIOS

Scenario ZAMBIA 3

New Procedure



Old Procedure



Fuel Savings Report

Estimated Fuel Savings Report

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Scenario	Old Fuel Consumption (Kg)	New Fuel Consumption (Kg)	Savings (Kg)	Savings (%)
ZAMBIA	127600	110800	-16800	-13.2
ZAMBIA 3	1520000	1295700	-224300	-14.8
ZAMBIA2	47300	47300	0	0.0

Export to Excel

Detailed Fuel Savings Report

Friday, August 17, 2012

Report

Savings (Kg)
-16800
-224300
0

Detailed Fuel Savings Repo

Part 5 : Feedback on ASBU Workshop

Feedback on ASBU Workshop

- The workshop has enabled the Zambian participants to have a clear understand of the links among ATM Op concept, GANP and ASBU
- The workshop has given an appréciation of the ASBU, and the development direction of key future technologies
- Colloboration among states is a corner stone for attaining the goels of ASBU program

Comments on IFSET

- Need for a capability to copy a field and paste it in another.
- Need for capability to modify a saved scenario
- Need for a printing capability
- Overall, the IFSET is a great work tool for procedure design