International Civil Aviation Organization

MIDANPIRG Communication, Navigation and Surveillance Sub-Group

Ninth Meeting (CNS SG/9)
(Cairo, Egypt, 19 – 21 March 2019)

Agenda Item 4: CNS Planning and Implementation in the MID Region

STATUS OF CNS IN LIBYA

(Presented by Libya)

SUMMARY

This paper provides an overview of CNS (Communication Navigation and Surveillance) and Air Traffic Management Systems infrastructure in Libya

Action by the meeting is at paragraph 3.

REFERENCES

- ICAO Global Air Navigation Plan
- MSG/6 Report

1. INTRODUCTION

1.1 Considering the anticipated exponential air traffic growth in Africa and Middle East and the imperative requirement to meet such a demand with focus on safety and efficiency, there is a need for a robust strategic ANS Planning & Implementation. The strategic planning should aim at achieving the required level of service & performance on a long term and sustainable basis to fulfill the expectations of all users of airspace in terms of enhanced safety, operational efficiency and environmental protection.

2. DISCUSSION

2.1 The LYCAA has formulated and established the ANS Strategic Planning Task Force in 2018 to prepare a comprehensive national ANS Plan in line with ICAO Global Air Navigation Plan and to achieve its objectives and implementing the ANS improvements.

2.2 The Strategic Plan provides the required direction and guidance to the ANS personnel in Libya to efficiently utilize the existing resources. It aims to exploit the future capabilities and technology required to deliver an ANS system that is responsible to all airspace users and capable of ensuring safe, economic, efficient, environmentally sustainable and globally interoperable service. While this ANS Strategic Plan details our ANS plans until 2030, it is to be reviewed and updated regularly to ensure that it remains relevant to the plan objectives.

2.3 In this working paper a quotation from ANS National Plan is extracted to shed the light on the current status of CNS services, which is at **Appendix A.**

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) review and discuss Libya ANS National plan; and

b) invite ICAO MID to update the eANP VOL III accordingly.

APPENDIX A

STATE OF LIBYA
MINISTRY OF TRANSPORT
CIVIL AVIATION AUTHORITY

Working Paper

Title: CNS current status & development plan

Author: Fadel Ghubbar

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Contents

Section 1 - Introduction

1. Introduction

Considering the anticipated exponential air traffic growth in Africa and Middle East and the imperative requirement to meet such a demand with focus on safety and efficiency, there is a need for a robust strategic ANS Planning & Implementation. The strategic planning should aim at achieving the required level of service & performance on a long term and sustainable basis to fulfill the expectations of all users of airspace in terms of enhanced safety, operational efficiency and environmental protection.

In this context, LYCAA has formulated and established the ANS strategic Planning Task Force in 2018 to prepare a comprehensive national ANS Plan in line with ICAO Global Air Navigation Plan and to achieve its objectives by and implementing the ANS improvements.

This strategic Plan provides the required direction and guidance to the ANS personnel in Libya to efficiently utilize the existing resources. It aims to exploit the future capabilities and technology required to deliver an ANS system that is responsible to all airspace users and capable of ensuring safe, economic, efficient, environmentally sustainable and globally interoperable service. While this ANS Strategic Plan details our ANS plans until 2030, it is to be reviewed and updated regularly to ensure that it remains relevant to the plan objectives.

In this paper a quotation from ANS national plan is extracted to shed the light on the current status of CNS services. LyCAA prime priority is to deliver a national plan on Performance-based Navigation. The introduction of PBN has met a variety of challenges, starting with human capacity deficiency, budgetary issues, etc. ACAC has offered support in regard to personnel training, however, for some bureaucratic complexities the agreement has not been translated into action yet. LyCAA is counting on the support of ICAO expertise to deliver practical solutions, based on the principal of (No country left behind). This paper provides an overview of CNS (Communication Navigation and Surveillance) and Air Traffic Management Systems infrastructure, not forgetting involved people, documentation.

Section 2 – The current status of CNS.

I. Present manpower and qualifications

The current Man power and qualifications situation can be summarized as follows:

- Absence of clear training policy, due to shortage of experts in this field.
- Most CNS staff having language and technical skills issues.
- About 65% of staff is above the age of 50.
- Considering the low wages, LyCAA is not an attractive profession to competent work force.

The following table illustrates all work force, which is listed under CNS database. First part of the table indicates sections of CNS in regard to their qualifications in numbers. Second part shows number of employees in regard to their age (see figure below).

Figure (1)

CNS Man Power	CNS					
	COM		Nav-Aids		SUR	
	Eng.	Tech	Eng.	Tech	Eng.	Tech
Tripoli	67	114	23	11	18	4
Benghazi	26	25	8	NIL	5	8
Sabha	9	12	1	NIL	NIL	NIL
Total	**102**	**151**	**32**	**11**	**23**	**12**
Total Sum	**331**					
Age	**Eng.**	**Tech**	**Eng.**	**Tech**	**Eng.**	**Tech**
22 > 35	17	10	NIL	NIL	6	2
36 > 55	25	31	14	NIL	3	2
56 > 65	60	110	18	11	14	8

APPENDIX A

II. Present equipment and systems

LYCAA has started contracting with leading CNS systems vendors about ten years ago, procurements and deployment of services concentrated on the following:

(a) **C**ommunication.

i. VHF Extended range system. (Fifteen sites)

ii. VCCS. (ACC's & Tower's)

iii. Vsat system. (Seventeen sites)

iv. AMHS/AIM full integrated system.

(b) **N**avigation Aids.

i. ILS-II. (5 Aerodromes)

ii. VOR. (10 Aerodromes)

iii. DME. (10 Aerodromes)

(c) **S**urveillance.

i. Primary radar system (six sites)

ii. Secondary radar system (Mode-s) (six sites)

The above mentioned systems and services needed an efficient, reliable and available infrastructure both on national and international levels, LYCAA has been an old customer of Libyan communication holding company. Unfortunately, LyCAA has not signed a service level agreement with LCHC guaranteeing a good level of service yet, which led to an unstable level of support.

The current communication section situation can be summarized as follows:

- LYCAA has procured a Vsat and AFTN/AMHS-AIM systems, both systems are not yet deployed due to the violent events of 2014 which led to declaring (Force major).
- VHF extended range project was terminated before project kickoff for the same reason mentioned above.
- Very Poor level of Control Tower's equipage such as, (radios, recorders, VCCS and other requirements).
- Absence of control and monitoring unit.
- No AIDC coordination within LYCAA ANS units, and neighboring ANS, s.
- No training plan and program set in accordance to ATSEP requirements, (basic, qualification, and rating).
- Most CNS staff having language and technical skills deficiencies.
- Lack of maintenance workshops, tools and a technical library.
- Lack of safety and quality management systems at present.

A- Communication systems status:

APPENDIX A

I. Tripoli & Benghazi ACCS.

Figure (2)

EQUIPMENT & SYSTEM DESCRIPTION	ACC LOCATION	
	TRIPOLI ACC	BENGAZHI ACC
VCCS	VOICE COMMUNICATION CONTROL SYSTEM VCCS-SDC 2000 -MAIN SYSTEM -WORKING POSITIONS (15)	Voice communication control system SDC 2000 THE MAIN SYSTEM HAS NOT BEEN ACTIVATED SINCE INSALLATION
VHF RADIO	ALHAZMIA TX STATION -120.9MHZ ACC(1) -128.4MHZ ACC(1) -124MHZ APP (1) -121.5MHZ EMERGENCY(1) BEGESHER TX/RX STANTION -120.9MHZ ACC (1) -128.4MHZ ACC (1) -124MHZ APP (1) -121.5MHZ EMERGENCY (1) ACC&APP RX AT EQUIPMENT ROOM (PARKAIR) -120.9MHZ ACC (1) 128.4MHZ ACC (1) -124MHZ APP (1) -121.5MHZ EMERGENCY (1) ACC R&D TX/RX MAIN AND STANDBY 120.9MHZ (2) EMERGENCY JOTRON TX/RX -ACC (1) -APP (1)	ACC R&D TX/RX MAIN AND STANDBY 129.2MHZ (1)MAIN FREQUENCY 126.6MHZ (1) STANDBY FREQUENCY JOTRON STANDBY TX/RX SELECTABLE PARKAIR RX MAIN AND STANDBY -129.2MHZ (2) 126.5MHZ (2) 121.5MHZ (1) -118.8MHZ (2) -125.7MHZ (2) -121.3MHZ (2)
HF RADIO	ACC STATION R&D 1KW TX/RX (1) BENGESHER STATION R&R 1KW TX/RX (1) ICOM TX/RX STANDBY (1)	ACC STATION R&D TX/RX 1 KW MAIN AND STANDBY (2)

<table>
<tr><td>MICRWAVE LINKS (MW)</td><td colspan="2">POST OFFICE BENGFSHER DXR
ELHAZMIA ACC DXR</td><td></td></tr>
<tr><td rowspan="2">EQUIPMENT & SYSTEM DESCRIPTION</td><td colspan="3">ACC LOCATION</td></tr>
<tr><td colspan="2">TRIPOLI ACC</td><td>BENGAZHI ACC</td></tr>
<tr><td>RECORDER SYSTEM</td><td colspan="2">ATIS RECORDER (1+1)</td><td>ATIS RECORDER (1)</td></tr>
<tr><td rowspan="3">NAFI SAT</td><td colspan="2">NAFI SAT SYSTEM USED FOR</td><td rowspan="3"></td></tr>
<tr><td>HOT LINES</td><td>AFTN Links</td></tr>
<tr><td>HECA HOT LINE
HSSS HOT LINE
FTTJ HOT LINE</td><td>Egypt
Sudan
Tchad
Niger</td></tr>
<tr><td>VSAT NEW SYSTEM (SKYWAN)</td><td colspan="2">EQUIPMENTS FOR (17) STATIONS in stored at LyCAA warehouse</td><td></td></tr>
<tr><td>AFTN International Links</td><td colspan="2">Tunis, Rome, Malta</td><td></td></tr>
<tr><td>AFTN</td><td colspan="2">AFTN control & monitor
NOTAM office; ACC; HF</td><td>Briefing office ;Met office; AD supervisor</td></tr>
</table>

APPENDIX A

II. Libyan aerodromes (Towers)

Figure (3)

	Towers																
ITEM DESCRIPTION	BEN	SEB	GHT	GHD	MIS	TUB	LAB	MIT	KUF	JUF	ZWR	SIR	ZIN	BRA	UBR	TAM	TIP
VCCS CONTROL WORKING POSITION	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
VHF/AM CONTROL AND MONITOR	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
TELE SET WITH I/P LINES CONSOL MOUNTED	NO	NO	NO	NO	NO	NO	NO	OK	NO	NO	NO	NO	NO	NO	NO	NO	NO
VHF/AM(TX/RX) WITH ACCESSORIES	I COM TX/RX (M&S)121.3MHZ (1) MAIN FREQ GROUNG MOVEMENT FREQ 1219MHZ ICOM TX/RX STANDBY SELECTABLE	VHF TX/RX TRANSCEIVER 50 WATT	NO	NO	R&D TX/RX (2)123.2MHZ 118.5MHZ	PARKAIR TX/RX (M&S)118.5MHZ (1) ICOM TX/RX SELECTABLE	R&D TX/RX (M&S) (1) MAIN FREQ 118.1MHZ R&D TX/RX (M&S) (1) GROUND MOVEMENT123.9MHZ BECKER TX/RX (M&S) (1)	VHF TX/RX TRANSCEIVER 50 WATs	TX/RX TRANSCEIVER 50 WATT	VHF TX/RX TRANSCEIVER 50 WATT	s	VHF TX/RX TRANSCEIVER 50 WATT	VHF TX/RX TRANSCEIVER 50 WATT	VHF TX/RX TRANSCEIVER 50 WATT	VHF TX/RX TRANSCEIVER 50 WATT	VHF TX/RX TRANSCEIVER 50 WATT	NO

	Towers																
ITEM DESCRIPTION	BEN	SEB	GHT	GHD	MIS	TUB	LAB	MIT	KUF	JUF	ZWR	SIR	ZIN	BRA	UBR	TAM	TIP
HAND HELD VHF/AM 108-138MHZ	NO	NO	NO	NO	NO	NO	NO	ONE UNIT	NO	NO	NO	NO	NO	NO	NO	NO	NO
VHF/AM CAR MOUNTED TRANSCEIVER	NO	NO	NO	ONE UNIT	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
VHF/AM 121.5MHZ EMERGENCY TRANSCEIVER	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
CRASH ALARM SYSTEM	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
VHF DIRECTION FINDER	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
D-ATIS/D-VOLMET SYSTEM	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ROTATING BEACON	NO	OK	NO	OK	NO	NO	NO	OK	NO	NO	NO	NO	NO	NO	NO	NO	NO
LIGHT GUN	NO	NO	NO	OK	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
GPS SYSTEM	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
MASTER CLOCK AND DISPLAY	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
UPS SYSTEM	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
BINOCULARS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
AFTN		SEB AD GATEWAY BRIEFING- TOWER MET - SUOERVISOR	TOWER &BRIEFING	TOWER &BRIEFING	TOWER &BRIEFING	TOWER &BRIEFING	TOWER &BRIEFING	MIT AD GATEWAY TOWER BRIEFING MET AIR DEFENCE Afriqiyah AW	BRIEFING	NO	BRIEFING	OUT OF SERVICE	Tower	NO	NO	NO	TIP AD GATEWAY

B- Navigation Aids current status:

APPENDIX A

Current navigation infrastructure comprising of ILS, VOR, DME and NDB navigation beacons was initially deployed to support conventional navigation along routes aligned between VOR and NDB facilities. As traffic levels increased, new routes were implemented which in many cases necessitated additional navigation facilities to be installed. LYCAA fore sought the importance of safety and efficiency of Libyan air space, hence provision of a reliable and modern navigation aids systems and facilities was a high priority. Taking into account the vast spread area of Libyan FIR, which consists of more than 30 locations with more than 60 navigational aids systems covering both airports and routs. A three-phase project was signed with Canadian vendor (Aeronav), for the provision of more than 14 navigation aids sites. The project kicks off on May 2013, The project was intended to cover all prime Aerodromes equipage requirements (ILS, VOR, DME). Phase two was supposed to kick off beginning of 2015, however due to some issues, it stopped at the financing stage.

Navigation Aids systems current status in Libyan aerodromes / October, 2018:

Figure (4)

Aerodrome	VOR/DME	ILS (LOC-GP)	NDB	LOCATER
Tripoli	N/A	N/A	N/A	A
Benina	N/A	N/A	A	A
Metigha	A	A	N/A	A
Misrata	A	A	N/A	N/A
Sabha	N/A	N/A	N/A	N/A
Labraq	A	A	A	N/A
Kufra	N/A	N/A	N/A	N/A
Ghat	A	N/A	A	N/A
Ghadames	A	N/A	A	N/A
Zwara	N/A	N/A	A	N/A
Hon	N/A	N/A	N/A	N/A
Zintan	A	N/A	N/A	N/A
Tobruk	A	N/A	N/A	N/A
Ubari	N/A	N/A	A	N/A
Tamenhent	N/A	N/A	A	N/A
Sirte	N/A	N/A	N/A	N/A

C. Surveillance current status:

LYCAA fore sought the importance of safety and efficiency of Libyan air space, therefore provision of a reliable and efficient modern surveillance system and facilities was a high priority. Taking into account the vast spread area of Libyan FIR, a six site network of radar stations were precisely located in the following areas (Tripoli, Sirte, Benghazi, Tubrog, Sabha, Tazerpo). LYCAA has contracted with Spanish vendor Indra for the provision of Primary radar and Secondary radar systems. In 2009, Indra started installation process. Due to 2011 conflict a major components of the constellation was damaged, currently engineers from Libyan and Indra side are assessing the damage for possibility of improvising a satisfactory solution.

Surveillance systems status in Libyan FIR / November, 2018:

Figure (6)

Surveillance Description	Location	Technical Status	Remarks
MSSR (Secondary radar	Tripoli ACC	Out of service	Not reliable (maintenance & calibration required)
Co mounted PSR & MSSR	Tripoli Air port	Not Installed	Totally damaged Before installation (2011)
	Sirte Airport	Installed 2009	Mostly destroyed 2015
	Benghazi Airport	Installed 2009	Not in operation Maintenance & calibration needed
	Tubrog Air Defence Camp	Partially installed 2010	Mostly Damaged
	Sabha Airport	partially installed 2010	Mostly Damaged
MSSR (Secondary radar	Tazerpo (town Centre)	partially installed 2010	No information (Unreachable)

III. Documentations Development

1. Establishment and Implementation of Regulation, Manuals and Guidance Materials is of great importance. LyCAA technical directorate has formulated committee assigned by the DGCA to prepare regulation, manuals and guidance material for CNS. The t committee confirmed the readiness of most of the regulation and manuals. Most of the documents were approved by the DGCA by the end of 2018. One more issue is lack of technical library that the staff can refer to when they need any documents. Its ICAO recommendation to all member states to establish a technical library. Libyan CAA will establish a technical library in 2019.
2. Establishment and Implementation of all procedures and Contingencies plans related to the ANS system. The table below indicates all published CNS documents.
3.

Figure (7)

CNS Documents			
	COM	NAV-AIDS	SUR
CNS - CARs	Available	Available	Available
CNS Operation Manual	Available		
Operation Manual	N/A	N/A	N/A
Training Manual	N/A	N/A	N/A
License / Rating	Available	Available	Available

Section – 3 Training plan & program

1. CNS/ATSEP Training Programme.

Human factor is the biggest challenge to CNS directorate, especially for the fact of having over numbered and under trained staff. Rehabilitation of the existing technical staff may require a heavy budget, presently technical and HR directorates are figuring out a plan on how to resolve this issue. Recruitment of new staff to CNS is also a necessity.

This programme was designed in compliance with:

- PANS-TRG, Doc 9868, and
- ICAO Doc 7192 E-2 Training Manual)
- Human Factors Training Manual (Doc 9683)

Technical Department designed the following training programme for its technical staff, and it is set as follows:

- Phase 1. English Language Proficiency.
- Phase 2. Initial Training (Basic & Qualification).
- Phase 3. On-job Training (Practical & theoretical).
- Phase 4. Continuation Training (Refresher& emergency conversion).
- Phase 5. Development Training.

(a) Technical English Language course.

Figure (8)

No	Course Name	Date
1	General English	2019-2021
2	Aviation English	2019-2021
3	English Proficiency (Level 4)	2019-2021

(b) ATSEP Initial Training (Basic & Qualification).

Figure (9)

No	Course Name	Date
1	Basic CNC/ATM Concept	2019-2021
2	Unit specialization training (Qualification)	2019-2021
3	OJT(Qualification)	2019-2021
4	SMS Safety Management System for ATSEP	2019-2021

(c) ATSEP On-job Training (Practical & theoretical).

Figure (10)

No	Course Name	Date
1	Unit specialization training (Qualification)	2019-2021
2	English Refresher Course	2019-2021
3	OJT Instructor	2019-2021
4	ATSEP Examiner	2019-2021

(d) ATSEP Continuation Training (Refresher& emergency conversion).

Figure (11)

No	Course Name	Date
1	PBN Performance Based Navigation	2019-2021
2	GNSS Introduction	2019-2021
3	Human Factors in ATSEP	2019-2021
4	CNS Systems & Facilities Upgrade	2019-2021
5	Assessor	2019-2021

(e) ATSEP Development Training.

Figure (12)

No	Course criteria	Date
1	Developing new competences required for evolution of ATSEP profiles.	2019-2021
2	Human Factors Training	2019-2021

Section – 4 Challenges

I. Staffing and Skill Gap Issues

(a) The Authority has been unable to meet its staffing requirements targets. This was primarily due to the following factors:

(b) need for staff to possess broad aviation industry knowledge in addition to investigative or related skills.

(c) Developing this diverse skill set takes years of experience.

(d) difficult for the Authority to attract sufficient numbers of personnel who possess adequate managerial and technical expertise.

(e) existing aged workforce will require updated training to close the skill gap in the future

II. Connectivity

(a) In order to improve connectivity of government entities by air services, we intend to pursue six strategies:

(b Last mile connectivity – by creating a mechanism to integrate the Libyan ATN in coordination with Libyan telecommunication holding company.

(e) Review the policy framework for national and regional CNS partners

(f) Develop an approach towards the growth of general aviation in the country. A study shall be conducted through experts to develop a vision and roadmap for the growth of general aviation in the country.

(h) Separation of ANSP from Regulatory body.

(i) Meteorology authority operates as a separate entity; leading to several coordination issues.

III. Budgetary Constraints

Libyan civil aviation authority is not an autonomous entity both managerially and financially. Strategic planning and budgeting has to be approved in transportation ministry and presidential congress this can retard and delay vital projects. For this reason, CAA has connected with the presidential congress to set an urgent budgetary plan to fulfil its obligations, indeed a solution plan was delivered comprising of two phases (priority A and B) covering remainder of 2019 and 2020 timeframe.

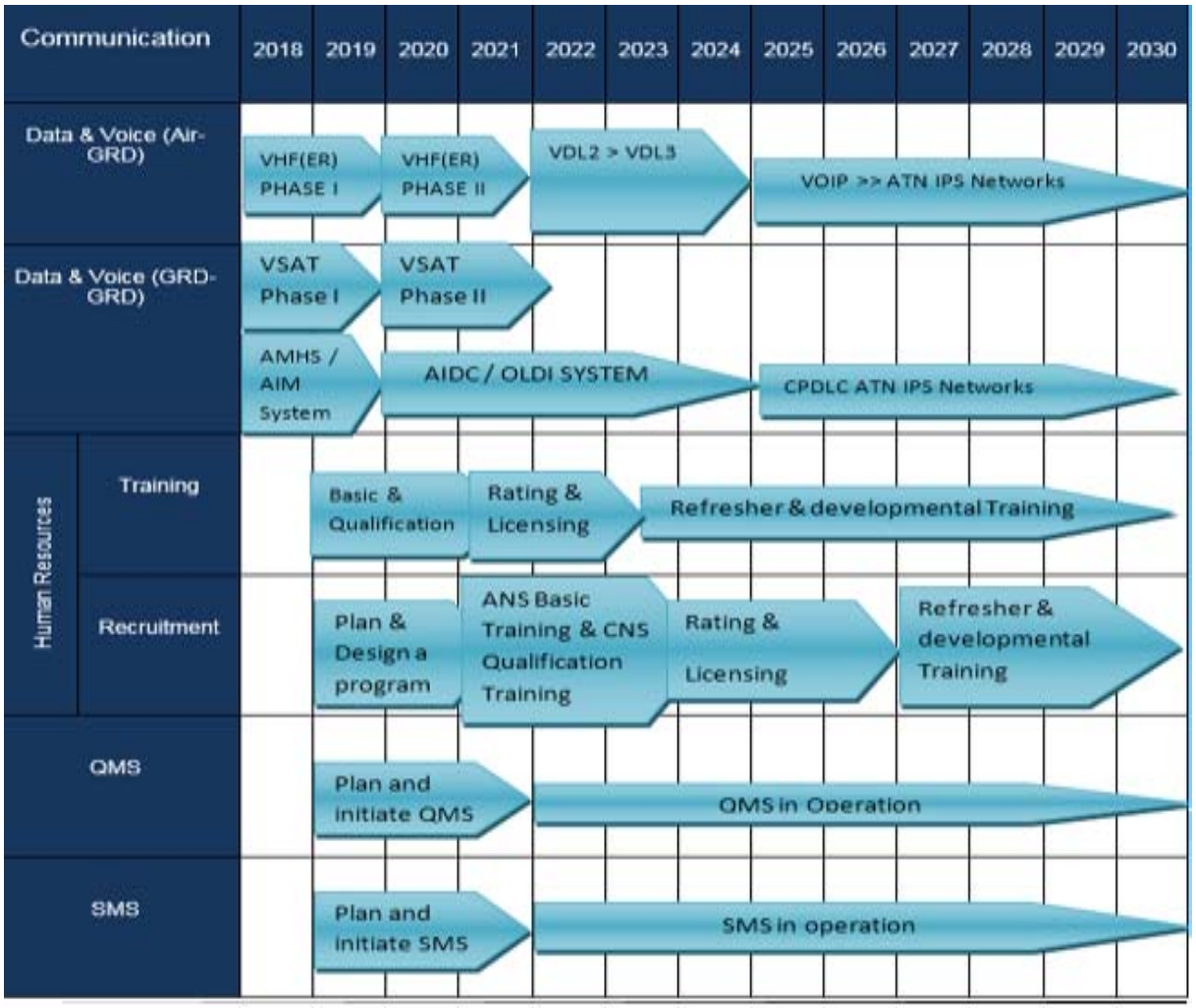
Section 5 - CNS plans and strategies.

(1) Communication development plan:

(a) Efforts will be directed towards the implementation of an extended VHF network that will be borne by LyCAA owned Vsat network, which will be commissioned by end of 2019.

(b) ATS message handling system (AMHS) as well as AIS / AIM transition applications were supposed to be operational in 2014, unfortunately due to some technicalities the project was suspended, assigned project committee indicate resumption will be in 2019.

Figure (13)



(2) Navigation Aids Development Plan:

(a) Conventional navigation aids plan

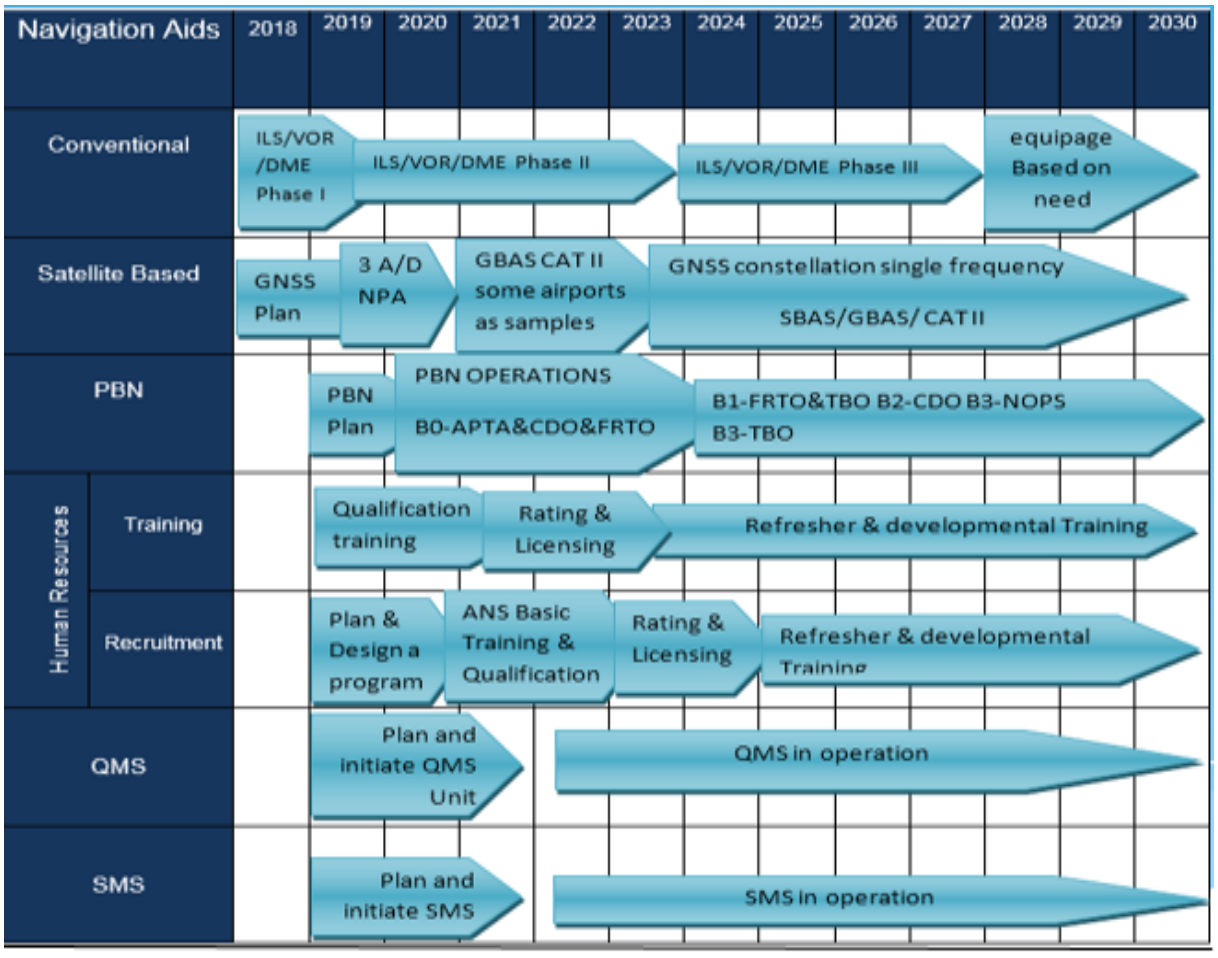
i. Preform flight inspection on all navigation aids stations.

ii. Proceeding with project phase two.

(b) Satellite based navigation aids

As we all know Satellite based navigation aids is a new technology, that needs to be understood both technically and operationally. Global navigation satellite system (GNSS) is one application of such technology. All the information we have in this regard is that, LYCAA has formed a committee to follow up on the subject. Efforts are being done to formulate a national plan to utilizing this technology as best as we could.

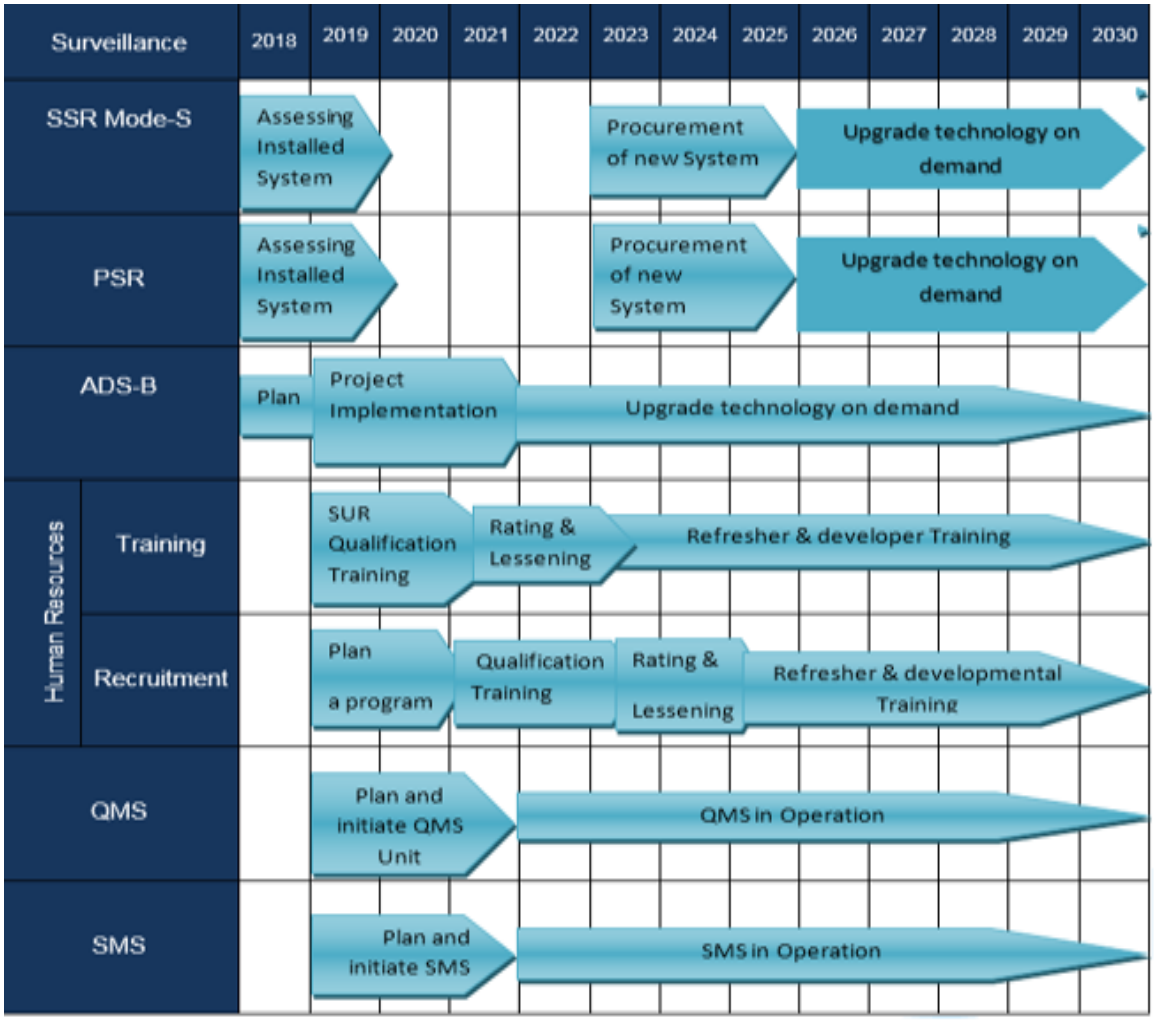
Figure (14)



(3) Surveillance development plan:

Reports of radar systems situation assessment, done by combined Libyan and Indra engineer's, will clarify to CAA decision makers how to proceed with the project. In parallel LyCAA has decided on procuring an ADS-B system (15 sites) integrated with Vsat project. Presently ADS-B project is at tendering stage.

Figure (15)



Appendixes

Appendix- (A) - SWOT Analysis

Figure (16)

Strengths	Weaknesses
➢ LyCAA DG has launched a legislative documentations and manuals to facilitate ANS operations. ➢ LyCAA DG has launched a development plan task force (DPTF) to produce an ANS road map. ➢ Most senior engineers and ATCO, s has acquired English language skills during studying abroad. ➢ Libyan telecommunication holding company possesses new technologies that would facilitate interconnectivity. LYCAA on national international levels.	➢ Some new regulatory activities and capabilities still need time to become fully effective ➢ LYCAA Organizational structure (both regulatory and operational), require constant ➢ Review to ensure they meet future industry growth. ➢ Shortage of ANS specialized teams such as (SG, WG, etc.) both on national and international levels. ➢ Data base availability and credibility.
Opportunities	**Threats**
➢ Stakeholders are supportive of the Overall Transformation Program. ➢ Deficiency in on ground transportation (due to security), will encourage air transport for public and commercial sectors. ➢ Utilizing and Investing in ENAV road map.	➢ Libya CAA is subjected to audits from international authorities, adverse reports can affect the Libyan aviation system and its development Plans. ➢ Uncompetitive wages, in some areas, decrease availability of highly qualified employees to the LyCAA

Appendix- (B) - Libya ASBU block 0 Modules Prioritization

This report covers twelve (out of eighteen) ASBU Block 0 Modules that have been determined by LYCAA development plan task force as priority 1 & 2 for the state of Libya.

Figure (17)

STRATEGIC OPERATIONAL IMPROVEMENT NATIONAL PERFORMANCE OBJECTIVE State of Libya								
Performance Benefits								
Safety	safety level Improved							
Environment	Reduced emissions through shorter flights and use of optimum routes/trajectories							
capacity	Reduce workload for pilots and Air Traffic controller							
Cost effectiveness	1. Fuel cost reduction through availability of more optimized routes/trajectories; and 2. Ability of aircraft to conduct flight more closely to preferred trajectories							
Module Code	**Module Title**			**Priority**	**Start Date**	**Monitoring**		**Remarks**
						Main	**Supporting**	
Performance Improvement Areas (PIA) 1: Airport Operations								
B0-APTA Optimization of Approach Procedures including vertical guidance		Cap	Imp	1	2019	CNS,ATM TF	PBN TF	
	PBN Plan	No	No					
	LNAV	No	No					
	LNAV/NAV	No	No					
Performance Improvement Areas (PIA) 2 Globally Interoperable Systems and Data Through Globally Interoperable System Wide Information Management								
B0-FICE Increased Interoperability Efficiency and Capacity through Ground-Ground Integration		Cap	Imp	1	2019	CNS TF	ATM TF	
	AMHS	Yes	No	2019				
	AIDC & OLDI	Yes	No	2021				
B0-DATM Service Improvement through Digital		Cap	Imp	1	2019	ATM TF		
	AIM Plans	Yes	No					
	AIXM	Yes	No					
	eAIP	Yes	No					
	QMS	No	No					

Aeronautical Information Management	WGS-84 V	Yes	No					
	WGS-84 H	Yes	No					
	eTOD area 1T	Yes	No					
	eTOD area 10	Yes	No					
	eTOD area 4T	No	No					
	eTOD area 4O	No	No					
B0-OMET		Cap	Imp	1	2020			
	SADIS 2G/FTP	No	No					
	QMS	No	No					
	IMWWX	No	No					
B0-FRTO		Cap	Imp	1				
	FUA	No	No					
	Flexible Routing	No	No					
B0-NOPS		Cap	Imp	1				
		No	No					
B0-ACAS		Cap	Imp	1				
		No	No					
B0-CDO	PBN STARS	Cap	Imp	1				
	CDO	No	No					
B0-CCO	PBN SIDS	Cap	Imp	1				
	CCO	No	No					

-END-