



**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.

According to the existing annual statistics data the growth of National and International Air Traffic can be estimated low. Therefore, a notable growth can be noticed during summer period of every year when Comorian Diaspora come back home for vacation.

The main challenge of our country, as far as air transport is concerned, will be to increase our traffic for the improvement of the economic health of aeronautical industry by draining tourists to Comoros by putting in place the necessary infrastructures and facilitations (hotel building and allowing new airlines to dessert the all Comorian aerodromes).

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.

Comoros is member of the 18 ASECNA States. ASECNA is a regional organisation with own legal responsibility created by the Dakar Agreement to provide air navigation services in Africa and Madagascar. In Comoros ASECNA provides the Air Navigation Services (ATS, maintenance of Nav aids, RFF and aeronautical met and AIM). ASECNA is managed by a structure composed by:

- The Administration Council
- The Ministries of Transport Council of ASECNA States
- The Director General, and
- Several technical directions

The main office is based in Dakar Senegal but in each States a Representative is nominated.

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.

The main stakeholders are:

- Air Navigation Service Provider (ASECNA)
- Aerodrome operator (AIMPSI)
- Airlines
 - o Kenya Airways
 - o Yemenia
 - o Air Madagascar
 - o African Express
 - o Air Austral
 - o Comores Aviation International
 - o Air Service Comores
 - o Inte-îles Air
 - o Handling company

The potential funding resources:

- Fees
- Multi lateral cooperation (China built for free a new terminal).

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.

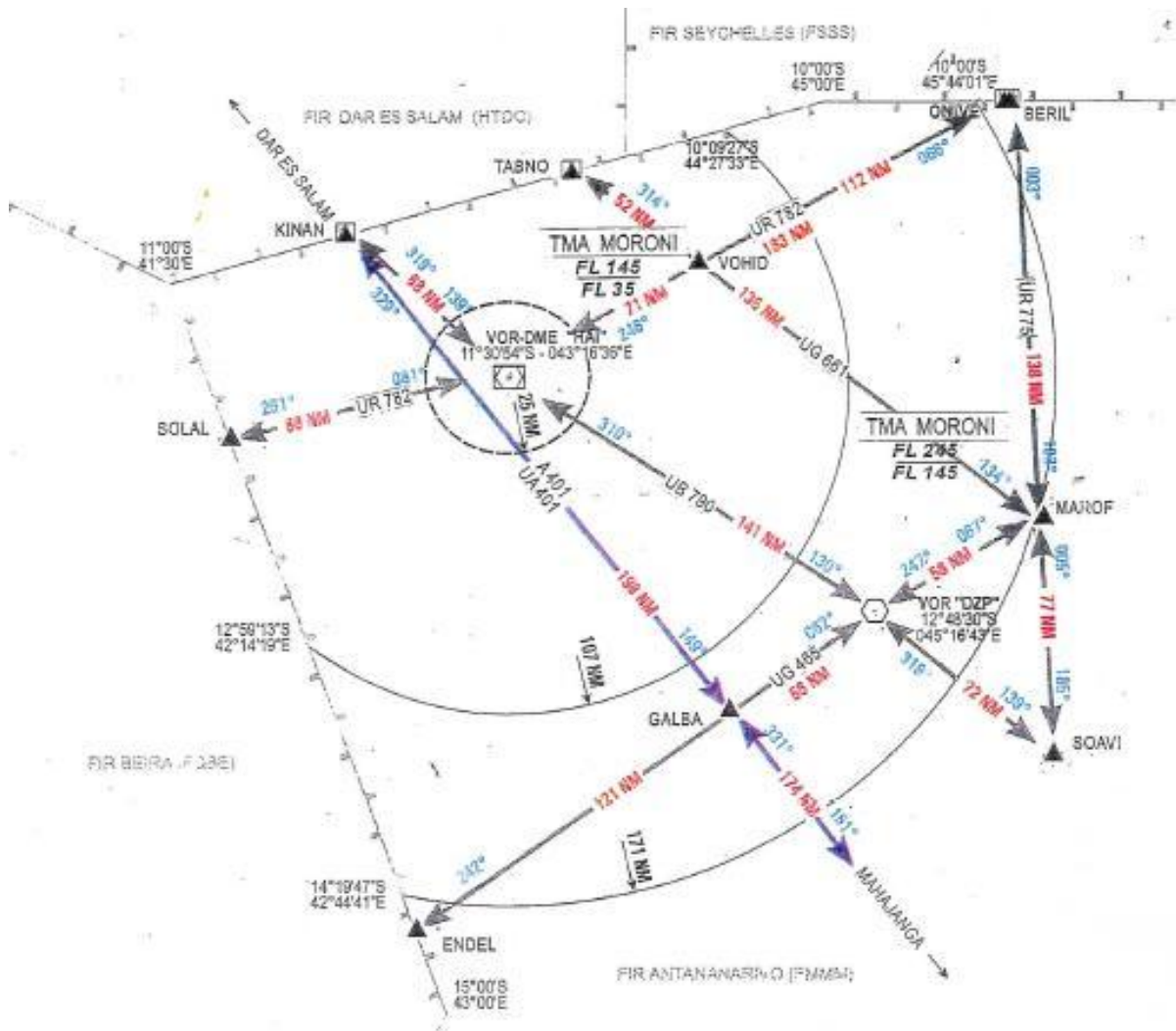
Comoros is a mountainous country and in some areas the range of air navigation aids is limited and the use of the existing approach procedures needs some restrictions due to mountains.

It is necessary to create RNAV procedure (STARs et SIDs)

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.

The concerned air space is not a huge one (see below)



The Comorian controlled air space is composed by 2 TMA

TMA 1: Lateral limits

- Arc of circle of 107 NM of radius with origin HAI VOR limited in the North East by Dar FIR and South West by Beira FIR, from FL035 to FL145

TMA2: lateral limits

- Arc of circle of 171 NM radius limited in the North and North West Seychelles and Dar es Salam FIR and North West and in the South West by Beira FIR, from FL145 to FI 245.

The following routes cross this air space:

- UA401 NW to SE and vice versa
- UB790 NW to SE and vice versa
- UG661 NW to SE and vice versa
- UG465 NE to SW and vice versa
- UR782 NE to SW and vice versa
- UR775 N to S and vice versa

You can notice that all transit traffic is NW to SE and vice versa with one route N to S and vice versa.

According to the ceiling of the TMA Comoros is not concerned by the international transit traffic. The air navigation service provider handle arrival and departing traffic form Moroni

Existing Air Navigation equipment:

- 1 VOR/DME
- 1 ILS with landing DME

In the nearest future the ceiling and the lateral limits must be reconsidered in a sustainable way by providing it with and adaptable CNS infrastructure.

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).

Three projects by priority have to be taken into consideration:

- Implementation of the new ICAO FPL form
- Optimization of the terminal airspace
- the implementation of WGS-84

To achieve those tasks ICAO reference documents related to performance planning will be followed. All requirements and advantages should be determined. A checklist will be established to guide the implementation plan of the national performance framework.

7. Risk Management

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

For this national ANP some risks have been identified

- collecting funds for the project realization and the timing to implement the plan tasks

Appropriate mitigation techniques will be applied to avoid failure. Then a business case process will be launched.

PERFORMANCE FRAMEWORK FORMS FOR EFFICIENCY (PFFs)

STRATEGIC OPERATIONAL IMPROVEMENT/ NATIONAL PERFORMANCE OBJECTIVE – 1				
IMPLEMENTATION OF THE ICAO NEW FLIGHT PLAN FORM (To be implemented with the coordination of all ASECNA States)				
Performance Benefits				
Safety	<ul style="list-style-type: none"> - enhance safety by increasing the capability of aircraft and crew to fly safely 			
Environment	<ul style="list-style-type: none"> - reduction of fuel consumption and CO₂ emission. 			
Efficiency	<ul style="list-style-type: none"> - Air navigation service provider can know in advance the capabilities of aircraft - Crew members can fly their aircraft by using their preferred routes - The new flight plan can increase the efficiency of information exchange - The new flight plan will facilitate the use of performing technologies 			
Performance Measurement				
Metrics	<ul style="list-style-type: none"> - Number of ASECNA States meeting in 2012 for implementation of the ICAO new FPL provisions - Number of ASECNA States who begun the project 			
Strategy Near term (2010 – 2012)				
ATM Operational Concept Components	Projects/Tasks	Timeframe Start/End	Responsibility	Status (as of ...)
SDM	1. Assigning focal point plus creation of a team for the planning and implementation	2010-2012	State with coordination with all ASECNA States members	To be implemented
	2. Putting in place the regulation procedures, amend the AIP etc.	2010-2012	State with coordination of ASECNA	To be implemented
	3. Ensure that the equipments are suitable to new FPL format	2010-2012	ASECNA (AIM provider)	To be implemented
	4. Ensure that the current areas and the new one of the FPL are compatible (without loss of data)	2011	ASECNA	To be implemented
	5. Ensure that the transition is done without loss of service	2010-2012	ASECNA	To be implemented

	6. Testing by the different components of the system (locally, between centers and airspace users) and training of the different stakeholders)	April to June 2012		To be implemented
	7. Launching the new FPL	14 November 2012	ASECNA states members and users	completed
	8. Inform the ICAO regional office on the success of the operation	December 2012	State	To be implemented
Risk Management	Risk factors: lack of implementation by some States			
	Risk mitigation: Coordination by ASECNA to ensure that all the States follow the processus			
Linkage to GPIs	GPI/18 Aeronautical information, GPI/5 RNAV and RNP (performance-based navigation), GPI/11 RNAV and RNP SIDs and STARs, GPI/12 functional integration ground systems with airborne systems			

PERFORMANCE FRAMEWORK FORMS FOR EFFICIENCY

STRATEGIC OPERATIONAL IMPROVEMENT/ NATIONAL PERFORMANCE OBJECTIVE – 1				
OPTIMAZATION OF THE TERMNAL AIRSPACE To be implement with coordination with ASECNA (ANSP and AIM)				
Performance Benefits				
Safety	- Enhance safety in terminal airspace			
Environment	- Economy in fuel consumption and CO ₂ emission			
Efficiency	- Facilitation for aircraft to conduct flight near preferred trajectories - Increase the number of aircraft in the airspace - Facilitate the use of new navigation systems			
Performance Measurement				
Metrics	- Number of ASECNA states who implemented PBN routes in terminal airspace - Number of states who implemented SIDs and STARs			
Strategy Medium term (2010 - 2015)				
ATM Operational Concept Components	Tasks	Timeframe Start/End	Responsibility	Status (as of ...)
AOM, AO	1. develop airspace concept based on ASECNA PBN plan in order to design and implement SIDs and Stars, instrument flight procedures, in accordance with national global plan	ongoing	States/ASECNA	To continue implementation
	2. Develop state PBN implementation plans related to terminal airspace; formulate safety plan; publish national regulations for approval ATM community members using PBN manual; implement SIDs and STARs	2011-2013	(ATM,/SAR/AIM) States	To implement
	3. Monitor implementation in accordance with PBN	2011-2013	State	To implement

	implementation plan of the state			
Risk Management	Risk factors: delay in aircraft equipage			
	Risk mitigation: involvement of aircraft operators in the decision making;			
Linkage to GPs	GPI/5 PBN, GPI/7 Dynamic and flexible ATS routes management, GPI/8 collaborative airspace design and management, GPI/10 terminal area design and management, GPI/11 RNP and RNAV SIDs and STARs, GPI/12 functional integration of ground systems with airborne systems			

STRATEGIC OPERATIONAL IMPROVEMENT/ NATIONAL PERFORMANCE OBJECTIVE – 3				
IMPLEMENTATION OF WGS-84 (coordination with ASECNA)				
Performance Benefits				
Safety	<ul style="list-style-type: none"> - Allow improvement in awareness situation - Contribute to determine position of traffic in the case of emergency - Etc. 			
Environment	- An additional benefit included in the objectives for PBN			
Efficiency	<ul style="list-style-type: none"> - Efficient use of the of the airspace - Increase the performance of aircraft 			
Performance Measurement				
Metrics	- Is measured in term of the number of States having implemented WGS-84			
Strategy Short-term (2011 - 2012)				
ATM Operational Concept Components	Projects/Tasks	Timeframe Start/End	Responsibility	Status (as of ...)
ATM, AUO	1. Continuing implementation of WGS-84 under coordination of ASECNA	2011-2012	State and ASECNA	ongoing
	2. Monitor the implementation of WGS-84 until complete implementation of the system by all ASECNA member States	Beyond 2012	State plus ASECNA (AIM/MAP)	To implement until achievement
Risk Management	Risk factors: Lack of integration of WGS-84 coordinates in ASECNA AIP			
	Risk mitigation: take the appropriate measures to amend the AIP on time			
Linkage to GPIs	GPI/5: performance-based navigation; GPI/9: situational awareness; GPI/11 RNP and RNAV SIDs and STARs, GPI/18: Aeronautical information;; GPI/20: WGS-84; GPI/21: Navigation systems;			