



**INTERNATIONAL CIVIL AVIATION ORGANIZATION
EASTERN AND SOUTHERN AFRICAN OFFICE**

**WORKSHOP ON THE DEVELOPMENT OF
NATIONAL PERFORMANCE FRAMEWORK FOR AIR NAVIGATION SYSTEMS
(NAIROBI, 6-10 DECEMBER 2010)**

HANDS-ON EXERCISE: PFF EXPLANATION FOR EFFICIENCY

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.

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.

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.

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.

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.

6. Performance framework forms (PFFs)

Using the standard approach, develop PFFs for different national performance objectives by determining relevant projects/tasks and ensuring the linkage to Key Performance Areas (KPAs) and Global Plan initiatives (GPIs).

7. Risk Management

What are the risks identified for this National Air Navigation Plan and if any, briefly describe the risk mitigation plans/techniques.

PERFORMANCE FRAMEWORK FORMS FOR EFFICENCY

STRATEGIC OPERATIONAL IMPROVEMENT/ NATIONAL PERFORMANCE OBJECTIVE – 1				
ENHANCE CAPACITY AND EFFICIENCY OF ENROUTE AIRSPACE				
Performance Benefits				
Safety	1. Safety level maintained or improved			
Environment	1. Reduced emissions through shorter flights and use of optimum routes/trajectories			
Capacity	1. Increased capacity through better utilization airspace resources			
Cost effectiveness	1. Fuel cost reduction through availability of more optimized routes/trajectories; and 2. Ability of aircraft to conduct flight more closely to preferred trajectories			
Performance Measurement				
Metrics	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			
	5. Percent of time the fixed airspace unavailable to civil users			
<i>Strategy</i> Medium term (2010 - 2015)				
ATM Operational Concept Components	Projects/Tasks	Timeframe Start/End	Responsibility	Status (as of ...)
AOM, DCB, TS and CM	1. Formulate airspace concept and determine near term operational improvements	August 2010 - October 2010	States /Territories	Database under preparation
	2. Analyze the en-route ATS route structure and implement identifiable improvements such as RNAV routes			
	3. Reduce horizontal separation between aircraft through RNAV 5			
	4. Implement electronic flight strips			
	5. Align airspace classification to Class A above FL 195			
	6. Implement flexible use of airspace, improve civil/Military coordination and determine conditional routes			
	Projects/Tasks	Timeframe Start/End	Responsibility	Status (as of ...)

AOM, DCB, TS and CM	7. Improve demand and capacity balancing through ATFM process			
	8. Transition to new flight plan			
	9. Implement AIDC			
	10. Migration to WGS-84			
	11. Implementation of AXIM			
	12. Implement eTod for Area 1			
	13. Implementation of eAIP			
	14. Digital NOTAMs			
	15. Quality management systems for AIM			
	16. Improve data and voice communications			
	17. Implementation of GNSS			
	18. Enhance situational awareness			
	19. Enhance preparation and availability and issuance of SIGMETs			
	20. Establish contingency measures to disseminate OPMET data via Internet in case of failure of AFTN and WAFS facilities			
21. Timely distribution, reception, and use of information prepared by WAFS, IAVW and ITCW				
22. Improve availability, timeliness and quality of OPMET data				
23. Develop Quality management systems for MET				
Risk Management	Risk factors: lack of funding; delay in aircraft equipage; Insufficient databases			
	Risk mitigation: identification different funding sources; involvement of aircraft operators in the decision making; access to commercial databases			
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	1. Safety level maintained or improved				
Environment	1. Reduced emissions through shorter runway occupancy time and taxi time				
Capacity	1. Increased aerodrome capacity through better utilization airside infrastructure				
Cost effectiveness	1. Potential cost reduction through shorter ground movements				
Performance Measurement					
Metrics	1. Number of operations per hour				
	2. Arrival/departure delay i.e. minutes per flight				
	3. Number of aircraft entering a specified volume of airspace/hr				
	4. Pounds of fuel burn per operations				
Strategy Medium term (2010 - 2015)					
ATM Operational Concept Components	Projects/Tasks	Timeframe Start/End	Responsibility	Status (as of ...)	
AO, DCB, TS and CM	24. Formulate airspace concept and determine near term operational improvements	August 2010 - October 2010	States /Territories	Database under preparation	
	25. Improve surface movement and guidance control systems through A-SMGCS				
	26. Maximize runway capacity in all weather operations				
	27. Improve demand and capacity balancing through ATFM process				
	28. Improve data and voice communications				
	29. Implementation of PBN				
	30. Enhance situational awareness				
	31. Migration to WGS-84				
	32. Implement eTod for Area 3 (Area 4 not required)				
	33. Implement automation of weather systems at aerodromes				
	34. Implement meteorological down links at MET and ATS units				
		Projects/Tasks	Timeframe Start/End	Responsibility	Status (as of ...)

AOM, DCB, TS and CM	35. Implement MET uplinks from the automated weather systems , ATS and MET units			
	36. Enhance Aerodrome forecast			
	37. Trend forecast to cover the next 2 hours			
	38. Wind shear and aerodrome weather warning			
	39. Aerodrome ground lighting			
	40. Rapid exit taxiways and parallel runways			
	41. Improved signage			
	42. Non-navigational visual aids such as PAPI			
	43. Use of LEDs for runway lighting			
Supporting tools	1. Technology evaluation and gap analysis			
	2. Safety case and safety analysis			
	3. Business case and cost benefit analysis			
	4. Regional workshops and seminars			
ATM Community members	States, Aerodrome operators, Airspace providers, Airspace users, ATM service providers, ATM support industry, Regulatory authorities and ICAO			
ATM Community expectations	1. Right of access to ATM resources and equity for all users			
	2. Capacity to meets peak demands, while minimizing restrictions			
	3. Cost effective air navigation services			
	4. Minimize environmental impact			
	5. Flexibility in adapting flight trajectories			
	6. Technical and operational interoperability and harmonization			
	7. Consistent and dependable levels of service			
	8. 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; delay in aircraft equipage; insufficient data			
	Risk mitigation: identification different funding sources; involvement of aircraft operators in the decision making; access to commercial databases			
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.			