Jordan's National Air Navigation Plan (NANP) Progress

PRESENTATION OUTLINES

- **Introduction & Objective** – Overview of NANP modernization efforts.
- **Alignment with ICAO MID & ASBU** – How Jordan is following ICAO frameworks.
- **Key Achievements & Ongoing Projects** – Status updates on airspace redesign, CNS/ATM upgrades, ATFM, CO_2 Emission monitoring, and AAM integration.
- **Challenges & Risk Mitigation** – Issues such as GNSS interference, funding gaps, radar coverage.
- **Next Steps & Future Plans** – Timeline for the next phases of NANP.

Introduction & Objective

Introduction

- The plan aims to modernize ANS through a structured framework based on ICAO's ASBU methodology. JNANP Facilitates interoperability with global and regional ATM systems.
- NANP aligns with:
  - ICAO GANP (Global Air Navigation Plan, Doc 9750).
  - MID Regional Air Navigation Plan (Doc 002).
  - ICAO's Six-Step Performance-Based Approach (PBA) Doc 9883

Objective

- This presentation Presents CARC's progress since the ICAO MID assistance mission, focusing on NANP development, governance, and implementation.

ICAO MID Assistance Mission

Workshop held May 27-29 with ICAO MID Office & CARC.

Workshop Objective:

Develop a structured NANP framework for Jordan AND Identifying Challenges & Best Practices for air navigation planning.

Key Recommendation:

1. Formation of NANP Task Force at CARC.
2. ICAO Six-Step Approach adopted for performance-based implementation.
3. Coordination with the ICAO MID Office to align with regional and global strategies.

Key Achievements Since ICAO MID Workshop

1. **Formation of the JNANP Task Force.**
2. **Jordan's NANP Implementation aligns with:** ICAO's ASBU methodology, ICAO MID strategy and the proposal for NANP contents (APPENDIX C) following a working paper submitted by Saudi Arabia in the First Meeting (RANP/NANP TF/1) (Cairo, Egypt, 19 – 22 February 2024).
3. **Current ANS modernization projects in Jordan**:
   - MLAT deployment for surveillance enhancement (Aqaba region)
   - ATFM to participate in MID ATFM TF/9 meeting and to establish a JANS task force for ATFM.
   - UAV/AAM integration framework development and Strategic Plan 2030 .
   - CNS modernization (ILS, DVHF, DME-DME planned deployment)
   - Airspace Re-design.
   - Digital Transformation (AIM)⟶ JNANP plans AIM transition & eAIP implementation. ICAO AIM Transition Workshop (January 19, 2025) led by ICAO MID Office to assess Jordan's AIS status & define AIM implementation roadmap.
   - Co2 Emissions Monitoring System In Jordanian Airspace-ANS Perspective
4. **Implementation roadmap for Jordan (2024–2033).**

MID REGION AIR NAVIGATION STRATEGY (MID Doc 002)

The States should develop their National Air Navigation Plan (NANP), including action plans for the implementation of relevant priority 1 ASBU Elements and other ASBU elements or non ASBU solutions based on the States' operational requirements and cost benefits analysis.

JORDAN CURRENT STATUS

NAVS B0/4	Navigation Minimal Operating Networks (Nav. MON)	JUNE2025
ASUR B0/2	Multilateration cooperative surveillance systems (MLAT)	JULY 2025
~~ACDM B0/2~~	Integration with ATM Network function	Coordinate with AIRPORTS in NANP
~~ACDM B0/1~~	Airport CDM Information Sharing (ACIS)	Coordinate with AIRPORTS in NANP
~~SURF-B0/3~~	Initial ATCO alerting service for surface operations (Airports having implemented the A- SMGCS alerting service)	Coordinate with AIRPORTS in NANP

JORDAN CURRENT STATUS

~~SURF-B0/2~~	Comprehensive situational awareness of surface operations (Airports having implemented the surveillance service of A-SMGCS)	Coordinate with AIRPORTS in NANP
~~RSEQ B0/1~~	Arrival Management (Aerodromes that have implemented arrival manager (AMAN))	Coordinate with AIRPORTS in NANP
NOPS B0/1	Initial integration of collaborative airspace management with air traffic flow management ASM/ATFM techniques, procedures and tools	DEC 2026

JORDAN CURRENT STATUS

APTA B0/4, APTA B0/5	CDO(BASIC), CCO (BASIC)	JUNE 2025
AMET B0/1	Meteorological observations products	Implemented by 89% DEC 2026
DAIM B1/1	Provision of quality-assured aeronautical data and information	Implemented by 50% OCT 2025……

Jordan's NANP: Aligned with ICAO's Global Air Navigation Plan (GANP – Doc 9750)

Key ICAO GANP Elements Integrated in JNANP:

- **Performance-Based Approach (PBA)** → JNANP follows ICAO's Six-Step PBA as Data-driven decision-making.
- **Aviation System Block Upgrades (ASBU)** → – Ensuring interoperability.
- **Technology Modernization** – Implementation of MLAT, DME-DME, ATFM, AIM.
- **Interoperability & Global Harmonization** → Ensuring seamless regional & global ATM connectivity (Compliance with ICAO MID ANP (Doc 002).
- **Resilience & Risk Mitigation** → Implementing DME-DME backup for GNSS jamming mitigation per GNANP safety guidelines.

NANP Framework & Structure (Appendix C)

- **NANP is structured into six key parts**:
  - **Part 1:** Jordan's Air Navigation System Overview.
  - **Part 2:** ANS Modernization Strategy & Governance.
  - **Part 3:** Alignment with ICAO MID Frameworks (GANP, MID ANP).
  - **Part 4:** ANS Workstreams & Operational Improvements.
  - **Part 5:** Deployment Plans, Roadmaps & ASBU Implementation.
  - **Part 6:** Appendices (Governance, regulatory updates, training needs, performance tracking).

Applying the Performance-Based Approach (PBA) in CNS Decisions

- **CARC followed ICAO's Six-Step PBA to address CNS modernization challenges.**
- **Key infrastructure projects analyzed using PBA:**
  - DME-DME project as a backup navigation solution to mitigate GPS jamming.
  - MLAT system deployment to enhance surveillance in the southern region.
  - VHF modernization project for reliable ATC communication.
  - Microwave & MUX system replacement for improved network resilience.
- **Data-driven analysis ensured optimal, performance-based solutions for CNS issues.**

Overall NANP Achievement: ~65% Completion

Jordan has made significant progress in modernizing its air navigation system but still needs work in several areas.

- **Strengths**: Clear progress in operational improvements, CNS modernization, ICAO alignment, and airspace design.
- **Weaknesses**: Digital transformation, regulatory updates, and AIM transition and ATFM require structured action plans.

Strong Progress Areas (70%+ Completion)

Component	ICAO Requirement	Jordan's Status	Completion (%)
Key Challenges & SWOT Analysis	Identify operational challenges & improvement areas.	Completed - Full SWOT analysis done.	80%
Ongoing & Planned Operational Improvements	Define short, medium, and long-term improvements.	Completed - Projects include ILS, MLAT, DME-DME, DVOR, DVHF and airspace redesign.	85%
ICAO Alignment	Ensure compliance with ICAO GANP & MID frameworks.	Mostly aligned - Minor refinements needed.	80%
Airspace Design & Infrastructure Modernization	Optimized routes, enhanced CNS/ATM.	Ongoing - ILS, MLAT, DME-DME, airspace redesign projects in progress.	75%
PBA Implementation	Apply ICAO's Performance-Based Approach in modernization.	Followed for CNS (DME-DME, MW/MUX projects).	75%

Moderate Progress Areas (50-70% Completion)

Component	ICAO Requirement	Jordan's Status	Completion (%)
Governance & Institutional Setup	Define roles, responsibilities & NANP governance.	Task Force established, initial framework set, but more work needed.	55%
Deployment Plans & Roadmaps	Roadmap for ANS modernization initiatives.	Initial roadmaps exist, but regulatory integration is lacking.	60%
KPIs & Performance Monitoring	Establish Key Performance Areas (KPAs) & Indicators (KPIs).	Some KPIs exist for airspace redesign & CNS, but a full framework is missing.	55%
Regulatory Framework Updates	Ensure legal & technical updates for modernization.	Some updates completed, but further work required.	50%

Weak Progress Areas (Below 50% Completion)

Component	ICAO Requirement	Jordan's Status	Completion (%)
AIM Transition and eAIP	Transition from AIS to AIM per ICAO roadmap.	Workshop conducted (Jan 2025), but no implementation yet.	30%
Stakeholder Engagement & Training	Structured training, workshops, & engagement.	Engagement is ongoing, but no training plan exists.	50%
UAV & AAM Integration	Establish a roadmap for UAV & advanced air mobility.	Under study, but no regulatory action yet.	30%

How Close Are We to ICAO NANP Goals?

Category	Completion Level
Strong Progress Areas	70-85% complete
Moderate Progress Areas	50-70% complete
Weak Progress Areas	Below 50% complete
Overall NANP Completion	~65% achieved

Next Steps & Recommendations

- **JANS has not yet applied AIM**, delaying **eAIP and ATFM implementation** → Set clear milestones for AIM, e-AIP and ATFM implementation
- **Stakeholder engagement is weak and the structured training programs are missing.** → Develop a structured roadmap with defined deadlines.
- **UAV integration is at an early stage, with no legal framework or regulatory guidelines yet.** → Develop an initial regulatory framework for UAV airspace management.
- **Governance is in place**. → it needs improved coordination between CARC, JANS, and military stakeholders.
- **NANP deployment plans exist** → they need better integration into the regulatory framework.
- **KPI tracking is not standardized yet, which limits performance monitoring of NANP implementation** → Expand KPI framework to track NANP implementation performance.