



International Civil Aviation Organization

SIP/2012/ASBU/Dakar-WP/30

Regional Air Navigation Plan - Planning Methodologies and Tools

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Workshop on preparations for ANConf/12 – ASBU methodology
(Dakar, 16-20 July 2012)

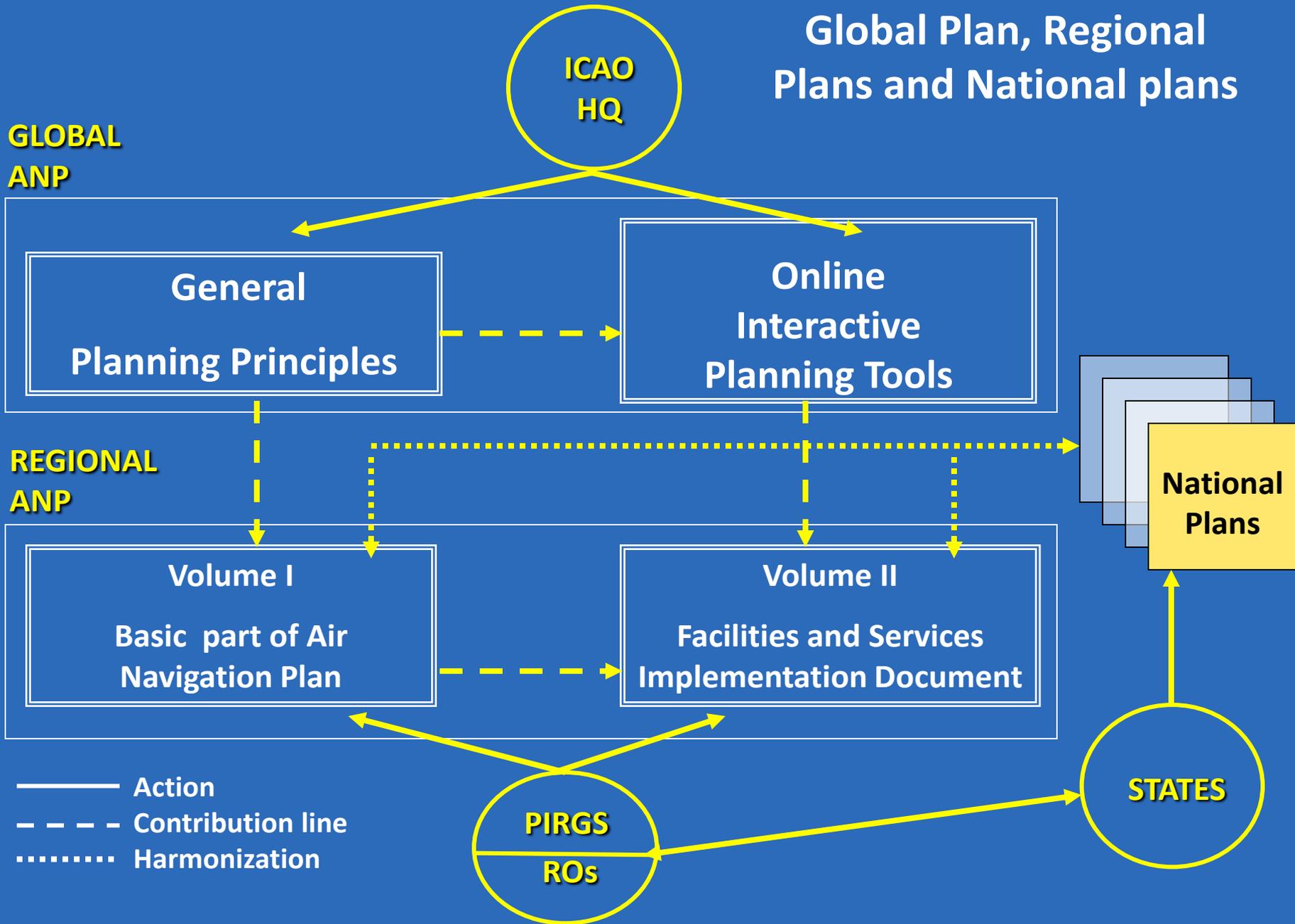
Outline



- Background – Basic ANP/FASID
- Regional Air Navigation Plans
 - Current paper based format
 - New online format
- Progress to date
- Monitoring and Reporting
- Endorsement by ANConf/12



Global Plan, Regional Plans and National plans



What is Regional ANP?



- The Regional Air Navigation Plans (ANPs) set forth in detail the facilities, services and procedures required for international air navigation within a specified geographical area.
- The development of these regional plans is undertaken by ICAO's six planning and implementation regional groups (PIRGs) in coordination with States and supported by ICAO's Regional Offices and the Air Navigation Bureau.

Regional ANPs - Documents



PIRG	ANP Document
APANPIRG	Asia/Pacific Region (Doc 9673)
APIRG	Africa-Indian Ocean Region (Doc 7474)
EANPG	European Region (Doc 7754)
GREPECAS	Caribbean and South American Regions (Doc 8733)
MIDANPIRG	Middle East Region (Doc 9708)
NAT SPG	<i>North Atlantic Region</i> (Doc 9634/9635)

Regional ANPs- current paper based format



- In February 1997, the Council decided that the ANPs should be published in two volumes, a basic ANP as volume I and facilities and services implementation document (FASID) as volume II.
- The intent was to simplify amendment process to ensure currency of information.
- Amendments to Basic ANP, the stable document, require a time-consuming approval process by the governing bodies whereas the FASID requires frequent updates through coordination within the Secretariat.
- Effective July 2011, the amendment process was automated to further reduce the time reviewed within ICAO headquarters.
- But despite all these improvements, the challenge remained to keep the paper-based Regional ANPs updated.

Regional ANPs- Approach to update



- Three phased approach
 - **Phase 1:** Keep the present paper based Regional ANPs up to date and publish in PDF as well as GIS format – available at <http://gis.icao.int>
 - **Phase 2:** As an alternative to paper based Regional ANP, develop an online format called regional eANPs that includes uniform format for all FASID tables
 - **Phase 3:** Align Regional eANPs with ASBU methodology

Regional ANPs -New online format



- To reduce time to process the ANPs and to avoid duplication and rework, it is necessary to transition the paper based ANPs to new online format
- However, this evolution should allow the air navigation planner to use the data or tools for their daily work.
- Consequently, ICAO has developed a plan to transition to the eANP by using it as an alternative to the paper-based ANPs
- All PIRGs upon review of the online system, or components thereof, are encouraged to transition any part of the ANPs that contains the same information to the electronic format.

Regional eANPs -What are the new features?



- ❑ It will be a user-friendly, robust, web-based planning and editing tool to ensure centralization and currency of data
- ❑ The full text and tables of ATS Routes of Volume I of all Basic ANPs will be updated
- ❑ The CNS, AIM, AOP and MET tables in FASID/Volume II of all ANPs will be available in new format with updated data. These FASID tables will be standardized and harmonized across all regions.
- ❑ All FASID tables will be mapped to ASBU methodology. Where necessary, new FAISD tables will be added to reflect ASBUs not covered in the current ANPs.
- ❑ A new Chapter will be included in FASID /volume II of all ANPs covering performance based approach and air navigation report form template for all 18 Block 0 Modules

Regional eANPs –Progress to-date

July 2012



✓ **Volume I (Basic ANP)**

- Text in Basic ANP of all Regional Plans has been updated and being endorsed by respective PIRGs
- Route tables format will be the same with updated information

✓ **Volume II (FASID)**

- AIM tables are in new format. Data needs to be entered and updated
- MET tables migrated to new eANP and data has been updated
- AOP tables are being developed in new format. Data needs to be updated
- CNS tables are being developed in new format. Data needs to be updated

Regional eANPs –Progress to-date



- ✓ All developments related to eANPs are shared on on-going basis on the ICAO Safety Tools User Group (STUG) web site
- ✓ Access available on request.

<https://portal.icao.int/stug/Pages/Homepage.aspx>

How GIS will assist in regional and national planning



- Go to <http://gis.icao.int>
- Contains current paper based Regional ANPs with updated data
- growing gallery of interactive maps that provides an overview of the implementation status of global and regional priorities
- an online tool for managing location indicators and other air navigation data not contained in the regional ANPs

ICAO Booth For Exhibition Of Online Planning Tools



Product live demonstration:

- ❖ These ICAO online planning tools will be demonstrated in the exhibition area during the ANConf/12
- ❖ one-page training aid will also be available both online as well as disseminated during the Conference

FASID Tables sample



GIS MAP to provide transparency in a format that provide a high-level overview of the status of implementation

Action options

Tabular view of information

Location	ICAO Code	IATA Code
NEBOTSFORD, BC	CYXX	YXX
QUAVKIRRODE, CARMICHAEL, NT	CYXX	LAK
NIJUNIK, QC	CYXX	AKV
ALERT BAY, BC	CYXX	YAL
ALERT, NU	CYLT	YLT
NLMA, QC	CYTF	YTF
ANDAMANGIV, QC	CYTF	YEF
NUKIC BAY, MB	CYXX	YXX
NIMETROK, ON	CYXX	YXX
NIWAT, NI	CYXX	YXX

Air Navigation Implementation Reporting- ANRF



- The current PFF has been redesigned and aligned with ASBU framework and called the Air Navigation Report Form (ANRF)
- ANRF will be the basis for performance monitoring of the ASBU implementation
- The ANRF templates for all the 18 Modules of ASBU Block 0 will be available in Volume II – FASID of each Regional eANP

PFF re-designated as ANRF



SAMPLE TEMPLATE

AIR NAVIGATION REPORT FORM (ANRF)

Regional and National planning for all ASBU Modules

REGIONAL/NATIONAL PERFORMANCE OBJECTIVE IMPROVED OPERATIONS THROUGH ENHANCED EN-ROUTE TRAJECTORIES (ASBU B0-10) Performance Improvement Area 3: Optimum Capacity and Flexible Flights – Through Global Collaborative ATM					
ASBU B0-10: Impact on Main Key Performance Areas (KPA)					
	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	Y	Y	Y	Y	N
ASBU B0-10: Implementation Progress					
Elements			Implementation Status (Ground and Air)		
1. Airspace classification					
2. Airspace planning and application of CDM					
3. Flexible Use of Airspace					
4. Flexible Routing –Enroute PBN					
ASBU B0-10: Implementation Roadblocks					
Elements	Implementation Area				
	Ground system Implementation	Avionics Implementation	Procedures Availability	Operational Approvals	
1. Airspace classification					
2. Airspace planning and application of CDM					
3. Flexible Use of Airspace					
4. Flexible Routing –Enroute PBN					

PFF re-designated as ANRF



ASBU B0-10: Performance Monitoring and Measurement

Main Key Performance Areas	Performance Metrics
Access & Equity	
Capacity	
Efficiency	
Environment	
Safety	

Next Steps: A Global Air Navigation Report – Why?



- Effective 2014, on annual basis a Global Air Navigation Report will be released
 - The Regional Air Navigation Reports (ANRF) that provide data for shared review will be utilized in developing the annual Global Air Navigation Report.
 - The spirit of such a global review is to assist in understanding which areas requires special attention and effectively improve air navigation performance in the future
 - This review also provides an opportunity for world civil aviation community to compare the progress across different ICAO regions in the establishment of air navigation infrastructure.

Next Steps: A Global Air Navigation Report – How?



- States to focus on the gathering information related to the highest priorities first, which are: PBN, CDO CCO
- States to use IFSET to calculate the fuel/CO₂ saved for any of the operational improvements
- ICAO Regional office will be provided with its own regional GIS webpage
- ICAO Regional office to coordinate data input from States for its regional GIS webpage
- When all regions provide data on respective GIS webpage, it results in Global AN Report
- The GIS is illustrated in next few slides

Next Steps: A Global Air Navigation Report – When?



- Reporting will be primarily GIS based derived from regional information: suggested time table
 - Dec 2012 - Regional Offices will have Region Specific GIS Map System
 - May 2013 - First set of information will be aggregated
 - May 2014 - PIRGs to submit their newly aligned plans
 - First Air Navigation *REPORT* planned for 2014

Regional GIS webpage -How to input the data? An illustration



Current Reporting Lifecycle



REPORTS



PAPER

DATA



ELECTRONIC / PAPER

ANALYSIS



ELECTRONIC / PAPER

Online Reporting Cycle



REPORTS

Attributes

ACTIVITY: AIR, ANS, LEG, OPS, PEL

1) STATE: Sample State

2) CITIES: Sample City

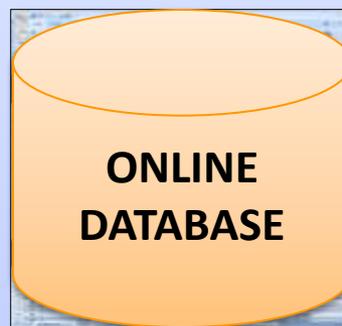
4) PROVIDER: Sample Provider

5) FUNDING: Sample Funding

Buttons: Delete, OK

ONLINE

DATA



ONLINE

ANALYSIS



ONLINE

One Common Interface



Internet Browser

<http://gis.icao.int>



The screenshot shows the ICAO Public Maps website. The header includes the ICAO logo and the tagline "Uniting Aviation on Safety | Security | Efficiency". Below the header, there is a section titled "Public Maps ICAO" with a navigation menu containing "Carousel", "Mobile", "Explain Mobile", and "ICAO MAP GALLERY". The main content area is titled "ICAO Maps and Web Applications" and contains a search bar and a grid of map thumbnails. The thumbnails include "ICAO Language ...", "ICAO Flight Plan Status", "ICAO SCAN", "ICAO SUPPS 7030", "need Flash ICARDSLNC", and "ICAO ICARDSLNC". On the right side, there is a sidebar with the heading "ICAO GIS Content" and a list of links under "More ICAO", including "ICAO ArcGIS.com Group", "ICAO Map services on ArcGIS Explorer Online", "Esri Airports GIS Package", "Buy ICAO FIR DATA", "ESTARS", "ICAO Online Store", "List of AIPs online", "Map ICAO LPR", and "Map ICAO AISAIM".

A Gallery of Information



Public Maps

ICAO

Uniting Aviation on
Safety | Security | Environment

Carousel

Mobile

Explain Mobile

ICAO MAP GALLERY

ICAO Maps and Web Applications

The ICAO Public Map Gallery is a collection of web based maps for the Aeronautical World. Find out more about ICAO GIS by viewing the gallery below.

LPR



ICAO Language ...



need Flash ICAO Language ...

ICAO GIS Content

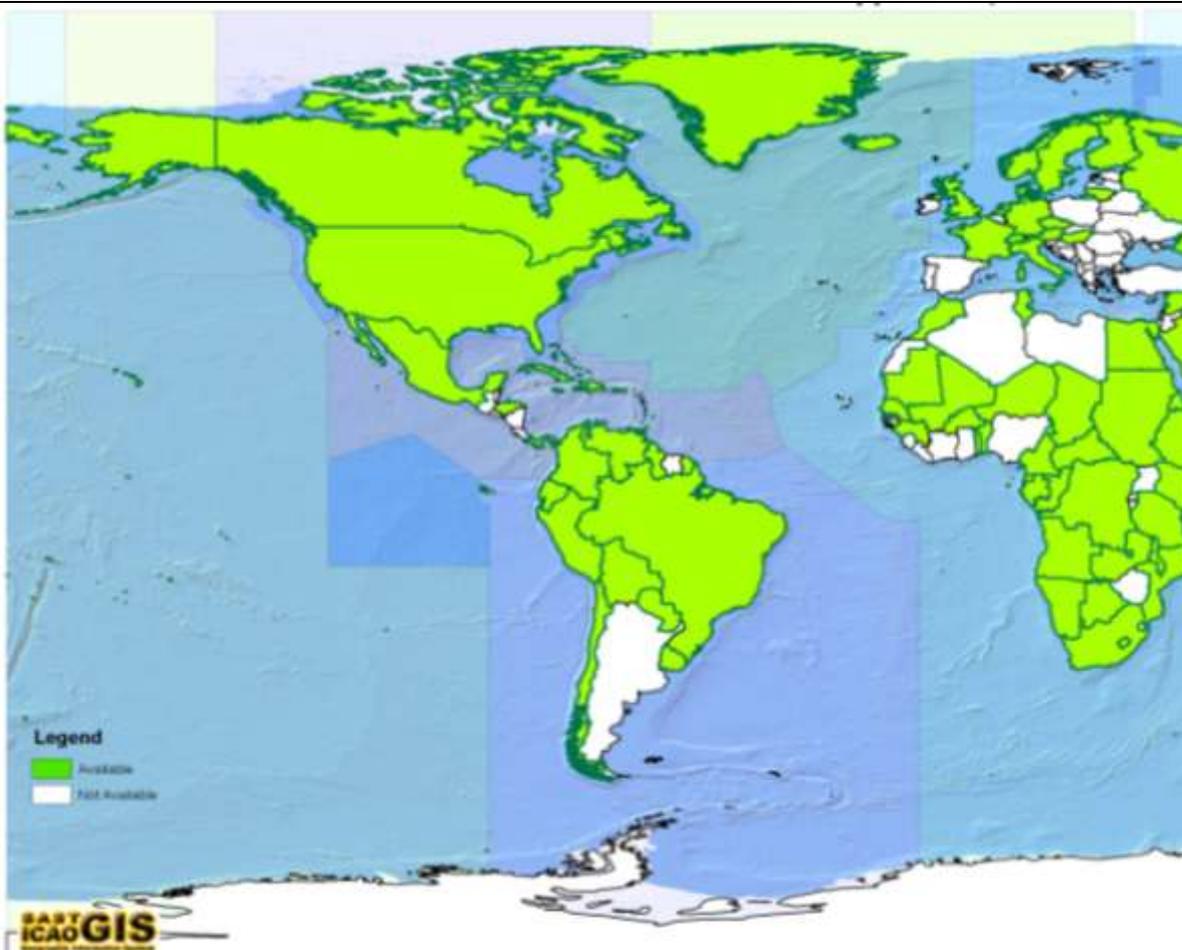
ICAO introduces a new ICAO MAP GALLERY: ICAO Server site
<http://gis.icao.int/gallery/>
a part of its electronic Global Air Navigation Planning (eGANP) initiative.

More ICAO

- [ICAO ArcGIS.com Group](#)
- [ICAO Map services on ArcGIS Explorer Online](#)
- [Esri Airports GIS Package](#)
- [Buy ICAO FIR DATA](#)
- [ISTARS](#)
- [ICAO Online Store](#)
- [List of AIPs online](#)
- [Map ICAO LPR](#)
- [Map ICAO AISAIM](#)

Future Tools:

States with at least 1 PBN A



Near Real-Time Transparent Results



Public Maps ICAO LPR ICAO AISAIM WGS-84
ICAO Uniting Aviation on Safety | Security | Environment

ICAO Flight Plan Status

ICAO Flight Plan must be implemented around 15 Nov 2010

Locate an address

Switch Basemap

Legend **About**

About this map

TRUE WEB SITE:
<http://gis.icao.int/FPL>

Accessible via desktop Mac or PC, laptop browser interfaces: IE 7, IE 8, Mozilla, Google Chrome and other...

On IPAD **download apps ArcGIS** By ESRI (app for IPAD)
<http://itunes.apple.com/ca/mt=8>

In the search MAP function Type "**ICAO**" Enter you find all the ICAO services

Select the ICAO MAP services you want, **click on more** to obtain other ICAO services

Or on IPAD and Android use **ArcGIS.com** Map Viewer the link below:

Full Featured Map (Desktop)

ICAO FPL STATUS
Map of Flight Plan Status

Legend

- Completed
- Submitted
- Submitted by 15-Nov-2010
- Submitted
- Submitted
- Submitted
- Submitted
- Submitted

NOV 2012

Seek endorsement by AN-Conf/12



- Montréal, 19-30 November 2012
- Regional eAir Navigation Plans (Regional eANPs)
 - ICAO is progressing towards development of Regional e-ANPs for all the regions and will include ASBU methodology. The Regional e-ANPs will be an online interactive plan with access rights to States, International organizations and Regional offices and will be made available for AN-Conf/12.

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