Implementation of the Performance-Based Air Navigation Systems for the CAR Region
ICAO Regional TC Project RLA/09/801
Agenda Item 6 – WP/14

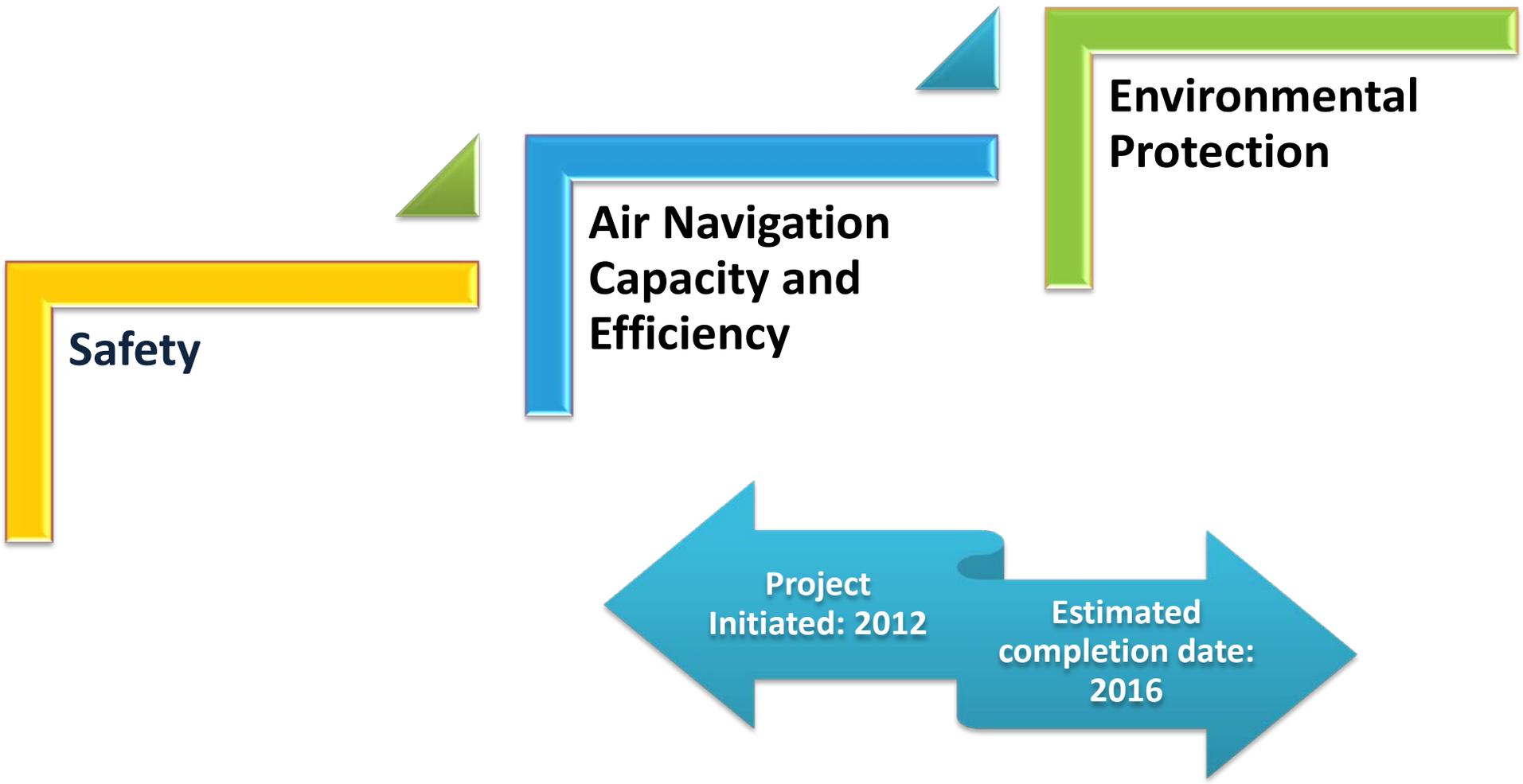Julio Garriga, RO/TA
International Civil Aviation Organization
North American, Central American and Caribbean Office

Project Description / Objectives

Provide assistance to States/Territories of the CAR Region to advance implementation of performance based air navigation systems leading to a seamless global ATM system, thus enhancing safety and efficiency

ICAO Strategic Objectives 2014-2016

Environmental Protection

Air Navigation Capacity and Efficiency

Safety

Project Initiated: 2012

Estimated completion date: 2016

Members
Lead by ICAO NACC Regional Office

Bahamas

Barbados

Cuba

Curacao

Dominican Republic

Haiti

Jamaica

Mexico

Trinidad and Tobago

United States

ECCAA/OECS States

COCESNA / Central American States

Activities Completed Sub-Project Number 1

ICAO/IATA/CANSO Regional PBN Airspace Concept Workshop (Miami, Florida, 11 to 22 March 2013)

- Practical exercises targeted at both the terminal control area (TMA) and en-route domains, including traffic volume, fleet mix, aircraft equipment and traffic flows to resolve real operational challenges

- Improve States understanding of a PBN Airspace Concept

ICAO/CANSO – Regional Workshop on Airspace Concept Redesign and Operational Approval of Performance-Based Navigation (PBN) (SENEAM, Mexico City, Mexico, 25 to 29 November 2013)

- Participants carried out practical exercises for PBN airspace concept redesign, which includes the Terminal Control Area (TMA), en-route operations, Continuous Climb Operations and Continuous Descent Operations (CCO/CDO) and Air Traffic Management (ATM) capabilities to resolve airspace operational problems, as well as to review State PBN operational approval principles.

Activities Completed
Sub-Project Number 4

III Workshop/Meeting on Follow-up to the Implementation of the ATS Message Handling System (AMHS) in the NAM/CAR Regions (III AMHS-IMP)
Boca Chica, Dominican Republic, 24 to 26 September 2013

- Support the implementation of Module 25 (FICE) of Block 0 of Aviation System Block Upgrades (ASBU) "Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration" and Global Air Navigation Plan Initiative IPM-22 – Communication infrastructure and the activities of the NAM/CAR Regional Performance-based Air Navigation Implementation Plan (NAM/CAR RPBANIP) with the follow-up to the implementation of the AMHS in the NAM/CAR Regions,
- Shared lessons learned from the progress of AMHS interconnection and activities conducted on these AMHS implementations in the CAR Region, and discussing the implementation activities.

Activities Completed
Sub-Project Number 5

ICAO Regional Workshop on Aerodrome Certification and Inspection, ICAO NACC Regional Office, Mexico City, Mexico, 6 to 8 November 2012

- Improve State awareness and increase the number of aerodromes certified in the CAR Region. AGA Officers from CAR Region Civil Aviation Authorities provided stakeholders with guidance material, processes and procedures to expedite the aerodrome certification process

- Provided participants with guidance material and reference tools to improve aerodrome inspector duties and tasks when conducting inspections for the purpose of assessing aerodrome facilities, services and equipment to verify and ensure compliance with specified standards and practices

Regional Workshop on GREPECAS Project F1 – Aerodrome Certification Improvements ICAO NACC Regional Office, Mexico City, Mexico, 14 to 18 October 2013

- As a follow-up to the aerodrome inspector training events of 2012, this event provided participants with a greater orientation and best practices on the contents of the Airport Operator's Aerodrome Manual as a fundamental requirement in the airport certification process.

First NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/1) ICAO NACC Regional Office, Mexico City, Mexico, 29 July to 1 August 2013

- The objective of the ANI/WG is to:
  - consolidate the existing sub-regional working groups,
  - reduce the number of meetings,
  - avoid duplication,
  - expedite work progress, and
  - improve regional harmonization focused on the Air Traffic Management (ATM), Communications, Navigation and Surveillance (CNS) and Aeronautical Information Management (AIM) air navigation fields.

Fellowships Granted per Project Member

Bahamas

Barbados – 3

Cuba – 6

Curacao

Dominican Republic – 2

Haiti – 2

Jamaica – 1

Mexico – 2

Trinidad and Tobago – 2

ECCAA/OECS States – 1

COCESNA / Central American States – 3
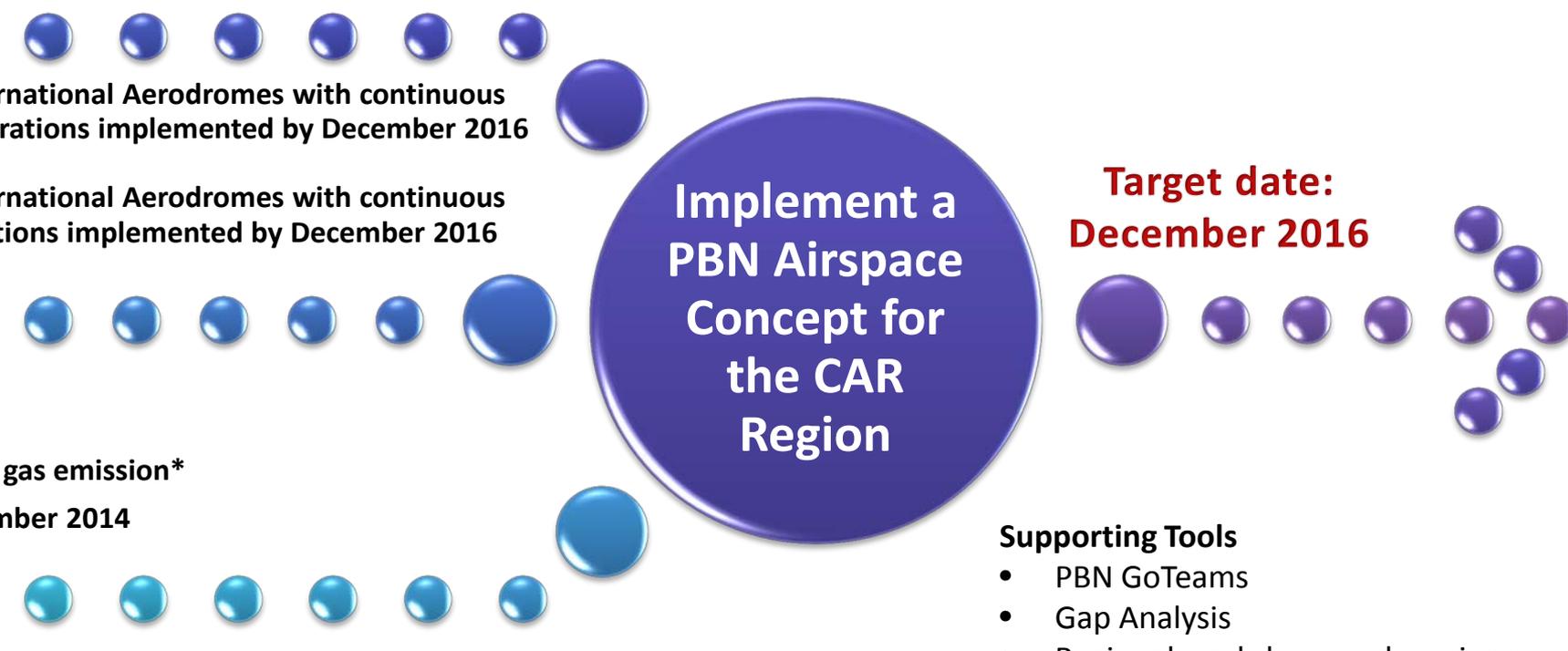
Sub-Project Number 1 : ATM, MET

Objectives: **Assist States with Implementing a Regional PBN Airspace Concept**

80% of International Aerodromes with PBN Approach procedures implemented by December 2016

ASBU: BO-65/10/05/20

50 % of International Aerodromes with continuous descent operations implemented by December 2016

60 % of International Aerodromes with continuous climb operations implemented by December 2016

Implement a PBN Airspace Concept for the CAR Region

Target date: December 2016

Reduce CO2 gas emission*
- **1% - December 2014**
- **2% - 2020**

Supporting Tools
- PBN GoTeams
- Gap Analysis
- Regional workshops and seminars

Targeted to meet ICAO's goal of 2% by 2020

Key Activities Related to Sub-Project 1

Workshop / Meeting for PBN Airspace Redesign (including assessment / GNSS infrastructure improvements)	**Provide safety assessment methodology tool to be used by States**	**Communication and Surveillance Infrastructure for PBN Implementation Meeting**
NACC/WG/4, ANI/WG/2, ANI/WG/3 Meetings	**Electronic Terrain and Obstacle Data (eTOD) And Aeronautical Databases Seminar**	**Electronic Aeronautical Chart Development Workshop**
CAR Region States Training Course on the implementation of ATC emerging techniques	**Pilot Project PBN Go-Team Implementation**	

Sub-Project Number 2: ATM, AGA

Objectives: Enhance Airspace Demand/Capacity Balancing in the CAR Region

100 % of States using ATFM measures where required and FIRs within, which all ACCs utilize ATFM measures by December 2016

ASBU: BO-15/35/75/80

Implementation of Regional Air Traffic Flow Management

Target date: December 2016

Optimize air operations arrival and departure times for 8 airports in the CAR Region by December 2016

Supporting Tools
- ATFM GoTeams
- Gap Analysis
- Regional workshops and seminars

Key Activities Related to Sub-Project 2

Meeting/Workshop to establish regional requirements for ATFM situational awareness

Meeting/Workshop on implementation of the Regional ATFM Procedural Handbook

Meeting/Workshop to improve ATS Contingency Plans

AIXM Seminar for the electronic exchange of aeronautical information and IAIP data
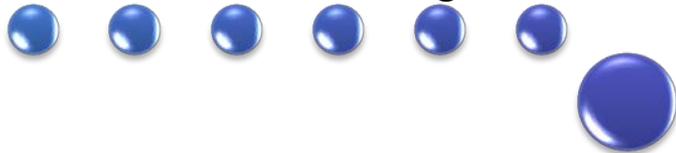
AIM Workshop to coordinate areas: ATM, CNS, AGA and MET for System-Wide Information Management (SWIM) Implementation

Pilot Project ATFM Go-Team Implementation

Sub-Project Number 3 : ATM

Objectives: **Improve Civil-Military Coordination between CAR States to Reduce Restricted Areas**

Establish agreements among civil and military authorities in 8 FIRs from the CAR Region

ASBU: BO-10

Implementation of Flexible Use of Airspace (FUA)

Target date: December 2016

60% reduction in time restriction for civil operations in restricted areas by December 2016

Supporting Tools
- Safety Assessments
- Gap Analysis of Restricted Airspace
- Regional workshops and seminars

Meeting/Workshop for Civil-Military Coordination

(3 events)

Sub-Project Number 4: CNS, ATM

Objectives: **Enhance ATS Situational Awareness**

Improve ATS automated system interconnection in 5 FIRs by:

- **30% - December 2014**
- **40% - December 2016**

Ground-Ground Digital Coordination/transfer 40% of FIRs where all applicable ACCs have implemented at least one interface to use ATS Interfacility Data Communication (AIDC)/On-Line Data Interchange (OLDI) with neighbouring ACCs

ASBU: BO-15/75/84/102/40

Enhance ATS situational awareness

Target date: December 2016

Improve ATS message exchange in 6 FIRs:

- **40% - December 2016**

Supporting Tools

- AIDC GoTeams
- Gap Analysis
- Regional workshops and seminars

Key Activities Related to Sub-Project 4

ADS-B Workshop and Meeting

ADS-B Implementation Meeting

AMHS Workshop and Meeting

AMHS Implementation Meeting

Sharing of ADS-B equipment

Pilot Project AIDC Go-Team Implementation

Sub-Project Number 5 : AGA, FS

Objectives: **Increase number of States' Aerodrome Certification**
                           Enhance Runway Safety

Enhance aerodrome certification:

- **45% of Selected International aerodromes certified by December 2016**

ASBU: BO-75/80

Enhance capacity and efficiency of aerodrome operations

Target date: December 2016

Enhance Runway Safety

Supporting Tools

- Gap Analysis
- Aerodrome Certification GoTeams
- Regional workshops and seminars

Key Activities Related to Sub-Project 5

ICAO Regional Workshop on Aerodrome Runway and Taxiway Geometric Design and Visual Aids to Improve Runway Safety

SMS Workshop and progress achieved with the aerodrome certification process in the CAR Region

Workshop for the implementation of State AGA inspection programmes

Pilot Project

Aerodrome Certification

Go-Team

Implementation

Sub-Project Number 6 : FS, ATM

Objectives: Safety Management Implementation

SSP/SMS Implementation:

- 60% States implemented Phase I of SSP by December 2016

Enhance Regional Safety

Target date: December 2016

60% of main service providers implemented Phase I of SMS by December 2016

Supporting Tools
- Gap Analysis
- SSP/SMS GoTeams
- Regional workshops and seminars

Key Activities Related to Sub-Project 6

Workshop for the implementation of State ANS inspection programmes

Conduct SSP Implementation Workshop

Conduct SMS Implementation Workshop

ECCAIRS COURSE

Pilot Project SSP/SMS Go-Team Implementation

Sub-Project Number 7 : ATM/SAR

Objectives: Promote and Support States with development of SAR Agreements

Sign SAR agreements among:

• **6 RCCs - December 2016**

Enhance Search and Rescue System

Target date: December 2016

Improve SAR personnel competencies by:

• **50% - December 2016**

Supporting Tools
- Gap Analysis
- SAR GoTeams
- Regional workshops and seminars

Key Activities related to Sub-Project 7

Meeting/Workshop to improve regional SAR system performance

Pilot Project

SAR Go-Teams

Implementation

Conclusions: *Situation expected by the end of the project: 2016*

Safety and efficiency of enroute, terminal airspace and aerodrome have been enhanced including the following results:
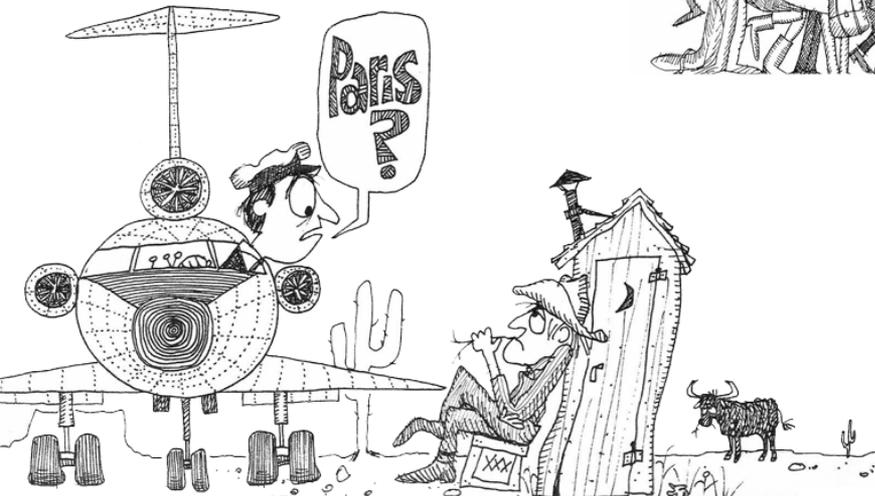
- Implementation of air navigation systems
- Enhanced safety level
- Reduced emissions
- Increased capacity both airspace and aerodromes
- Increased number of Certified Aerodromes
- Fuel cost reduction through more optimized routes and shorter ground movements

Suggested Actions

The Meeting is invited to:

- review and advise on improvements or topics to include in the Project Activities Plan for 2014-2016; and

- participate in the events of the Project Activities Plan for 2014-2016 presented in Appendix C to the working paper CAR/DCA/OPSAN.

Without international rules air travel would be in chaos.

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