



International Civil Aviation Organization

**THE SECOND MEETING OF THE COMMON REGIONAL
VIRTUAL PRIVATE NETWORK TASK FORCE (VPN) OF
APANPIRG (CRV TF/2)**

Seoul, Republic of Korea, 12 May 2014



**Agenda Item 3: Air Navigation Reporting Form (ANRF) and Seamless planning items
Communication relating to Communications**

**REPORT ON REGIONAL PRIORITIES AND TARGETS
RESULTING FROM THE MEETING OF CHAIRPERSONS OF SGS**

(Presented by the Secretariat)

SUMMARY

This paper presented outcome of the meeting of Chairpersons of SGs on Regional priorities and targes including ANRF on ASBU B0-FICE for review by the meeting.

1. Introduction

1.1 The APANPIRG/24 meeting noted that the PIRG/RASG Global coordination meeting held on 19 March 2013 requested PIRGs to establish the regional priorities and set targets and report to ICAO by May 2014. The meeting also noted that Seamless ATM Plan spelt out the 6 regional ASBU priorities which are aligned to GANP (ASBU Modules) and adopted the following conclusion:

Conclusion 24/2 — Establishing Regional Priorities and Targets

That, following the PIRG- RASG Global Coordination meeting held in March 2013 APANPIRG/24 invited the Chairpersons of ATM, RASMAG, CNS, and MET sub groups to establish regional priorities and targets for the APAC Region in alignment with the GANP and APAC Seamless ATM Plan by December 2013 in order to facilitate submission to ICAO by May 2014.

1.2 In accordance with above Conclusion, the meeting of the Chairpersons of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) Sub-groups and the Co-Chairs of the dissolved APSAPG was held at the Hong Kong Civil Aviation Department Headquarter in Hong Kong China, from 16 to 17 January 2014. Chairpersons of the South-East Asia ATM Coordination Group (SEACG) and the South Asia/Indian Ocean ATM Coordination Group (SAIOCG) and ATM experts nominated by the Chairpersons were also invited to attend the meeting. Teleconferences had been conducted before this face-to-face meeting.

2. DISCUSSION

2.1 The meeting reviewed the BETA version of the on-line Regional Performance Dashboard, and discussed its relation with the regional metrics/indicators. It was noted that the Regional Performance Dashboard was aimed primarily at high level decision-makers, while the Regional Picture was expected to be used by technical managers and the APANPIRG Contributory Bodies.

2.2 It was clarified that the Air Navigation Reporting Forms (ANRF) are reviewed by APANPIRG and its contributory bodies while the submissions by States/Administration are expected through the Regional Seamless ATM Reporting Form. The Chairs emphasised the need for simple information on the regional reporting and monitoring process.

2.3 The group of draft core global indicators was identified as follows:

PBN Approach: *percentage of runways at international aerodromes with APV.*

ATFM: *percentage of FIRs within which all ACCs utilise ATFM measures.*

AIM: *Status of implementation of AIM Phase I and II.*

Ground-Ground Digital Coordination/Transfer: *percentage of FIRs within which all applicable ACCs have implemented at least one interface to use AIDC/OLDI with neighbouring ACCs.*

Environmental Benefit: *percentage fuel burn reduction.**

*The IFSET tool was intended to measure the sum of the other improvements.

2.4 The possible future region-specific Aviation System Block Upgrade (ASBU) elements to be selected by each region included CCO, CDO, PBN En-route, ASUR, FUA, TBO, and SURF.

2.5 The added value of having two levels of monitoring (the high level regional dashboard and the process orientated regional picture, focusing on the 42 Seamless ATM elements) to steer the air navigation improvements was shared and acknowledged.

2.6 The regional picture would reflect the status of the implementation for each seamless element. The indicators for PBN Approach and Environmental Benefit would use an external source of data; thus no regional data collection would be needed. ATFM, AIM and Ground-Ground Digital Coordination/Transfer indicators would require a regional data collection, preferably through a simple online form. In order to avoid any duplicated work for States/Administrations or ICAO, a cross-check was being performed between available data in ICAO's 'Datamart' (an existing database at ICAOHQ which integrates both internal and external data sources) and the data needed for the monitoring.

2.7 It was envisaged that the monitoring tools (regional picture and performance dashboard) could serve a more streamlined project-oriented process for the Asia/Pacific Region by identifying issues, challenges or risks and speeding up the decision-making process to take corrective actions and adapt plans.

2.8 The target date for the incorporation of regional priorities and targets into the Regional Performance Dashboard was September 2014, after APANPIRG/25.

Priorities and Indicators

2.9 The teleconferences of chairpersons had previously agreed that the six ASBU modules selected by APANPIRG/23 as priority implementation should be included in the regional priorities. In addition, PBN implementation was included by the Chairpersons in the regional priorities, so the initial regional priorities would be:

- PBN Terminal (SIDs, STARs and APV– this is the only Seamless ATM priority 2 element);
- ATFM/A-CDM (B0-NOPS);
- AIM (B0-DATM);
- AIDC (B0-FICE);
- FUA (B0-FRTO);
- Surveillance (B0-ASUR); and
- Data-link ADS-C and CPDLC (B0-TBO)

2.10 The Chairpersons considered that indicators should be meaningful and data collectable from States. At the 30 October 2013 teleconference, the Chairpersons agreed the following indicators:

- PBN Terminal
Percentage of international aerodromes with RNAV SID/STAR and APV.
- ATFM
Percentage of FIRs within which all ACCs utilise ATFM systems (that determine airspace/aerodrome capacity and using inputs from airspace users, meteorological and military agencies, and initiate measures to balance capacity with demand).
- AIM
Percentage of States with all Phase I and Phase II AIM Roadmap elements implemented.
- AIDC
Percentage of FIRs within which all applicable ACCs with neighbouring ACCs have the capability to utilise AIDC (using the messages ABI, EST, ACP, TOC, AOC as far as practicable).

- FUA
Percentage of FIRs within which all ACCs utilise Flexible Use Airspace (FUA) techniques for operation of Special Use Airspace (SUA) with strategic and tactical civil/military liaison capability.
- Surveillance
Percentage of FIRs within which ACCs utilise ADS-B or SSR or MLAT to provide coverage within all category S airspace (serviced [or potentially serviced] en-route airspace – by direct [not dependent on a CSP] ATS communications and surveillance).
- Data-link (ADS-C and CPDLC)
Percentage of FIRs within which ACCs utilise ADS-C and CPDLC to provide service within all category R airspace (remote en-route airspace within ATS communications and surveillance coverage dependent on a third-party CSP).

Data Collection and Targets

2.11 The Chairpersons discussed the proposed reporting form, prepared by the Secretariat, in line with APANPIRG Conclusion 24/55 c), to measure the implementation progress of elements contained in the Seamless ATM Plan. The objective for the proposed reporting form was to have an automated and simple on-line submission process.

2.12 The Seamless ATM Plan had detailed Preferred Aerodrome/Airspace and Route Specifications (PARS) and Preferred ATM Services Levels (PASL). PARS and PASL were the services and procedures expected to be implemented by States by 12 November 2015 (Phase 1) and by 8 November 2018 (Phase 2) respectively.

2.13 It was also proposed that the draft regional priorities and targets, regional reporting form and ANRFs be presented to the ATM SG, CNS SG, MET SG and AOP WG at their meetings in June/July/August 2014 for review and to the APANPIRG/25 meeting in September 2014 for endorsement.

2.14 The Chairpersons agreed on the seven regional targets to be shown on the Regional Dashboard, which were based on the highest priority elements (**Appendix A**). In addition, all 42 Seamless ATM elements were assigned with appropriate priorities (**Appendix B**).

Air Navigation Reporting Forms

2.15 The Air Navigation Report Forms (ANRFs) have replaced the earlier Performance Framework Forms (PFF). It was recognized that the ANRF was a suitable tool for the planning phase (consisting in planning objectives, targets, and identifying the implementation challenges, indicators and metrics), but more efficient and dynamic tools could be used for monitoring. The ANRF is intended to be a means of setting milestones and targets, and monitoring progress with metrics for each of the key planning elements (at first, the seven priority elements). A total of 18 ANRF corresponding to the 18 ASBU elements are required to be developed at the regional level and presented to APANPIRG and its Sub-Groups as appropriate for update. It should be noted that States are not expected to fill ANRF for global or regional purposes; however they are a practical solution for planning the ANS improvements at the national level. B0-FICE ANRF and ANRF explanatory notes are provided in **Appendix C**. The text *in italic* was not in the ANRF reviewed by Chairperson's meetings and is proposed for addition, for consideration by the meeting.

3. Action by the Meeting

3.1 In view of their submission to APANPIRG/25 for adoption, the meeting is invited to:

- a) note the information contained in this paper;
- b) review the draft ANRF for B0-FICE accordingly; and
- c) discuss any relevant matters as appropriate.

**Appendix A - Agreed Highest Priority Regional Targets
 (for the Regional Performance Dashboard)**

Regional Priorities agreed 30-10-13 by Chairpersons of APANPIRG SGs and ICAO Secretariat	Highest Priority Regional Targets As agreed 16-01-14 by Chairpersons of APANPIRG SGs and ICAO Secretariat	Respective B0 module	Regional Reporting Form Item #
APV	1. <u>Approach</u> : Where practicable, all high density aerodromes with instrument runways serving aeroplanes should have precision approaches or APV or LNAV.	B0-APTA	110
ATFM/A-CDM	2. <u>Network Operations</u> : All High Density FIRs supporting the busiest Asia/Pacific traffic flows and high density aerodromes should implement ATFM incorporating CDM using operational ATFM platform/s.	B0-NOPS	80
AIM	3. <u>Aeronautical Information Management</u> : ATM systems should be supported by digitally-based AIM systems through implementation of Phase 1 and 2 of the AIS-AIM Roadmap	B0-DATM	300
AIDC	4. <u>System Wide Information Management</u> : All States between ATC units where transfers of control are conducted have implemented the messages ABI, EST, ACP, TOC, AOC as far as practicable.	B0-FICE	220
FUA	5. <u>Civil/Military</u> - Enhanced En-Route Trajectories: All States should ensure that SUA are regularly reviewed by the appropriate Airspace Authority to assess the effect on civil air traffic and the activities affecting the airspace.	B0-FRTO	360
	6. <u>Civil/Military</u> - Enhanced En-Route Trajectories: All States should ensure that a national civil/military body coordinating strategic civil-military activities is established.	Regional	370
	7. <u>Civil/Military</u> - Enhanced En-Route Trajectories: All States should ensure that formal civil military liaison for tactical response is established.	Regional	380
Surveillance	8. <u>Ground Surveillance</u> : All Category S upper controlled airspace and Category T airspace supporting high density aerodromes should be designated as non-exclusive or exclusive as appropriate ADS-B airspace requiring operation of ADS-B.	B0-ASUR	180
	9. <u>Ground Surveillance</u> : ADS-B or MLAT or radar surveillance systems should be used to provide coverage of all Category S-capable airspace as far as practicable, with data integrated into operational ATC aircraft situation displays.	B0-ASUR	270
Data-link ADS-C and CPDLC	10. <u>Trajectory-Based Operations-Data Link En-Route</u> : Within Category R airspace, ADS-C surveillance and CPDLC should be enabled to support PBN-based separations.	B0-TBO	280

**APPENDIX B - Agreed Priorities for the Seamless ATM Plan Elements
 Chairperson's Sub Group on 17 January 2014**

Reference	Specification title	Module	ASBU - Module title	Priority agreed by Chairperson's SG 17 Jan.2014
10	Apron Management	-	-	3
20	ATM-Aerodrome Coordination	-	-	3
30	Aerodrome capacity	-	-	3
40	Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)	B0-SURF	Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)	3
50	Arrival Manager/Departure Management (AMAN/DMAN)	B0-RSEQ	Improve Traffic flow through Sequencing (AMAN/DMAN)	2
60	ATC Sector Capacity	-	-	2
70	Airport Collaborative Decision-Making (ACDM)	B0-ACDM	Improved Airport Operations through Airport-CDM	2
-	-	B0-WAKE	Increased Runway Throughput through Optimized Wake Turbulence Separation	3
80	Air Traffic Flow Management/Collaborative Decision-Making (ATFM/CDM)	B0-NOPS	Improved Flow Performance through Planning based on a Network-Wide view	1
90	Continuous Descent Operations (CDO)	B0-CDO	Improved Flexibility and Efficiency in Descent Profiles using Continuous Descent Operations (CDOs)	2
100	Continuous Climb Operations (CCO)	B0-CCO	Improved Flexibility and Efficiency Departure Profiles – Continuous Climb Operations (CCO)	2
110	Performance-based Navigation (PBN) Approach	B0-APTA	Optimization of Approach Procedures including vertical guidance	1

120	Standard Instrument Departures/Standard Terminal Arrivals (SID/STAR)	B0-CCO B0-CDO	-	2
130	Performance-based Navigation (PBN) Visual Departure and Arrival Procedures	-	-	3
140	Performance-based Navigation (PBN) Routes	B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	2
150	Performance-based Navigation (PBN) Airspace	-	-	2
160	Safety Nets	B0-SNET	Increased effectiveness of ground-based safety nets	2
170	Airborne Safety Systems	B0-ACAS	Airborne Collision Avoidance Systems (ACAS) Improvements	2
-	-	B0-OPFL	Improved Access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B	3
180	Ground-based surveillance	B0-ASUR	Initial Capability for Ground Surveillance	1
-	-	B0-ASEP	Air Traffic Situational Awareness (ATSA)	2
190	Airspace classification	-	-	2
200	Flight Level Orientation Scheme (FLOS)	-	-	2
210	Flight Level Allocation Schemes (FLAS)	-	-	2
220	ATS Inter-facility Data-link Communications (AIDC)	B0-FICE	Increased Interoperability Efficiency & Capacity through Ground-Ground Integration	1
230	Automated Transfer of Control	-	-	2
240	ATS Surveillance data sharing	-	-	2
250	ATM systems enabling optimal PBN/ATC operations	B0-APTA	Optimization of Approach Procedures including vertical guidance	2
260	ATC Horizontal separation	-	-	2

270	Situation display integrating surveillance data	B0-ASUR	Initial Capability for Ground Surveillance	1
280	ADS-C, CPDLC	B0-TBO	Improved Safety and Efficiency through the initial application of Data Link En-Route	1
290	UPR and DARP	B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	3
300	Aeronautical Information Management	B0-DATM	Service Improvement through Digital Aeronautical Information Management	1
310	Meteorological Information	B0-AMET	Meteorological information supporting enhanced operational efficiency and safety	2
320	ATM Managers' Performance	-	-	2
330	ATC simulators performance	-	-	2
340	Safety assessment of changes	-	-	2
350	ATM Operators' performance	-	-	2
360	Civil Military use of SUA	B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	1
370	Strategic Civil Military coordination	-	-	1
380	Tactical Civil Military coordination	-	-	1
390	Civil Military system integration	-	-	2
400	Civil Military Nav aids joint provision	-	-	2
410	Civil Military common training	-	-	2
420	Civil Military common procedures	-	-	2

The allocation of priority was based on factors including its importance in promoting Seamless ATM (Priority 1 = critical upgrade, Priority 2 = recommended upgrade, Priority 3 = may not be universally implemented). Source: Asia/Pacific Seamless ATM Plan V1.0.

APPENDIX C – B0-FICE ANRF and explanatory notes



1. AIR NAVIGATION REPORT FORM (ANRF)

APAC Regional Planning for ASBU Modules

2. REGIONAL/NATIONAL PERFORMANCE OBJECTIVE – B0-FICE: Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration					
Performance Improvement Area 2: Globally Interoperable Systems and Data – Through Globally Interoperable System Wide Information Management					
3. ASBU B0-FICE: Impact on Main Key Performance Areas (KPA)					
	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	Y	Y	Y	Y	Y

4. ASBU B0-FICE: Planning Targets and Implementation Progress	
5. Elements	6. Targets and implementation progress (Ground and Air)
Item 220 - ATS Inter-facility Data-link Communications (AIDC)	November 2015 (Seamless ATM Plan Phase I): ATM systems should enable AIDC between ATC units where transfers of control are conducted. As far as practicable, the AIDC messages types ABI, EST, ACP, TOC, AOC should be implemented. November 2018 (Seamless ATM Plan Phase II): Implement full AIDC messaging, or alternate communication standard.
<i>Complete the regional ATN/AMHS network in the whole APAC region (enabler)</i>	<i>November 2015: all States are interconnected in AMHS</i>
<i>Migrate communications between States on the regional network (AIDC, ATFM, SUR data, performance monitoring, SWIM, etc)¹(enabler)</i>	<i>November 2018: all States have migrated their communications</i>

7. ASBU B0-FICE: Implementation Challenges				
Elements	Implementation Area			
	Ground System Implementation	Avionics Implementation	Procedures Availability	Operational Approvals

¹ Valid only if the study requested by APANPIRG/24 concludes that such network should be implemented in the APAC region

APPENDIX C – B0-FICE ANRF and explanatory notes



7. ASBU B0-FICE: Implementation Challenges				
Elements	Implementation Area			
	Ground System Implementation	Avionics Implementation	Procedures Availability	Operational Approvals
1. ATM systems should enable AIDC between ATC units where transfers of control are conducted. As far as practicable, the AIDC messages types ABI, EST, ACP, TOC, AOC should be implemented.	ATM automation system capability and supporting data communications network.	NIL	ATC procedures for intervention and interaction with ATM automation system, and for operational improvements including reduced ATC manual coordination requirement where supported by appropriate airspace and ATS route design or redesign.	NIL
2. Implement full AIDC messaging, or alternate communication standard.	ATM automation system capability and supporting data communications network.	NIL	ATC procedures for intervention and interaction with ATM automation system, and for operational improvements including reduced ATC manual coordination requirement where supported by appropriate airspace and ATS route design or redesign.	
<u>3. Complete the regional ATN/AMHS network in the whole APAC region</u>	<u>Readiness of all States for double stack</u>	<u>NIL</u>	<u>NIL</u>	<u>NIL</u>
<u>4. Migrate communications between States on the regional network</u>	<u>Multinational agreement and Common Procurement</u>	<u>NIL</u>	<u>NIL</u>	<u>NIL</u>

8. ASBU B0-FICE: Performance Monitoring and Measurement	
8A. ASBU B0-FICE: Implementation	
Elements	Performance Indicators/Supporting Metrics
1. Implement AIDC at APAC States between ATC units where transfers of control are conducted (minimum set: ABI, EST, ACP, TOC, AOC)	% of FIRs within which all applicable ACCs have implemented at least one interface to use AIDC / OLDI with neighbouring ACCs

APPENDIX C – B0-FICE ANRF and explanatory notes



8. ASBU B0-FICE: Performance Monitoring and Measurement	
8A. ASBU B0-FICE: Implementation	
Elements	Performance Indicators/Supporting Metrics
2. Implement AIDC compliant with PAN-Regional AIDC ICD, or alternate higher performance data communications between all ACCs and between ACCs and all associated terminal ATC units.	% of FIRs within which all applicable ACCs have implemented full AIDC messaging, or alternate communication standard
3. <u>Complete the regional ATN/AMHS network in the whole APAC region (enabler)</u>	<u>% of States interconnected in AMHS</u>
4. <u>Migrate communications between States on the regional network (enabler)</u>	<u>% of States with migration of applications terminated</u>

8A. ASBU B0-FICE: Performance Monitoring and Measurement	
8 B. ASBU B0-FICE: Performance Monitoring	
Key Performance Areas	Metrics (if not indicate qualitative Benefits)
Access & Equity	Benefit: Greater access afforded by improvements in capacity and efficiency.
Capacity	Benefit: Increased capacity due to reduced controller workload associated with ATS coordination and transfers of control.
Efficiency	Benefit: Reduced voice coordination, improved timeliness of coordination, leading to better efficiencies in ATC workload and task prioritization
Environment	Benefit: Increased capacity due to reduction in ATC workload, leading to more aircraft operating at preferred flight levels on optimum trajectories.
Safety	Benefit: Reduction and early detection of human coordination errors, thus reducing large height deviation (LHD) events. Extension of safety net alerts to aircraft operating beyond FIR boundary when to or intending to transit the FIR.

APPENDIX C – B0-FICE ANRF and explanatory notes



AIR NAVIGATION REPORT FORM HOW TO USE - EXPLANATORY NOTES

- 1. Air Navigation Report Form (ANRF):** This form provides a standardized approach to implementation monitoring and performance measurement of Aviation System Block Upgrades (ASBU) Modules. The Planning and Implementation Regional Groups (PIRGs) and States could use this report format for their planning, implementation and monitoring framework for ASBU Modules. Also, other reporting formats that provide more details may be used but should contain as a minimum the elements described below. The Reporting and monitoring results will be analyzed by ICAO and aviation partners and then utilized in developing the Annual Global Air Navigation Report. The Global Air Navigation Report conclusions will serve as the basis for future policy adjustments aiding safety practicality, affordability and global harmonization, amongst other concerns.
- 2. Regional/National Performance objective:** In the ASBU methodology, the performance objective will be the title of the ASBU module itself. Furthermore, indicate alongside corresponding Performance Improvement area (PIA). Consequently, for ASBU Block 0, a total of 18 ANRFs will need to be developed that reflects respective 18 Modules.
- 3. Impact on Main Key Performance Areas:** Key to the achievement of a globally interoperable ATM system is a clear statement of the expectations/benefits to the ATM community. The expectations/benefits are referred to eleven Key Performance Areas (KPAs) and are interrelated and cannot be considered in isolation since all are necessary for the achievement of the objectives established for the system as a whole. It should be noted that while safety is the highest priority, the eleven KPAs shown below are in alphabetical order as they would appear in English. They are access/equity; capacity; cost effectiveness; efficiency; environment; flexibility; global interoperability; participation of ATM community; predictability; safety; and security. However, out of these eleven KPAs, for the present, only five have been selected for reporting through ANRF, which are Access & Equity, Capacity, Efficiency, Environment and Safety. The KPAs applicable to respective ASBU module are to be identified by marking Y (Yes) or N (No).
- 4. Implementation Progress:** This section indicates status of progress in the implementation of different elements of the ASBU Module for both air and ground segments.
- 5. Elements related to ASBU module:** Under this section list elements that are needed to implement the respective ASBU Module. Furthermore, should there be elements that are not reflected in the ASBU Module (example: In ASBU B0-A CDM, Aerodrome certification and data link applications D-VOLMET, D-ATIS, D-FIS are not included; Similarly in ASBU B0-AIM, note that WGS-84 and eTOD are not included) but at the same time if they are closely linked to the module, ANRF should specify those elements. As a part of guidance to PIRGs/States, the FASID (Volume II) of every Regional ANP will have the complete list of all 18 Modules of ASBU Block 0 along with corresponding elements, equipage required on the ground and in the air as well as metrics specific to both implementation and benefits.
- 6. Implementation Status (Ground/Air):** Planned implementation date (moth/year) and the current status/responsibility for each element are to be reported in this section. Please provide as much details as possible and should cover both avionics and ground systems. If necessary, use additional pages.

APPENDIX C – B0-FICE ANRF and explanatory notes



7. **Implementation Roadblocks/Issues:** Any problems/issues that are foreseen for the implementation of elements of the Module are to be reported in this section. The purpose of the section is to identify in advance any issues that will delay the implementation and if so, corrective action is to be initiated by the concerned person/entity. The four areas, under which implementation issues, if any, for the ASBU Module to be identified, are as follows:

- Ground System Implementation:
- Avionics Implementation:
- Procedures Availability:
- Operational Approvals:

Should be there no issues to be resolved for the implementation of ASBU Module, indicate as “NIL”.

8. **Performance Monitoring and Measurement:** Performance monitoring and measurement is done through the collection of data for the supporting metrics. In other words, metrics are quantitative measure of system performance – how well the system is functioning. The metrics fulfil three functions. They form a basis for assessing and monitoring the provision of ATM services, they define what ATM services user value and they can provide common criteria for cost benefit analysis for air navigation systems development. The Metrics are of two types:

A. **Implementation Indicators/supporting metrics:** This indicator supported by the data collected for the metric reflects the status of implementation of elements of the Module. For example- Percentage of international aerodromes with CDO implemented. This indicator requires data for the metric “number of international aerodromes with CDO”.

B. **Benefit Metrics:** This Metric allows to asses benefits accrued as a result of implementation of the module. The benefits or expectations, also known as Key Performance Areas (KPA), are interrelated and cannot be considered in isolation since all are necessary for the achievement of the objectives established for the system as a whole. It should be noted that while safety is the highest priority, the eleven KPAs shown below are in alphabetical order as they would appear in English. They are access/equity; capacity; cost effectiveness; efficiency; environment; flexibility; global interoperability; participation of ATM community; predictability; safety; and security. However, out of these eleven KPAs, for the present, only five have been selected for reporting through ANRF, which are Access & Equity, Capacity, Efficiency, Environment and Safety. It is not necessary that every module contributes to all of the five KPAs. Consequently, a limited number of metrics per type of KPA, serving to measure the module(s)’ implementation benefits, without trying to apportion these benefits between module, have been identified at the end of this table. This approach would facilitate States in collecting data for the chosen metrics.

9. On the basis of examples of Performance Indicators/supporting Metrics detailed in this document, PIRGs/States to reflect under this section the appropriate metrics that represents the monitoring of respective ASBU Module both in terms of implementation as well as benefits to five KPAs.

The impact on KPAs could be extended to more than five KPAs mentioned above if maturity of the system allows and the process is available within the State to collect the data.