

International Civil Aviation Organization



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**Twenty Seventh Meeting of the Communications/
Navigation and Surveillance Sub-group (CNS SG/27)
of APANPIRG**

Bangkok, Thailand, 28 August - 1 September 2023

Agenda Item 11: Capacity Building, including Human Factors and Air Traffic Safety Electronics Personnel (ATSEPs) related training

**IMPLEMENTATION SUPPORT PROJECT IN LAO PEOPLE'S DEMOCRATIC REPUBLIC
(LAO PDR) ATM INFRASTRUCTURE OPERATIONS CAPABILITY BUILDING**

(Presented by Secretariat)

SUMMARY

This paper presents the outcomes of the Implementation Support Project in Lao People's Democratic Republic (Lao PDR) - ATM Infrastructure Operations Capability Building for meeting information.

1. INTRODUCTION

1.1 The service of Key Industrial Partner (KIP) with Thales in Lao PDR was terminated in February 2022, which would severely impact the maintenance level of CNS systems and the safety operations of ATM in Lao PDR, the Lao Air Navigation Services wished to seek a competitive solution of spare parts support and training to build the internal stronghold of Lao ANS technicians.

1.2 ICAO APAC Office was advised on the challenging situation faced by Lao Air Navigation Services (LANS) in early February 2022. The project concept was proposed in May 2022 to address the sustainable operation of the CNS/ATM infrastructure in Lao PDR, through collaboration with capable neighboring ANSP in terms of spare parts sharing and personnel training, as part of ATM capability building.

1.3 Noting that CAAC ATMB is the biggest ANSP in Asia, equipped with diversified and advanced ATM infrastructure, owns intensive and extensive experience in operating THALES and SCHMID equipment and systems which are widely used in Lao PDR, who is willing to provide support, the discussion and coordination were initiated between the Department of Civil Aviation Lao (DCAL) together with LANS, Civil Aviation Administration of China (CAAC) together with Air Traffic Management Bureau of the Civil Aviation Administration of China (CAAC ATMB).

1.4 This paper summarized the work accomplished by Implementation Support Project in Lao People's Democratic Republic (Lao PDR) - ATM Infrastructure Operations Capability Building from October 2022 to May 2023.

2. DISCUSSION

2.1. Based on the request from Lao Air Navigation Services (LANS) to ICAO APAC Office

for support and the discussion between ICAO APAC Office, LANS and ATMB, the project is meant to achieve the following objectives:

- 1) Improved maintenance capability of LANS;
- 2) Produce an evaluation report to identify the current gap and proposals for future actions;
- 3) Improved engagement of ICAO RO and LANS in CNS/ATM infrastructure area; and
- 4) Improved engagement of ICAO RO and China ATMB in supporting regional initiatives in terms of expertise and other resources.

2.2. After approval of the funding from ICAO ANB as a SIP on 7 October 2022, ICAO APAC Regional Office sent State Letters to Lao PDR and China to initiate the discussion for the onsite activities and invite them to nominate focal points for further preparation works.

Roles and Responsibilities

2.3. The RO CNS from APAC Office acted as the Technical Project Lead and project manager during the process. TCB provided Project Management and Administrative Support, and ANB provided Project Coordination Support. The internal coordination was carried out among ICAO RO, TCB, and ANB through email in a timely manner.

2.4. The focal point nominated by CAAC, oversaw the assistance provided by ATMB to LANS, coordinated internal processes, and incorporated and submitted the technical evaluation report, while the focal points nominated by DCAL shared the wish lists and specific needs from LANS, and provided the necessary support for subject matter expert (SME) onsite activities.

2.5. The four (4) experienced SMEs from CAAC ATMB were selected to conduct onsite support to LANS, provide feedback accurately to second level support team, propose action plans to overcome identified challenges in LANS, and compile the technical evaluation report. The second level support team coordinated the work of the ATMB experts, provided remote second level support to onsite activities of SMEs, and prepared questionnaires, training handouts, checklists, and final report.

Duration and Timelines

2.6. The actual project was executed for 8 months from October 2022 to May 2023, along with thirteen (13) online coordination meetings held on a weekly basis to better understand Lao PDR's requirements, develop effective work plans, and effectively manage the whole process of the project.

2.7. Onsite support activities were provided through two packages from 14 December 2022 to 5 January 2023 for THALES Radar/ADS-B and SCHMID VCCS ICS200/60, and from 6 February 2023 to 1 March 2023 for THALES Automation (TOPSKY) and AIS/AMHS/Network Switch, together with Kick off meeting from 12 to 13 December 2022 and Wrap-up meeting on 2 March 2023. The overall workplan of the onsite support activities is provided in the table below:

Table 1 - Overall Workplan of the Project

ID	Task	Executed		Location
		Date	Days	
WP-01	Kickoff meeting attended by			
	<ul style="list-style-type: none"> • DCAL&LANS technicians • ICAO <ul style="list-style-type: none"> ➢ One (1) Regional Officer CNS • ATMB <ul style="list-style-type: none"> ➢ One (1) coordinator ➢ Two (2) SMEs 	2022.12.12 – 2022.12.13	2	Vientiane, Lao PDR

WP-02 & WP-04	Onsite support – Package I 1) Onsite expert support to THALES Radar/ADS-B ground station - One (1) expert Theoretical and hands-on training on four sites: ➤ Vientiane: 13 technicians ➤ Savannakhet: 13 technicians ➤ Xiengkhouang: 17 technicians ➤ Paksong “Champasack”: 15 technicians 2) Onsite expert support to Communications for SCHMID VCCS ICS200/60 - One (1) expert ➤ Vientiane: 9 technicians *Before the beginning of the Package I support, 2 SMEs attended the 2-day kick off meeting	2022.12.14 – 2023.01.05	23	Vientiane, Savannakhet, Xiengkhouang, and Paksong “Champasack”
WP-03	Onsite support – Package II 1) Onsite expert support to THALES Automation (TOPSKY) - One (1) expert ➤ Vientiane: 11 technicians 2) Onsite expert support to AIS/AMHS/Network Switch - One (1) expert ➤ Vientiane: 13 technicians *After completion of the Package II support, 2 SMEs attended the 1-day wrap-up meeting	2023.02.06 – 2023.03.01	24	Vientiane, Lao PDR
WP-05	Wrap-up/closing meeting attended by • DCAL&LANS technicians; • ICAO ➤ One (1) Regional Officer CNS • ATMB ➤ One (1) coordinator ➤ Two (2) SMEs	2023.03.02	1	Vientiane, Lao PDR

Deliverables

2.8. The project focused on two main components: onsite support and technical evaluation.

Onsite support by 4 SMEs

2.9. For the onsite support, the project onsite support covered 11 CNS systems on 7 sites and 55 technicians of LANS under 4 subjects, including Radar and ADS-B, VCCS, AIS/AMHS/Network switch, and ATMAS, and helped to set up VCCS and ATM automation simulation platforms and optimize parameter settings for various systems. The main deliverables have been summarized in the table as below:

Table 4 - Summary of Onsite Support Deliverables

Deliverables	Subjects				Total
	Radar / ADS-B	VCCS	AIS / AMHS / Network Switch	ATMAS	
<i>Day</i>	16	16	17	17	66
<i>Class Hour</i>	104	96	108	108	416
<i>Attendance</i>	194	131	213	170	708
<i>Handouts</i>	5	18	28	19	70
<i>Site</i>	4	1	1	1	7
<i>Equipment</i>	8	1	1	1	11

<i>Daily & Weekly Report</i>	20	20	20	20	80
<i>Examination</i>	2	5	5	3	15
<i>Simulation Platform</i>	0	1	0	1	2
<i>Standard Operating Procedure (SOP)</i>	18	15	10	10	53
<i>Recorded Demonstration Video</i>	0	4	0	0	4

Technical evaluation

2.10. According to the responses from the questionnaires and onsite inspections from the support activities, a *technical evaluation report* was produced, which summarized the project background and work plans, provided a more comprehensive and systematic analysis of CNS implementation in LANS from technical performance, maintenance level and impact on the ATC operation perspective, and proposed recommendations for future decisions making regarding technical, investment, human resource, and management policy.

Recommendations

2.11. Through systematic analysis and in-depth discussions between ATMB, LANS, and ICAO, total 31 recommendations were given to improve the ATM Infrastructure Operations Capability in Lao PDR, which were adopted by the last coordination meeting held on 13 April 2023, including 6 for management, 1 for human resources, 1 for environmental control, and 23 for equipment operation.

Summary

2.12. ICAO bridged the needs and the resources between Lao and China, but there are no ICAO requirements directly applied for the onsite activities, it is based on mutual agreement between LANS and ATMB. The final performance is to be defined/customized by joint effort of LANS and ATMB, in particular, by the commitment of management and the professionalism of SMEs.

2.13. The ICAO Asia/Pacific Regional Office extends sincere thanks to CAAC ATMB for their strong support, high commitment, and great efforts, and DCAL and LANS for their trust and close cooperation, which contributed significantly to the success of the project.

2.14. Through the joint efforts over the past eight months, LANS technicians were deeply impressed by the SMEs for their excellent technical skills, have progressed very quickly, became more confident to touch the systems, and are capable to perform troubleshooting. The project not only improved the capability of Lao ANSP in maintaining the CNS/ATM infrastructure, but also enhanced CAAC ATMB capability in providing support to APAC Member States in the CNS/ATM infrastructure implementation and operation. The engagement between ICAO RO and LANS in CNS/ATM infrastructure area, and ICAO RO with China ATMB in supporting regional initiatives in terms of expertise and other resource have also been strengthened.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) encourage future joint effort in different ways to enhance the CNS/ATM infrastructure operations capability building in the region; and

- c) discuss any relevant matter as appropriate.
