



# WORKSHOP EXERCISE ON DEVELOPMENT OF NATIONAL PERFORMANCE FRAMEWORK FOR RWANDA CIVIL AVIATION AUTHORITY

Presentation at Fairview  
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## 1. Characteristics of the industry

Enumerate the current and projected growth of Air Traffic in your state and also identify, if any, the efficiency challenges in your State.

### Predicted traffic change

- Last five years, economic growth is between 7% and 8% and is expected to have a positive impact on air traffic.
- RCAA Projected Income Statement for 2006/07 to 2010/11 has assumed the following growth figures per annum:
  - airport service charge.....7,5%
  - landing and parking fees.....3,0%
  - air navigation charge.....3,0%
- in 2008 Annual Rwanda Air Traffic recorded passenger traffic growth of nearly 9% and cargo growth of 6% over 2007.

## **2. The air navigation service provider**

Describe briefly the organization providing the air navigation services in your State including its institutional format, capital structure, principal shareholders and the management.

Rwanda Civil Aviation is the Rwanda's Air Navigation Provider, established by the parliamentary Act of 2006 as an autonomous entity, governed by the Board of Members. The Government may provide appropriations to meet operating deficits and capital funding. The authority is mandated to provide air navigation services in Rwanda airspace, and for any area outside of Rwanda for which Rwanda has, in pursuant of international arrangement, undertaken to provide Air Navigation Services.

### 3. Major stakeholders/partners

Identify the major stakeholders/partners such as the air navigation service providers, the airspace users (the commercial airlines using the airspace, business aviation, general aviation, military, etc.) and the potential funding sources.

#### A. Air navigation service providers:

- ✓ ATNS
- ✓ ICAO

#### B. Commercial airlines using the airspace:

- ✓ Rwandair (National carrier)
- ✓ Airline operators (e.g: KLM, SN Brussels, KQ, etc )

#### C. Business aviation:

- ✓ Silverback (Flight cargo)
- ✓ Akagera Aviation (Tourism and other business aviation)

#### D. General aviation:

- ✓ UN

#### E. Military:

- ✓ Rwanda Defence Forces/Air Force
- ✓ Rwanda National Police

#### F. The potential funding sources.

- ✓ Ministry of Infrastructure

## 4. Problem definition

The current conventional air navigation systems might have several limitations, which would depend on the State or the region concerned. List such limitations in your State.

**Conventional Air Navigation Systems (ILS, VOR, DME and NDB) together with the Meteorological data and the challenges to get the real time aeronautical Information have several limitations:**

- High maintenance cost of some air navigation equipment
- Inefficient and aging of some air navigation equipment
- Inaccurate aeronautical information
- Lack of Timely and Quality meteorological data
- Insufficient trained personnel

## 5. Performance based National Air Navigation Plan

Define the geographical scope of the National Air Navigation Plan and determine the major traffic flows. Explain briefly the vision of your State for achieving a seamless Global ATM system. Specifically, establish national performance objectives for the air navigation infrastructure, list current air navigation systems and through gap analysis define near and medium term operational improvements.

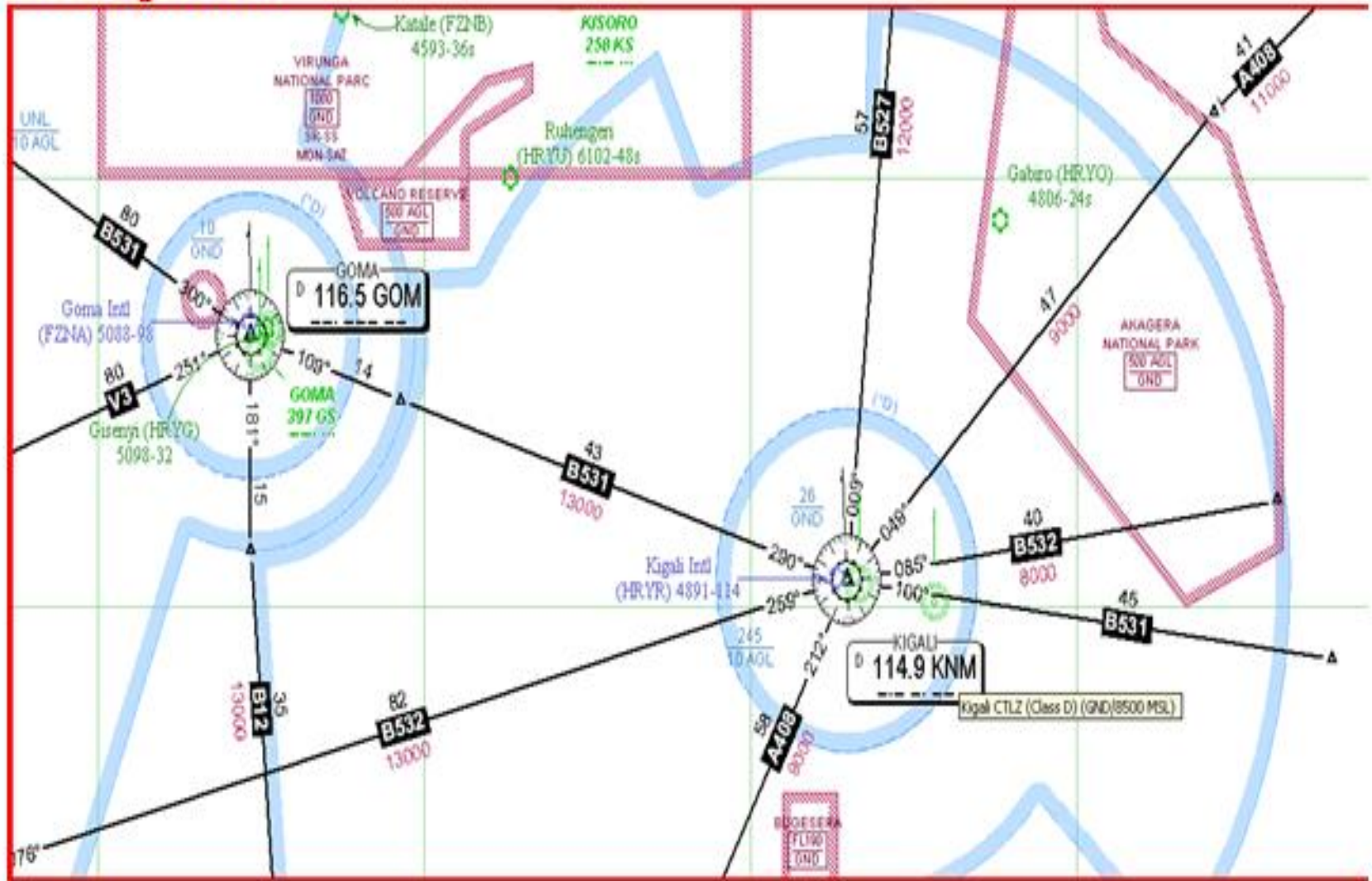
- **Geographical scope of the National Air Navigation Plan:**

Taking into account the traffic growth data as highlighted above the National Air Navigation Plan is to provide efficient and effective air navigation services within Rwanda's national airspace that is interoperable with other Regional States.

The major traffic flow is within Rwanda's lower airspace and is concentrated on following air routes:

- B531
- B532
- A408

# Low Flight Level



## 5. Performance based National Air Navigation Plan

- Vision for achieving a seamless Global ATM system

To achieve an interoperable global air traffic management system for all users during all phases of flight, that

- meets agreed levels of safety;
- provides for optimum economic operations;
- is environmentally sustainable; and
- meets national security requirements.



## 5. Performance based National Air Navigation Plan

- National performance objectives

1. Enhance capacity and efficiency of Kigali TMA
2. To improve the availability of meteorological information in support of a seamless Global ATM system.
3. To make available in real-time, quality assured electronic information (AIM)

- **Current air navigation systems**

Infrastructure –Current systems

Air traffic Management	Communication	Navigation	Surveillance
ASM — Conventional ATS Route structure ATS: Conflict management — Air Traffic Control — RVSM	Data — VHF — Satellite Voice — VHF — Satellite	ILS — LOC — GP VOR DME NDB	PSR SSR — Mode A/C

- **Near and medium term operational improvements**

Refer to the Performance Framework Form below

## PERFORMANCE FRAMEWORK FORMS FOR RWANDA AIR NAVIGATION EFFICENCY

<b>STRATEGIC OPERATIONAL IMPROVEMENT/ NATIONAL PERFORMANCE OBJECTIVE – 1</b>	
<b>ENHANCE CAPACITY AND EFFICIENCY OF KIGALI TMA</b>	
<b>Performance Benefits</b>	
<b>Safety</b>	1. Safety level maintained or improved
<b>Environment</b>	2. Reduced emissions through shorter flights and use of optimum routes/trajectories
<b>Capacity</b>	3. Increased capacity through better utilization airspace resources
<b>Cost effectiveness</b>	4. Ability of aircraft to conduct flight more closely to preferred trajectories
<b>Performance Measurement</b>	
<b>Metrics</b>	1. Number of PBN routes implemented
	2. Percent difference between optimal and actual route
	3. Number of aircraft entering a specified volume of airspace/hr
	4. Pounds of fuel burn per operations

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

<b>ATM Operational Concept Components</b>	<b>Projects/Tasks</b>	<b>Timeframe Start/End</b>	<b>Responsibility</b>	<b>Status (as of ...)</b>
<b>AOM, DCB, TS and CM</b>	1. Formulate airspace concept and determine near term operational improvements	July 2011 - Nov 2011	Rwanda Civil Aviation Authority (RCAA)	Terms of reference for consultant under preparation
	2. Analyze the ATS routes structure and implement identifiable improvements such as RNAV routes	August 2011- Sept 2011	RCAA	By the hired consultant
	3. Implement electronic flight strips	Sept 2010 – March 2011	RCAA	<u>On going project</u>
	4. Implement flexible use of airspace, improve civil/Military coordination and determine conditional routes	Dec 2011- January 2012	RCAA	By the hired consultant
	5. Improve demand and capacity balancing through ATFM process	Sept 2010 – March 2011	RCAA	Ongoing project

	6. Transition to new flight plan	March 2011 – June 2012	RCAA	Ongoing project
	7. Implement interface for AIDC	Sept 2010 – March 2011	RCAA	On going project
	8. Improve data and voice communications	Sept 2010 – March 2011	RCAA	Ongoing project
	9. GNSS RNP APCH-VNAV	March 2011 – June 2011	RCAA	In planning process
	10. GNSS RNAV-1 for SID&STAR	March 2011 – June 2011	RCAA	In planning process
	11. Enhance situational awareness	Sept 2010 – March 2011	RCAA	Ongoing project
<b>Risk Management</b>	Risk factors: lack of funding; delay in aircraft equipage.			
	Risk mitigation: identification different funding sources; involvement of aircraft operators in the decision making.			
<b>Linkage to GPIs</b>	GPI-1) Flexible use of airspace; 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 and GPI/21 Navigation systems and GPI/22 Communication infrastructure.			

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

**TO IMPROVE THE AVAILABILITY OF METEOROLOGICAL  
INFORMATION IN SUPPORT OF A SEAMLESS GLOBAL ATM  
SYSTEM.**

**Performance Benefits**

<b>Safety</b>	1. Safety level maintained or improved
<b>Environment</b>	
<b>Capacity</b>	1. Increased capacity through quality and timely dissemination of <u>meteo</u> data
<b>Cost effectiveness</b>	1. Ability of aircraft to conduct flight more closely to preferred trajectories

**Performance Measurement**

<b>Metrics</b>	1. Number of SIGMET report issued
	2. Number of TAF reports per two hours
	3. Pounds of fuel burn per operations

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

ATM Operational Concept Components	Projects/Tasks	Timeframe Start/End	Responsibility	Status (as of ...)
<b>AOM, DCB, AO, AUO</b>	12. Enhance preparation and availability and issuance of SIGMETs	Jan 2009 – Jan 2010	RCAA	Completed
	13. Establish contingency measures to disseminate OPMET data via Internet in case of failure of AFTN and WAFS facilities	Jan 2011 – June 2011	RCAA	Planning process
	14. Timely distribution, reception, and use of information prepared by WAFS	Jan 2009 – Jan 2010	RCAA	Completed
	15. Improve availability, timeliness and quality of OPMET data	Jan 2009 – Jan 2010	RCAA	Completed
	16. Develop Quality management systems for MET	Jan 2011 – June 2011	RCAA	Planning process

	17. Implement automation of weather systems at aerodromes	June 2010 – Dec 2010	RCAA	Tender Process
	18. Implement meteorological down links at MET and ATS units	Dec 2009 – Jan 2010	RCAA	SADIS Implemented
	19. Implement MET uplinks from the automated weather systems , ATS and MET units	Dec 2010 – Dec 2012	RCAA	To be planned
	20. Enhance Aerodrome forecast	Dec 2004	RCAA	Completed
	21. Trend forecast to cover the next 2 hours	Dec 2004	RCAA	Completed
	22. Wind shear and aerodrome weather warning	June 2010 – March 2011	RCAA	Tender Process
<b>Risk Management</b>	Risk factors: lack of funding;			
	Risk mitigation: identification different funding sources			
<b>Linkage to GPIs</b>	GPI/13: Aerodrome design and management; GPI/15: Matching IMC and VMC operating capacity; GPI/19: Meteorological systems.			



**TO MAKE AVAILABLE IN REAL-TIME, QUALITY ASSURED ELECTRONIC INFORMATION (AIM)**

**Performance Benefits**

<b>Safety</b>	1. Safety level maintained or improved
<b>Environment</b>	
<b>Capacity</b>	1. Increased capacity through provision of <u>real-time</u> information.
<b>Cost effectiveness</b>	1. Time and Paper cost reduction through availability of electronic information

**Performance Measurement**

<b>Metrics</b>	1. Number of incidents avoided
	2. Percent difference between real and un real time information
	3. Number of hours and paper used per operation

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

<b>ATM Operational Concept Components</b>	<b>Projects/Tasks</b>	<b>Timeframe Start/End</b>	<b>Responsibility</b>	<b>Status (as of ...)</b>
<b>AOM, DCB, AO, TS, CM, AUO, ATMSDM</b>	1. Transition to new flight plan	March 2011 – June 2012	RCAA	Ongoing project
	2. Implement <u>eTod</u> for Rwanda	June 2010 – Feb 2011	RCAA	In tender process
	3. Implementation of <u>eAIP</u>	Nov 2010 – Nov 2011	RCAA	Waiting RCAA website update
	4. Digital NOTAMs	June 2010 – Feb 2011	RCAA	In tender process
	5. Quality management systems for AIM	March 2011 – June 2012	RCAA	Planning process

<b>Risk Management</b>	Risk factors: lack of funding; Insufficient databases
	Risk mitigation: identification different funding sources; access to commercial databases
<b>Linkage to GPIs</b>	GPI/18 Aeronautical information and GPI/20 WGS-84.

END

