International Civil Aviation Organization
CAR/SAM Regional Planning and Implementation Group (GREPECAS)
Fifteenth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/15)
Río de Janeiro, Brasil, 13 – 17 October 2008

Agenda Item 3 : Regional air navigation planning and implementation issues

3.6 Report of the ATM/CNS/SG/6 Meeting

REPORT OF THE SIXTH MEETING OF THE ATM/CNS/SG

(Presented by the Secretariat)

SUMMARY

This Working Paper present information on the results of the Sixth meeting of the ATM/CNS Subgroup. Action by the GREPECAS/15 meeting is presented in paragraph 7.

References:

- ATM/CNS/SG/6 Meeting Report
- ACG/7 Meeting Report

1.1 Introduction

1.2 The Sixth Meeting of the ATM/CNS Subgroup (ATM/CNS/SG/6) of GREPECAS was held at the Hotel Hamaca, in Boca Chica, Dominican Republic from 30 June to 4 July 2008. The Meeting was attended by 69 participants from 15 member States and 6 International Organizations Members of the ATM/CNS ***Subgroup, as well as one Member State located outside the CAR/SAM Regions.***

1.3 Summary reports on Agenda Items 3 and 4 that are related with the work performed by the ATM and CNS Committees are presented in WPs 13 and 14 respectively. The summary report on Agenda Items 2 and 5 are presented together in view of their very close relationship. The meeting adopted one Draft Conclusion and one Draft Decision to be considered by GREPECAS/15 meeting

2. Agenda Item 1: Examination of ATM and CNS Matters revised by the Air Navigation Commission discussed during the GREPECAS/14 meeting.

2.1 The Meeting was informed that among the 64 Conclusions/Decisions formulated by GREPECAS/14 Meeting, 22 were selected by the ANC, whether due to its importance or because they require a specific action by ICAO. The meeting reviewed those related to the ATM and CNS matters and noted the Actions Plans developed by the ANC. In the WP/02 is provided detailed information on this matter as part of the full action taken by the ANC on the GREPECAS/14 report.

2.2 The meeting was informed on the latest work of ICAO Headquarters toward implementation of a global and seamless ATM system. The need to adopt wider planning perspectives and to work toward implementation of ATM improvements over large geographical areas was also stressed. Information was provided on the work of the NextGen programme of the United States and the European SESAR programme. The meeting was informed that both of these programmes were striving to work with ICAO toward a common global ATM system under using the Global ATM Operational Concept and the Global Air Navigation Plan. In this context, the meeting noted that a symposium would be held in Montreal on 8, 9 and 10 September 2008 aimed at identifying the needs of NextGen and SESAR while at the same time ensuring that the needs of those States that were not part of these two programmes, would be considered during the Standards development process. It was indicated that one objective of the symposium would be to ensure that benefits from these two programmes would flow to all ICAO regions.

3. **Agenda Item 2: Based on the ACG/7 meeting results, review of proposals for the GREPECAS/15 Meeting concerning the future treatment of ATM and CNS matters.**

Agenda Item 5: Formulation of proposals regarding the future treatment of ATM and CNS matters by the GREPECAS mechanism

3.1 The Meeting in considering the implications of the ACG Draft Conclusion 7/03 regarding the restructuring of the ATM/CNS/SG, concurred with the comments of the ACG/7 Meeting with regard to problems concerning the functioning of the current ATM/CNS Subgroup and ATM and CNS Committees structure. It also agreed that the Subgroup should be reconfigured as a whole, but that to disband it and create two new Subgroups from the ATM and CNS Committees, as proposed by the ACG/7 meeting, would mean a backward movement in the CAR/SAM planning process, and that it would have severe adverse effects on the close coordination between the ATM and CNS areas, which is so necessary for planning important tasks in the CNS/ATM fields in line with the operational initiatives of the Global Air Navigation Plan.

3.2 The Meeting agreed that restructuring the Subgroup should be consider establishing a genuine Subgroup, completely in line and within the GREPECAS Procedural Handbook framework, concerning its operation, and reporting of results to GREPECAS. Likewise, it also agreed that, in order to ensure a suitable efficiency and coordination between the ATM and CNS fields, adequate Terms of Reference should be established, from which specific and important task may be inferred that should be developed in the short and medium terms in order to enhance ATM system and that, as necessary, clearly identify the need for coordination with other fields within the ATM operational concept approach such as the AGA, AIM and MET fields. For these tasks, the deliverables should be identified in specific times. It was pointed out that the new Subgroup might create, as necessary, Task Forces to assist it when developing its tasks.

3.3 The acceptance of the foregoing approach mentioned above was unanimous by the Meeting, and it was agreed to develop for the forthcoming GREPECAS/15 Meeting a specific proposal for a new Subgroup. In developing the terms of reference for this new Subgroup, the Meeting recognized that it was critical to align its work with activities taking place at the global level and, specifically, the Global ATM Operational Concept and Global Air Navigation Plan. In this regard, it was agreed that the terms of reference should consider performance objectives, development of detailed tasks, establishment of deliverables with deadlines and monitoring implementation. It was also recognized that, on a global basis, the work of all air navigation fields was being merged and that work had to be addressed in a holistic and strategic way. It therefore agreed to develop terms of reference with no division between CNS and ATM work, and noted that accomplishing the work associated with the performance objectives would require both CNS and ATM work efforts. In the same way, it was recalled that the current use of the term "ATM", refers to all elements of the air navigation system, given due consideration to facilitate and harmonize the inter-regional implementation process. In this regard, the Meeting had an extensive exchange of views between the CNS and ATM experts and, with due explanations provided by the Secretariat, it was concurred that, considering the ATM operational concept, the global ATM implementation had to be faced as a system requiring the support of all the fields that traditionally are considered in the air navigation system.

3.4 The Meeting established, considering the existing work programmes of the ATM/CNS Subgroup and of the ATM and CNS Committees, the main CNS/ATM tasks to be carried out under the project development concept, by the new Subgroup, taking into account the performance objectives already established by GREPECAS and recognizing the need for establishing others if applicable in order to obtain in the short and medium terms, regional enhancements that may be required by the ATM community. The Meeting also recognized that the supervision of the Air Navigation Plan and the identification and reporting of deficiencies in the CNS/ATM fields were important tasks for the new Subgroup.

3.5 The Meeting also recognized that this meant a great step regarding a new approach in regional CNS/ATM planning and concerning the establishment of a new management scheme, in which the role of the new Subgroup was essential with regard to deliverables of GREPECAS and its work programme. In this respect, the Meeting observed that, in order to start the mechanism of the new Subgroup, at least two meetings would be required before the GREPECAS/16 Meeting, one to develop the required work programmes and identify the necessary Task Forces and another to supervise and adjust the operation of the work scheme established by its first meeting. With regard to this matter, it was observed that it was necessary to duly consider the number of meetings within the GREPECAS mechanism, in view of the financial impact on Civil Aviation Authorities.

3.6 Regarding the membership, it was agreed that it should be composed of the same States/Territories/International Organizations that form the ATM/CNS Subgroup and its Committees, and that ICAO should define the Secretariat structure that can provide the best assistance to the work of the new Subgroup.

3.7 As a result of the deliberations on this issue, the Meeting developed the Terms of Reference (TORs) and the main tasks for the new CNS/ATM Subgroup that are attached in **Appendix A** to this Working Paper, and developed the following Draft Decision for the consideration of GREPECAS/15 Meeting:

DRAFT
DECISION ATM/CNS/6/1 NEW CNS/ATM SUBGROUP

That, in line with GREPECAS efforts to improve the handling of ATM and CNS matters and the necessary coordination between these areas to ensure a performance-based approach to planning of a global ATM system, a re-engineering of the ATM/CNS Subgroup is carried out within the GREPECAS mechanism, establishing the new CNS/ATM Subgroup with the Terms of Reference presented in Appendix … to this part of the Report.

3.8 The Meeting recognized that the work developed by the ATM/CNS Subgroup and the ATM and CNS Committees should serve as the base to proceed with the development of the CAR/SAM ATM and CNS matters by the new Subgroup, which should be well documented by the ICAO Secretariat in order to be duly considered during the First Meeting of the CNS/ATM Subgroup so as to include tasks and results already available mainly from the work carried out by the ATM and CNS Committees to the activities of the new Subgroup.

4. Agenda Item 3: Review of the ATM/COMM/6 meeting report

4.1 WP/13 presents the summary report on this Agenda Item.

5. Agenda Item 4: Review of the CNS/COMM/6 meeting report

5.1 WP/14 presents the summary report on this Agenda Item.

6. Agenda Item 6: Other Matters

6.1 The Meeting, considering the proposal on the new CNS/ATM Subgroup and also the actions to restructure the Subgroup formulated by the ACG/7 meeting did not considered necessary to review the Terms of Reference nor the Work Programme of the ATM/CNS Subgroup; nevertheless, due to its importance the tasks of the Automation Task Force in correspondence with task ATM/CNS/5 of its work programme were examined. In this regard, it was done a very detailed analysis of the work performed by the Automation Task Force. Plans in the CAR/SAM Regions concerning applications of GREPECAS Conclusions 14/43 and 14/44 were noted specially those plans being carried out under:

a) the activities of the NAM/CAR Working Group (NACC/WG) concerning the different radar data sharing activities achieved, the proposal for the use of the current flight plan (CPL) for the interchanges of the flight plans updates, the status of the automation of the control centres systems and the advances in the region's digital communication media; and

b) the RLA/98/003 technical cooperation Project, which considering the Regional Strategy and the Regional ICD, developed a very interesting work with the corresponding Action Plan for its implementation, regarding automated ATC systems interconnection equipment among ACCs and the corresponding system control interface document (SCID), in order to establish data exchange of Radar/Flight Plans, as well as AIDC communications in accordance with the Regional Strategy Phases II and III. In this regard, the meeting considered that the documentation developed by the RLA/98/003 project and other deliverables available on ATM automation should be considered by the new CNS/ATM Subgroup if GREPECAS approve its creation.

It was concluded that the above mentioned activities were in accordance with the Regional CAR/SAM ATM automation strategy phases II and III. Likewise it was examined a proposal for the use of the current flight plan (CPL) for the interchanges of the flight plans updates. In this regard, it was agreed that that the States analyze this issue in order to consider the establishment of a regional agreement

6.2 In the light of the analysis made on automation, it was noted that Conclusions 14/43 and 14/44 were being addressed by the States, which are implementing the recommendations contained in these Conclusions. Furthermore, it was informed that the NACC and SAM Regional Offices were following-up the implementation of said Conclusions. In this regard, the Meeting agreed that from the point of view of the GREPECAS mechanism these Conclusions could be considered as implemented.

6.3 The Meeting discussed issues related with the transition towards a new ICAO Flight Plan model. Likewise, it was noted that in relation with this issue, ICAO Secretary General, through State Letter AN 13/2.1-08/50 informed the States that the Air Navigation Commission approved Amendment No. 1 to the 15th Edition of PANS-ATM (Doc 4444) becoming effective as at 15 November 2012, inviting the States to implement the provisions established in the mentioned amendment in respect to the new Flight Plan model, it can be downloaded at the Webpage: www.icao.int/icaonet.

6.4 The Secretariat advised the Meeting that the ANC's ATM Requirements and Performance Panel (ATMRPP) is preparing implementation guidelines to assist a globally streamlined implementation of the new flight planning provisions; these guidelines will become available in due course. The Meeting agreed that there will be many actions necessary to ensure a streamlined regional implementation, including the development of a regional transition strategy. In this regard, the meeting initially identified the following actions:

- AIDC guidelines and other regional documents will need to be updated,
- Contingency arrangements for States that cannot comply by the due date,
- How to handle staged implementations by States and/or airspace users,
- Management of Repetitive Flight Plans, and
- Implications for electronic presentations including electronic flight progress strips.

6.5 In light of the situation, the Meeting agreed the following draft Conclusion for GREPECAS/15 consideration:

DRAFT
CONCLUSION ATM/CNS/6/2 IMPLEMENTATION OF THE NEW ICAO FLIGHT PLAN MODEL

Considering that States should take measures to implement the new ICAO Flight Plan Model, Amendment No. 1 to the 15th Edition of the PANS-ATM (Doc 4444), and, in order to establish a regional strategy to facilitate the global implementation of this amendment, that:

a) based on the guidance material that will be prepared by ICAO, CAR/SAM States take the necessary measures to prepare for the transition to the new Flight Plan model; and

b) the Subgroup establish a contributory body to prepare a Regional Strategy for the transition to the new Flight Plan model in the CAR/SAM Regions and the provisions associated with ATS messages.

7. Action Suggested

7.1 Based on the information provided in this working paper the meeting is invited to review the work performed by the ATM/CNS/SG/6 meeting and to approve the Draft Decision and draft Conclusion presented in paragraphs 3.7 and 6.5 respectively.

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APPENDIX A

TERMS OF REFERENCE OF THE CNS/ATM SUBGROUP

1. Terms of Reference (TOR)

1. To plan a performance based transition to the ATM system envisaged in the Global ATM Operational Concept, considering the regional performance objectives, supported by the Global Air Navigation Plan Initiatives (GPIs);

2. Carry out CNS/ATM CAR/SAM planning activities to facilitate and harmonize the inter-regional implementation process to obtain in the near and medium terms, clear benefits for the ATM community; and

3. In meeting these TOR, the Subgroup should perform the following tasks:

   a) monitor the CNS/ATM aspects of the CAR/SAM Air Navigation Plan and propose corresponding amendments to keep it up-to-date;

   b) identify and report CNS/ATM air navigation deficiencies based on the Council approved methodology and GREPECAS complemented procedures; and

   c) considering the existing performance objectives (new objectives to be developed as necessary), develop detailed tasks, identify deliverables with deadlines and monitor implementation of the following:

- Performance based navigation
- Air Traffic Flow Management
- Civil/Military coordination
- Automation
- Situational awareness (surveillance)
- RVSM
- Communication infrastructure for ground to ground and ground to air
- Transition to the new ICAO Model Flight Plan

Note: Identified performance objectives are attached. A new document will be developed containing all performance objectives to be reviewed at each meeting.

ATM PERFORMANCE OBJECTIVES FOR THE CAR AND SAM REGIONS

OPTIMIZE THE ATS ROUTE STRUCTURE EN-ROUTE AIRSPACE			
Benefits			
Environment **Efficiency**	• ***reductions in fuel consumption;*** • ***ability of aircraft to conduct flight more closely to preferred trajectories;*** • ***increase in airspace capacity;*** • ***facilitate utilization of advanced technologies (e.g., FMS based arrivals) and ATC decision support tools (e.g., metering and sequencing), thereby increasing efficiency.***		
Strategy			
TASK	**DESCRIPTION**	**START-END**	**STATUS**
AOM	***En-route airspace***		
	Develop regional action plan	2007-2009	
	Develop Airspace Concept based in CAR /SAM PBN Roadmap, in order to design and implement a trunk route network, connecting major city pairs in the upper airspace and for transit to/from aerodromes, on the basis of PBN and, in particular, RNAV/5, taking into account interregional harmonization		
	Develop performance measurement plan		
	Formulate safety plan		
	Establish collaborative decision making (CDM) process		
	Publish national regulations for aircraft and operators approval using PBN manual as guidance material		
	Identify training needs and develop corresponding guidelines		
	Formulate system performance monitoring plan • • • • ***monitor implementation progress in accordance with CAR/SAM PBN implementation roadmap and State implementation plan*** • • •		
References	GPI/5: performance-based navigation, GPI/7: dynamic and flexible ATS route management, GPI/8: collaborative airspace design and management, GPI/10: terminal area design and management, GPI/11: RNP and RNAV SIDs and STARs and GPI/12: FMS-based arrival procedures.		

OPTIMIZE THE ATS ROUTE STRUCTURE IN TERMINAL AIRSPACE			
Benefits			
Environment Efficiency	• ***reductions in fuel consumption;*** • ***ability of aircraft to conduct flight more closely to preferred trajectories;*** • ***increase in airspace capacity;*** • ***facilitate utilization of advanced technologies (e.g., FMS based arrivals) and ATC decision support tools (e.g., metering and sequencing), thereby increasing efficiency.***		
Strategy			
TASK	**DESCRIPTION**	**START-END**	**STATUS**
AOM	***In terminal airspace***		
	Develop State PBN implementation plan		
	Develop Airspace Concept based in CAR /SAM PBN Roadmap, in order to design and implement optimized standard instrument departures (SIDs), standard instrument arrivals (STARs), instrument flight procedures, holding, approach and associated procedures, on the basis of PBN and, in particular RNAV/1 and Basic-RNP12 ***Develop performance measurement plan*** ***Formulate safety plan*** ***Establish collaborative decision making (CDM) process*** ***Publish national regulations for aircraft and operators approval using PBN manual as guidance material*** ***Identify training needs and develop corresponding guidelines*** ***Formulate system performance monitoring plan*** • ***develop a regional strategy and work programme for implementation; and*** • ***monitor implementation progress in accordance with CAR/SAM PBN implementation roadmap and State implementation plan***		
References	GPI/5: performance-based navigation, GPI/7: dynamic and flexible ATS route management, GPI/8: collaborative airspace design and management, GPI/10: terminal area design and management, GPI/11: RNP and RNAV SIDs and STARs and GPI/12: FMS-based arrival procedures.		

<table>
<tr><td colspan="4">IMPLEMENT RNP APPROACHES</td></tr>
<tr><td colspan="4">Benefits</td></tr>
<tr><td>Efficiency
Safety</td><td colspan="3">• Improvements in capacity and efficiency at aerodromes.
• Improvements in safety at aerodromes.</td></tr>
<tr><td colspan="4">Strategy
(2008-2015)</td></tr>
<tr><td>TASK</td><td>DESCRIPTION</td><td>START-END</td><td>STATUS</td></tr>
<tr><td>AOM</td><td>• Develop State PBN implementation plan
Develop Airspace Concept based in CAR /SAM PBN Roadmap, in order to design and implement RNP APCH with Baro-VNAV in accordance with assembly resolution A36-23, and RNP AR APCH where beneficial
Develop performance measurement plan
Formulate safety plan
Establish collaborative decision making (CDM) process
Publish national regulations for aircraft and operators approval using PBN manual as guidance material
Identify training needs and develop corresponding guidelines
Formulate system performance monitoring plan
• monitor implementation progress in accordance with CAR/SAM PBN implementation roadmap and State implementation plan</td><td></td><td></td></tr>
<tr><td>References</td><td colspan="3">GPI/5: performance-based navigation, GPI/7: dynamic and flexible ATS route management, GPI/8: collaborative airspace design and management, GPI/10: terminal area design and management, GPI/11: RNP and RNAV SIDs and STARs and GPI/12: FMS-based arrival procedures.</td></tr>
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ENHANCE CIVIL/MILITARY COORDINATION AND CO-OPERATION			
Benefits			
Efficiency	• increase airspace capacity;		
Continuity	• allow a more efficient ATS route structure • ensure safe and efficient action in the event of unlawful interference; • make available military restricted airspace more hours of the day so that aircraft can fly on their preferred trajectories; and • improve search and rescue services.		
Strategy (2008-2012)			
TASK	**DESCRIPTION**	**START-END**	**STATUS**
AOM	• develop guidance material on civil/military coordination and co-operation to be used by States/Territories to develop national policies, procedures and rules; • establish civil/military coordination bodies; • arrange for permanent liaison and close cooperation between civil ATS units and appropriate air defense units; • conduct a regional review of special use airspace; • develop a regional strategy and work programme for implementation of flexible use of airspace in a phased approach beginning with more dynamic sharing of restricted airspace while working towards full integration of civil and military aviation activities by 2012; and • monitor implementation progress		
References	GPI/1: flexible use of airspace.		

<table>
<tr><th colspan="4">ALIGN UPPER AIRSPACE CLASSIFICATION</th></tr>
<tr><th colspan="4">Benefits</th></tr>
<tr><td>Efficiency

Continuity</td><td colspan="3">• better utilization of data link communication;
• optimize use of flight plan data processing systems;
• enhance airspace management coordination, message exchange capabilities and utilization of flexible and dynamic airspace management techniques;
• harmonization of interregional coordination processes;
• improvement of airspace interoperability and seamlessness; and
• ensure the provision of positive air traffic control services to all aircraft operations.</td></tr>
<tr><td colspan="4">Strategy
(Target: 2008)</td></tr>
<tr><td>TASK</td><td>DESCRIPTION</td><td>START-END</td><td>STATUS</td></tr>
<tr><td>AOM</td><td>• Develop a regional implementation strategy and work programme for the implementation of ICAO Annex 11 airspace Class A above FL 195.
• identify key stakeholders, ATCOs, pilots, and relevant international organisations for coordination and cooperation on changes for new airspace organization, using a CDM process;
• develop new national airspace organization in accordance with ICAO provisions, as needed;
• Coordinate changes for regional and national documents;
◦ Doc 8733, CAR/SAM ANP;
◦ AIP; and,
◦ ATS letters of agreement
• Carry out improvements in ground systems to support new airspace organization configurations, as necessary;
• Publish national regulatory material for implementation of new rules and procedures to reflect airspace organizational changes;
• Train ATCOs and pilots in new procedures, including all civil and military airspace users, as required;
• monitor implementation progress.</td><td></td><td></td></tr>
<tr><td>References</td><td colspan="3">GPI/4: align upper airspace classification.</td></tr>
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IMPROVE DEMAND AND CAPACITY BALANCING			
Benefits			
Environment	• reduction in weather- and traffic-induced holding, leading to reduced fuel consumption and emissions;		
Efficiency	• improved and smoother traffic flows; • improved predictability; • improved management of excess demand of service in ATC sectors and aerodromes; • improved operational efficiency; • enhanced airport capacity; • enhanced airspace capacity; and		
Safety	• improved safety management.		
Strategy ***Near term (2008)***			
TASK	**DESCRIPTION**	**START-END**	**STATUS**
ATFM (DCB)	• identify key stakeholders (ATC service providers and users, military authorities, airport authorities, aircraft operators and relevant international organisations) for purposes of coordination and cooperation, using a CDM process; • identify and analyse traffic flow problems and develop methods for improving efficiencies on gradual basis, as needed, through enhancements in current: o airspace organization and management (AOM) and airway structure (unidirectional routes), o communication, navigation and surveillance systems, o aerodrome capacity, o ATS capacity, and o ATS letters of agreement; • define common elements of situational awareness between FMUs; o common traffic displays, o common weather displays (Internet), o communications (teleconferences, web), and o daily teleconference/messages methodology advisories; • develop methods to establish demand/capacity forecasting; • develop a regional strategy and work programme for harmonized implementation of ATFM service; and,		

Medium term (2010)			
	• develop a regional strategy for the implementation of flexible use of airspace (FUA); o assess use of airspace management processes; o improve current national airspace management to adjust dynamic changes in traffic flows in tactical stage; o introduce improvements in ground ATS systems and associated procedures for the extension of FUA with dynamic airspace management processes; o implement dynamic ATC sectorization in order to provide the best balance between demand and capacity to respond in real-time to changing situations in traffic flows, and to accommodate in short-term the preferred routes of users; • define common electronic information and minimum databases required for decision support and alerting systems for interoperable situational awareness between Centralized ATFM units; • develop regional procedures for efficient and optimum use of aerodrome and runway capacity; • develop a regional ATFM procedural manual to manage demand/capacity balancing; • develop a regional strategy and framework for the implementation of Centralized ATFM unit; • develop operational agreements between Centralized ATFM units for interregional demand/capacity balancing; and, • monitor implementation progress.		
References	GPI/1: flexible use of airspace; GPI/6: air traffic flow management; GPI/7: dynamic and flexible ATS route management; GPI/9: Situational awareness; GPI/13: aerodrome design and management; GPI/14: runway operations; and GPI/16: decision support and alerting systems.		

IMPROVE ATM SITUATIONAL AWARENESS			
Benefits			
Efficiency **Safety** 	• enhanced traffic surveillance; • enhanced collaboration between flight crew and the ATM system; • improved collaborative decision-making through sharing electronic aeronautical data information; • reduction of workload for both pilots and controllers; • improved operational efficiency; • enhanced airspace capacity; • improved implementation on a cost-effective basis; • improved available electronic terrain and obstacle data in the cockpit; • reduction of the number of controlled flight into terrain related accidents; and • improved safety management.		
Strategy ***Near term (2010)***			
TASK	**DESCRIPTION**	**START-END**	**STATUS**
ATS **(ATM SDM)**	• **identify parties concerned** • identify the automation level required according to the ATM service provided in airspace and international aerodromes, assessing o operational architecture design, o characteristics and attributes for interoperability, o data bases and software, and o technical requirements; • improve ATS interfacility communication • implement flight plan data processing system and electronic transmission tools • implement radar data sharing programs where benefits can be obtained • develop situational awareness training programmes for pilots and controllers • implement ATM surveillance systems for situational traffic information and associated procedures • implement ATS automated message exchanges, as required o FPL, CPL, CNL, DLA, etc. • implement automated radar handovers, where able; • implement ground and air electronic warnings, as needed o Conflict prediction o Terrain proximity o MSAW o DAIW o Surveillance system for surface movement • implement data link surveillance technologies and applications: ADS, CPDLC, AIDC, as required		

Medium term (2015)			
	• implement additional/advanced automation support tools to increase sharing of aeronautical information o ETMS or similar o MET information o AIS/NOTAM dissemination o Surveillance tools to identify airspace sector constraints o A-SMGC in specific aerodromes, as required • implement teleconferences with ATM stakeholders • monitor implementation progress		
References	GPI/1: flexible use of airspace; GPI/6: air traffic flow management; and GPI/7: dynamic and flexible ATS route management; GPI/9: Situational awareness; GPI/13: aerodrome design and management; GPI/14: runway operations; and GPI/16: decision support and alerting systems; GPI/17: implementation of data link applications; GPI/18: aeronautical Information; GPI/19: meteorological systems.		

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