

WORKSHOP ON THE DEVELOPMENT OF NATIONAL PERFORMANCE FRAMEWORK FOR AIR NAVIGATION SYSTEMS

PRESENTATION BY
ROBERTS FLIGHT INFORMATION REGION
(LIBERIA, SIERRALEONE, GUINEA)
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CHARACTERISTICS OF THE INDUSTRY

• THE CURRENT GROWTH OF TRAFFIC IN THE RFIR

• 2009

- SCHEDULE OVERFLIGHTS -3,552 YEARLY
- ❖ SCHEDULE LANDING AND TAKEOFF AT THE 3 INTERNATIONAL AIRPORTS – 3,984 YEARLY.

• 2010 (10% INCREASE)

- ❖ SCHEDULE OVERFLIGHTS -3,908 YEARLY
- ❖ SCHEDULE LANDING AND TAKEOFF AT THE 3 INTERNATIONAL AIRPORTS – 4,383 YEARLY.

• 2011- 2015 (12% INCREASE)

- ❖ SCHEDULE OVERFLIGHTS -4377 YEARLY
- ❖ SCHEDULE LANDING AND TAKEOFF AT THE 3 INTERNATIONAL AIRPORTS – 4909 YEARLY.



EFFICIENCY CHALLENGES

- Reduce air navigation charges to encourage more flights
- Improve airport infrastructure
- Reduce airport charges
- Improve airport security

COUNTRIES IN THE RFIR





THE AIR NAVIGATION SERVICE PROVIDER

- FIR is composed of three states : Liberia, Sierra Leone & Guinea.
- Roberts FIR provides control in the upper airspace while individual states are responsible to provide lower airspace control from 3,000 ft. to ground.
- States provide NAVAIDS and are responsible for its up keep.
- States CAA are responsible for regulation and may provide some services.
- Airports are run by the airport authority of each state.



MAJOR STAKEHOLDERS/PARTNERS

- The 3 states: Liberia, Sierra Leone & Guinea, are the major partners within the region.
- COSCAP-BAG
- ICAO TCB
- Regional airlines, European & American air lines are frequent flyers within the airspace and the use mostly BOEING and AIRBUS.
- Military operations in the region is by un peacekeepers with the use of helicopters.
- The major source of funding is by the collection of charges and fees from users of the airspace.
- INTELCAN



PROBLEMS

- Limited number of flights
- Acquiring funding for the purchase of modern up-to-date equipment
- Up keep of present facilities and equipment
- Training



**PERFORMANCE BASE
NATIONAL AIR
NAVIGATION PLAN**

THE GOAL OF THE RFIR IS:

To provide communication navigation and surveillance system that uses technologies that are automated that will support seamless global air traffic management.

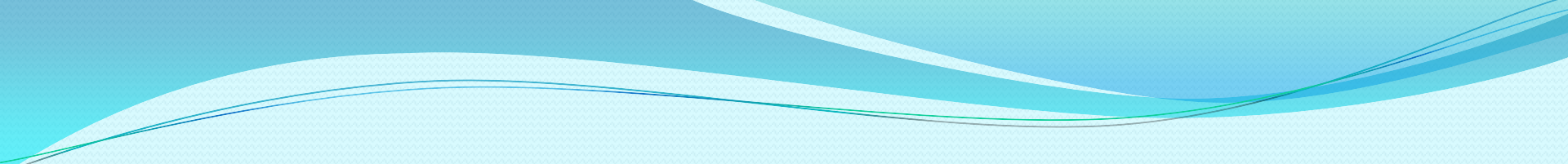


OBJECTIVES

- Improving upon the present levels of safety;
- Improving upon the present levels of regularity;
- Improving upon the overall efficiency and capacity of airspace and airports
- Improving operations allowing for capacity increase while minimizing fuel consumption and aircraft engine emissions;
- Increasing the availability of user-preferred flight schedules and profiles; and
- minimizing differing equipment carriage requirements between regions.



VISION



To foster implementation of a seamless, global air traffic management system that will enable aircraft operators to meet their planned times of departure and arrival and adhere to their preferred flight profiles with minimum constraints and without compromising agreed levels of safety.



CURRENT EQUIPMENT

- DVOR (3)
- DME (3)
- NDB (12)
- ILS (3)
- 95% VHF COVERAGE
- 100% HF COVERAGE
- FDPS (FLIGHT DATA PROCESSING SYSTEM)



OPERATIONAL IMPROVEMENT

- Withdraw all NDB'S by December 2012
- Installation of ADS-B by December 2014
- Installation of digital HF by December 2011
- Presently, installation of two VHF stations that will provide 100% coverage within the fir.

STRATEGIC OPERATIONAL IMPROVEMENT/ NATIONAL PERFORMANCE OBJECTIVE – 1

ENHANCE CAPACITY AND EFFICIENCY OF ENROUTE AIRSPACE

Performance Benefits

Safety	Safety level improved.
Environment	Reduced emissions through shorter flights and use of optimum routes/trajectories
Capacity	Increased capacity through better utilization airspace resources
Cost effectiveness	Fuel cost reduction through availability of more optimized routes/trajectories; and Ability of aircraft to conduct flight more closely to preferred trajectories

Performance Measurement

Metrics

No PBN route implemented but 11 AORRA routes implemented in the southern sector.

50% difference b/w optimal & actual route

9 aircraft entering a specified volume of airspace/hr

The airspace has 24 hrs. operation

**Strategy
Medium term (2010 - 2015)**

Projects/Tasks	Timeframe Start/End	Responsibility	Status (as of ...)	
Formulate airspace concept and determine near term operational improvements	November 2010 – December 2012	States /RFIR	Database under preparation	
Analyse the en-route ATS route structure and implement identifiable improvements such as RNAV routes	July 2011 – April 2012	States /RFIR	Database under preparation	
Reduce horizontal separation between aircraft through RNAV 5	December 2013	States /RFIR	Database under preparation	
Implement electronic flight strips	December 2011	States /RFIR	Database under preparation	
Align airspace classification to Class A above FL 245	March 2010 – December 2011	States /RFIR	Database under preparation	
Implement flexible use of airspace, improve civil/Military coordination and determine conditional routes	Coordination in progress and conditional routes not yet establish	States /RFIR	Coordination in progress and conditional routes not yet establish	

AOM, DCB, TS and CM

Improve demand and capacity balancing through ATFM process	Nov 2011 Nov 2012	States /RFIR	Database under preparation
Transition to new flight plan	March 2011- November 2013	States /RFIR	Database under preparation
Migration to WGS-84	December 2011	State	Database under preparation
Implementation of eAIP	March 2011- November 2013	States /RFIR	Database under preparation
Digital NOTAMs	March 2011- November 2013	States /RFIR	Database under preparation
Quality management systems for AIM	January 2008 – November 2013	States /RFIR	In progress
Improve data and voice communications	January 2008- December 2014	States /RFIR	In progress
Implementation of GNSS	December 2014	States /RFIR	Database under preparation
Enhance preparation and availability and issuance of SIGMETs	January 2008 – November 2013	States /RFIR	Database under preparation
Establish contingency measures to disseminate OPMET data via Internet in case of failure of AFTN and WAFS facilities	January 2008- December 2014	States /RFIR	Database under preparation
Improve availability, timeliness and quality of OPMET data	January 2008 – November 2013	States /RFIR	Database under preparation
Develop Quality management systems for MET	January 2008 – November 2013	States /RFIR	Database under preparation

Risk Management

Risk factors: lack of funding; insufficient data, few operators,

Risk mitigation: identification different funding sources; involvement of aircraft operators in the decision making; access to commercial databases, improve infrastructure.

Linkage to GPIs

GPI/5: performance-based navigation; GPI/7: dynamic and flexible ATS route management; GPI/8: collaborative airspace design and management; GPI/9: situational awareness; GPI/12: FMS-based arrival procedures; GPI/17 Data link applications; GPI/18 Aeronautical information; GPI/19 Meteorological systems; GPI/20 WGS-84; GPI/21 Navigation systems; and GPI/22 Communication infrastructure.

**STRATEGIC OPERATIONAL IMPROVEMENT/
NATIONAL PERFORMANCE OBJECTIVE – 2**

ENHANCE CAPACITY AND EFFICIENCY OF AERODROMES

Performance Benefits

Safety	Safety level maintained
Environment	Reduced emissions through shorter runway occupancy time and taxi time
Capacity	Increased aerodrome capacity through better utilization airside infrastructure
Cost effectiveness	Potential cost reduction through shorter ground movements

Performance Measurement

Metrics	24 hrs Operations
	there is an average of 2hrs maximum turn over time per flight
	3 aircraft entering a specified volume of airspace/hr

Strategy
Medium term (2010 - 2015)

Projects/Tasks	Timeframe Start/End	Responsibility	Status (as of ...)	
Formulate airspace concept and determine near term operational improvements	November 2010 – December 2012	States /RFIR	Database under preparation	
Improve surface movement and guidance control systems through A-SMGCS	November 2011- November 2012	State / Operator	Database under preparation	
Maximize runway capacity in all weather operations	November 2011- November 2012	State / Operator	In progress	

Improve demand and capacity balancing through ATFM process	November 2010 – December 2012	State / Operator	In progress	
Improve data and voice communications	December 2013	State / Operator	In progress	
Implementation of PBN	December 2013	State	In progress	
Enhance situational awareness	November 2010 – December 2012		In progress	
Migration to WGS-84	December 2011	State	In progress	
Implement automation of weather systems at aerodromes	November 2011- November 2012	State / operator		

Projects/Tasks	Timeframe Start/End	Responsibility	Status (as of ...)
Enhance Aerodrome forecast	November 2009 - November 2012	Operator	In progress
Trend forecast to cover the next 2 hours		State/operator	In progress
Wind shear and aerodrome weather warning	November 2010- November 2012	Operator	In progress
Aerodrome ground lighting	July 2011- November 2012	Operator	under preparation
Rapid exit taxiways and parallel runways	July 2011- December 2012	Operator	under preparation
Improved signage	July 2011- December 2012	Operator	under preparation
Non-navigational visual aids such as PAPI	July 2011- December 2012	Operator	under preparation

Supporting tools

Technology evaluation and gap analysis

Safety case and safety analysis

Business case and cost benefit analysis

Regional workshops and seminars

ATM Community members

States, Aerodrome operators, Airspace users, ATM service providers, ATM support industry, Regulatory authorities and ICAO

ATM Community expectations

Right of access to ATM resources and equity for all users

Cost effective air navigation services

Minimize environmental impact

Flexibility in adapting flight trajectories

Technical and operational interoperability and harmonization

Consistent and dependable levels of service

Safety is highest priority

Project Output	Subregional/national performance plan for implementation of air navigation system elements that are operationally suitable, technically feasible and economically viable.
Project Outcome	Enhanced capacity and efficiency of aerodrome operations,
Risk Management	Risk factors: lack of funding; insufficient data, few operators, lack of modern equipment and training
	Risk mitigation: identification different funding sources; involvement of aircraft operators in the decision making; access to commercial databases, improve infrastructure.
Linkage to GPIs	GPI/5: performance-based navigation; GPI/9: situational awareness; GPI/13: Aerodrome design and management; GPI/14: Runway operations; GPI/15: Matching IMC and VMC operating capacity; GPI/17: Data link applications; GPI/18: Aeronautical information; GPI/19: Meteorological systems; GPI/20: WGS-84; GPI/21: Navigation systems; and GPI/22: Communication infrastructure.



THANK YOU