

**58th CONFERENCE OF
DIRECTORS GENERAL OF CIVIL AVIATION
ASIA AND PACIFIC REGIONS**

*Dhaka, Bangladesh
15 to 19 October 2023*

AGENDA ITEM 3: AVIATION SAFETY

MONITORING AND OVERSIGHT TOOLS

(Presented by Bangladesh & Secretariat)

SUMMARY

This Paper presents an update on the Monitoring Tools for tracking of SEI and NASP Implementation in line with the GASP and AP-RASP. And States/Administration's may have a look on the Oversight Tools developed by Bangladesh with the guidance of APAC RO. Such automated tools shall add to the capacity building effort of the APAC Region in terms of Monitoring and Oversight capability of aviation safety and security.

Action by the Conference is at Paragraph 3.

MONITORING AND OVERSIGHT TOOLS

1. INTRODUCTION

1.1 The Monitoring Tools was initiated in 2014 with the support of Bangladesh and launched in 2016. The tool was further updated 2022 after the APRAST and RASG-APAC Decisions for tracking of SEI and NASP Implementation in line with the GASP and AP-RASP. The Tools was made LIVE in 2023 with all updates.

1.2 While developing the Monitoring Tools, side by side, Bangladesh took initiative coordinating the APAC Regional office on the Safety Oversight Tools for State’s CAA/NAA which basically focuses on the ICAO eight Critical Elements (CE-2 to CE-8) and Critical Areas addressing the USOAP CMA Protocol Question outcome and many other features to run the CAA Oversight System through an integrated software tools.

2. DISCUSSION

2.1 Monitoring Tools software initially was developed by Bangladesh to monitor the implementation progress of the SEIs for all APAC States/Administrations through the APRAST Conclusion 5/7, RASG-APAC 4/23 and APRAST Decision 6/3. The application was hosted LIVE in ICAO-APAC Website till 2019. Later, it was decided through the Decision RASG/APAC 9/6, 10/8 and Task-4 of Yearly Work programme 2020-21 to upgrade and enhance the scope of the Monitoring Tools tracking to include the NASP development and implementation in line with AP-RASP and GASP through a mapping mechanism. Bangladesh further volunteered and completed the job by end 2021. The Monitoring Tools can be accessed through an independent link (<https://monitoring-tools.org/monitoring-tool/>) and passwords administered by the State/Administration Focal Points.

2.2 Bangladesh in coordination with ICAO APAC RO has further developed a Safety and Security Oversight Tools which is universal in nature to be used for many different modules. It addresses all eight ICAO Critical Elements including features to face an ICAO and FAA Audit. Details of the Modules are in **Attachment-1** to this WP and will be shown a LIVE Demo.

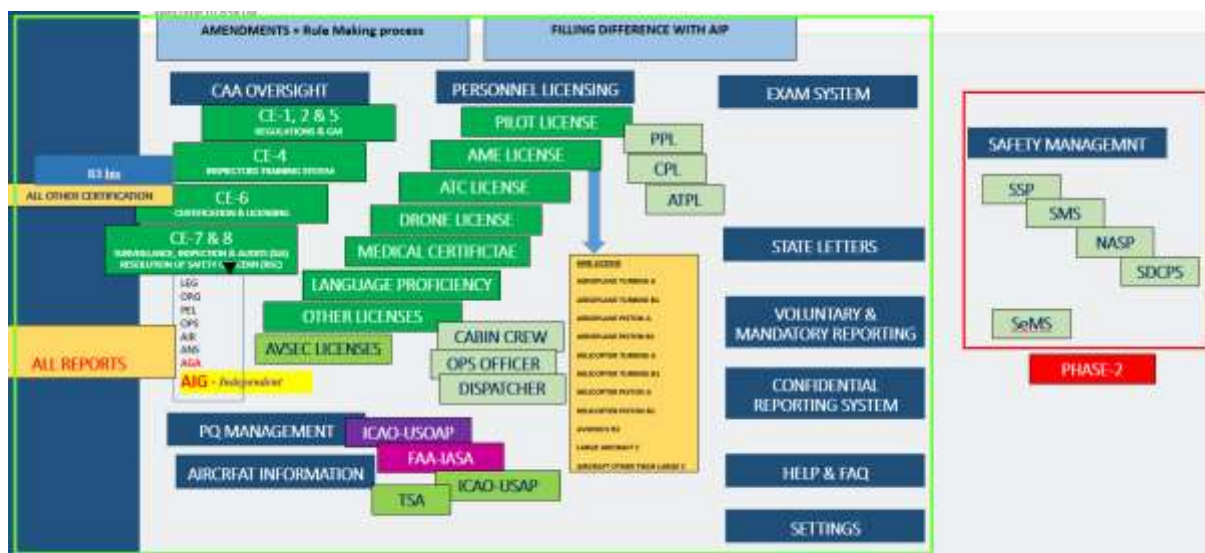


Figure 1: Overview of the Modules of the Oversight Tools

3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to:

- a) Encourage States/Administrations if they require assistance to develop and/or, acquire Safety/Security Oversight Tools with the modules as highlighted in Attachment-1; and
- b) Continue to support RASG-APAC and APRAST activities for CE-1 to CE-8 implementation.

— END —

ATTACHMENT-1

CIVIL AVIATION SAFETY & SECURITY OVERSIGHT SOFTWARE

Civil Aviation Authorities are entrusted to carry out and administer their daily Oversight and Monitoring Functions to meet the ICAO and FAA compliance for Safety Standards. CAAs are in need for an Automated Software capable to comply with the details requirements of ICAO Eight Critical Elements (CE) and Eight Critical Areas (CA) pledged to augment the Effective Implementation (EI) of the State. The Software Modules are easy to use tools for all inspectors of CAA performing their daily oversight tasks and linking the evidences across the system to address effective implementation for ICAO Audits (USOAP CMA and ICVM) and US FAA Audit (IASA) and satisfy the corresponding Audit Protocol Questions (PQ). The Software is uniquely capable to support all kind of Civil Aviation Certification, Licensing, Computer Based Tests/Exams (CBT), Flight Safety Inspectors Training System (ITS), all types of Surveillance-Inspections-Audits (SIA), Findings and Corrective Action Plan by the Industry, Closure of all Findings including Legal Actions, Resolution of Safety Concerns, ICAO USOAP CMA PQ Management, All Aircraft Information details under the State CAA, ICAO Compliance Check List with Electronic Filing of Difference (CC/EFOD) process, Administering the State Letters and ICAO Amendments, Documentation and Record Keeping with Alerts System in the relevant Modules.

The five phases of Certification is an important module where Certificates like; Air Operators Certificate (AOC), Aircraft Maintenance Organization (AMO), Approved Training Organization (ATO), Aerodrome Certification etc needs to be automated to implement the ICAO SAPRPs and administer the CAA Regulations effectively.

The software is customizable for the Security Oversight System including the ICAO USAP Audit Protocols and CE-1 to CE-8 Management under Aviation Security (AVSEC).

The Software is capable to carry out the Accident investigation under AIG from Occurrence to Notification to Safety Recommendations too.

Many CAAs currently do the similar tasks manually in isolation which consumes huge man-hour and complex outcome. The Software aimed to mitigate the current challenges augment efficiency of CAAs in manifold. The broad module outlines are given below, where a LIVE Demonstration System in details shall clarify the features much better.

You may contact for further details to ahossaincaab@gmail.com in CAA Bangladesh.

ENTITY: E LIBRARY - ICAO CRITICAL ELEMENT 1, 2 & 5 (CE-1, 2 & 5)

MODULE: E LIBRARY DASHBOARD

- Uploading provisions of all kind of Documents by Area, Title, Document Type, Author, Subject, Series, Volume, Edition, Part, Amendments, ISBN, URL etc.
- Indicate Document Status
- Insert Electronic Check Lists
- Create Common Google Documents and Google Sheet for Common Rule Making Platform

MODULE: ONE-STOP DOCUMENT REPOSITORY & AMENDMENTS

- Create the Amendment Documents applicable for all concerned to input in online page with download options
- Share and View Document with Secured means and Permission

- Alert on the Expired Documents

MODULE: MY PAGE

- Create 'My Page' to share any documents for the system users
- Sale online any document

ENTITY: INSPECTORS TRAINING SYSTEM (ITS) - ICAO CRITICAL ELEMENT 4

MODULE: EMPLOYEE MANAGEMENT

- Provisions of adding 'Personal Details' of all CAA Technical and General Staff.
- Provisions of adding Academic Qualifications (Professional Degree/Thesis/Language Skill, Publications, etc), Training/Workshops attended, Employment History of each CAA Technical Staff.
- Provisions of adding; Inspectors Job Description, Roles/Functions/Responsibility of all technical staff

MODULE: INPECTORS TRAINING SYSTEM (ITS)

- Provisions of adding; Technical Staff Job Title, Specialty by Area and Sub Area.

MODULE: COMPETENCY CRITERIA AND ASSESSMENT

- Provisions to Add Technical Staff's Competency Criteria
- Provisions to Add Technical Staff's Assessment Criteria

MODULE: ITS COURSES & OJT DETAILS

- Provisions to Add all types of ITS Courses (Initial/Core Course, Recurrent, Specialization) and their required On the Job Training (OJT) contents assigned to corresponding technical staff.
- Provisions to track the course updates, expiry status and alert

MODULE: DEVELOPING TRAINING PROGRAM AND TRAINING PLAN FOR TECHNICAL STAFF

- Provisions to develop a long term 'Training Program' covering the salient features of the training courses.
- Provisions to develop a specific time bound 'Training Plan' under a related 'Training Program' for implementation and track the progress.

MODULE: MY PAGE

- Create 'My Page' to view all the Trainings Needs and Implementation of the Training for an individual technical staff.
- Create 'My Page' to receive all information, updates and notifications as required by CAA.

ENTITY: CERTIFICATION - ICAO CRITICAL ELEMENT 6

MODULE: REGISTRATION OF ORGANIZATION SEEKING CERTIFICATES

- Online Application
- Approval Process
- Payment Request and Transaction History

MODULE: CERTIFICATION SETTINGS

- Create and Manage Certification Modules for AMO, CAMO, ATO, OPSPECS, Ground Handling, AOC Renewals and Recertification process.
- Create and Manage Certification Modules for Aerodrome Certification
- Create and Manage Approvals and Certification Modules for OSPL, GSA Permits etc.
- Create and Manage Phases (Minimum 5 Phases of Organizational approval)
- Create and Manage Forms (Create all kind of Forms in flexible format)
- Create and Manage Schedule of Events/SOE (Customized format for the SOE set up)

MODULE: COMMON SETTINGS

- Create and Manage Category of Organizations (Flexible Format/As required)
- Create and Manage all Fees and Service Charges (Top up, Wallet, Cash, Mobile Banking and Card Payments)
- Create and Manage Bank Accounts for each Organization

MODULE: BUILD CERTIFICATE FRAMEWORK

- Build Certificate Frameworks (Flexible Format/As required)
- Create E Forms (Flexible Format/As required)
- Create and Manage Approval Status

MODULE: BUILD CERTIFICATE DETAILS

- Create Certification Phases (Example: Five Phases of AOC approval) with flexible 'edit' option.
- Create and Manage all E Forms under the same Certificate with flexible 'edit' option.
- Import and copy E Forms between the modules of the same certificate with flexible 'edit' option.
- Create and manage SOE under each Phase and Module with Event Details, Evidence Upload Options and Event Link Creation Options.
- The 'Link' must work across the modules of the software to directly reach to display the evidences.
- Create Tag option as required under each event.
- Follow up option for each event by email and sms.
- CAA Project Manager's Page to create the SOE with specific timeline for each phases to be completed.
- Create Schedule in the Calendar under each Phase.
- Auto calculations of Overall Task Completion by SOE.
- Filters to display in 'My Page' or, Control Panels including 'Lock' and 'Unlock' Option to edit/fill the Forms online.
- Flexible 'Event Settings' Option.

MODULE: APPROVAL PROCESS

- Create minimum five layers of Approval Process and build an Approval User Management with User Name, Designation, Signature, Approval Level, Status, System Message, Approval Date/Time. And Approval Message etc.
- Create unique 'Certificate Code' and 'QR Code' for Approval.

MODULE: PRINT CERTIFICATES

- Create Print Template for each Certificate and create the unique 'Print Code' against each 'Certificate Code' to make the printed certificates accountable.

MODULE: MY PAGE

- Create 'My Page' to apply online for all types of certificates on their;
 1. Issuance
 2. Renewal
 3. Variation
- Create 'My Page' to receive all information, updates and notifications as required by CAA.
- Create Advance Notification and Alert System to follow up with the CAA Actions and Reply.
- My Page must consists of minimum three sub menus as listed and shown below.
 1. My Dashboard
 2. My Account
 3. My Certificates
- Create Payment Gateway for all kind of Payment through Card/Top Up/Cash Voucher/Mobile Banking.

ENTITY: E LICENSING - ICAO CRITICAL ELEMENT 6

MODULE: REGISTRATION OF INDIVIDUALS SEEKING PERSONNEL LICENSING (PEL)

- Online Application
- Approval Process
- Payment Request and Transaction History

MODULE: PEL SETTINGS

- Create and Manage Licensing Modules for all Pilots, Maintenance Engineers, Drone Pilots, Balloons etc.
- Create and Manage Phases (Minimum 5 Phases of Licenses and Authorization approval)
- Create and Manage Forms (Create all kind of Forms in flexible format)
- Create and Manage PEL Events for Approval (Customized format for the Event set up)

MODULE: COMMON SETTINGS

- Create and Manage Category of Licenses
- Create and Manage all Fees and Service Charges basing on the Category (Top up, Wallet, Cash, Mobile Banking and Card Payments)
- Create and Manage Bank Accounts for each Organization

MODULE: BUILD LICENSING FRAMEWORK

- Build PEL Frameworks
- Create E Forms
- Create and Manage Approval Status

MODULE: BUILD PEL DETAILS

- Create PEL Phases (Example: Pre-Application to Approval as required) with flexible 'edit' option.
- Create and Manage all E Forms under the same PEL with flexible 'edit' option.
- Import and copy E Forms between the modules of the same PEL applicant with flexible 'edit' option.
- Create and manage Events under each Phase and Module with Event Details, Evidence, Upload Options and Event Link Creation Options.
- The 'Link' must work across the modules of the software to directly reach to display the evidences.
- Create Tag option as required under each event.
- Follow up option for each event by email and sms.
- CAA PEL Officer's Page to create the Sequence of Events (SOE) with specific timeline for each Action/Phases to be completed.
- Create Schedule in the Calendar under each Action/Phase.
- Auto calculations of Overall Task Completion by SOE.
- Filters to display in 'My Page' or, Control Panels including 'Lock' and 'Unlock' Option to edit/fill the Forms online.
- Flexible 'Event Settings' Option.

MODULE: APPROVAL PROCESS

- Create minimum five layers of Approval Process and build an Approval User Management with User Name, Designation, Signature, Approval Level, Status, System Message, Approval Date/Time with remarks on the Approval etc.
- Create unique 'PEL Code' and 'QR Code' for Approval.

MODULE: PRINT CERTIFICATES

- Create Print Template for each License and create the unique 'Print Code' against each 'PEL Code' to make the printed Licenses accountable.

MODULE: MY PAGE

- Create 'My Page' to apply online for all types of Licenses on their;
 - 4. Issuance
 - 5. Renewal
 - 6. Variation
- Create 'My Page' to receive all information, updates and notifications as required by CAA.
- Create Advance Notification and Alert System to follow up with the CAA Actions and Reply.
- My Page must consists of minimum three sub menus as listed and shown below.
 - 4. My Dashboard
 - 5. My Account
 - 6. My Certificates/Licenses
 - 7. My Exams

- Create Payment Gateway for all kind of Payment through Card/Top Up/Cash Voucher/Mobile Banking.

**ENTITY: SURVEILLANCE, INSPECTION, AUDIT (SIA) &
RESOLUTION OF SAFETY AND SECURITY CONCERN (RSC) - ICAO CRITICAL
ELEMENT 7 & 8**

MODULE: SIA & RSC

- Provisions to add SIA Area, Critical Elements, Inspection Type, Inspection Purpose
- Develop SIA Programme
- Display all SIA status in a Notice Board

MODULE: CREATE SIA PROGRAMME

- Add SIA Programme with unique SIA tracking number, Organization Name, Date and Time of SIA, related previous SIA reference, location etc.
- Provisions to Add Checklist in the SIA
- Add Team Composition with Notifications of SIA Status

MODULE: FINDINGS & CORRECTIVE ACTIONS

- Provisions to Add Findings and Corrective Action Plan (CAP) with tracking system of SIA
- Provisions to Add Safety and Security Concern with tracking system of SIA

MODULE: ENFORCEMENT

- Provisions to Add Enforcement Action from Findings of SIA
- Provisions to Add Safety and Security Concern with tracking system of SIA

MODULE: APPROVAL PROCESS

- Create and Manage Approval Status

MODULE: RESOLUTION OF SAFETY ISSUES (CE-8)

- Exercise the SMS practice for each findings and closure of Safety Concerns with special priority.
- Closure of findings through the Corrective Action Plan (CAP) inserted by the industry by the designated user.

ENTITY: EXAM (ALL)

MODULE: EXAM

- Provisions of building different types of Exams introducing a Dashboard;
- Examinee Registration Request;
- Exam Application Request;
- ATO Registration Request
- Insertion of Question Bank;
- Disputed Questions;
- Insufficient Questions;
- Review of Exam Answers

- Exam Calendar and upcoming schedule
- Exam Archives
- Change ATO application approval

MODULE: EXAM SETTINGS

- Provisions of building questions by Subject, Chapter, Number of Questions;
- Edit permission set up for Question Bank;
- Isolate Faulty question
- Automated configuration of question as per the rules set;

ENTITY: AIRCRAFT DETAILS (ALL)

MODULE: AIRCRAFT DETAILS

- Provisions to add Aircraft primary Information;
- Provisions to add Aircraft Type Certification details;
- Provisions to add Aircraft Supplemental Type Certification details;
- Provisions to add Aircraft Exemption details;
- Provisions to add Aircraft Registration details;
- Provisions to add Aircraft Airworthiness Certificate Information;
- Provisions to add CAA Approval Details;
- Provisions to add Aircraft Owners, Lessee, Insurers detailed information;
- Provisions to add Aircraft Equipment Review information;
- Integrate Aircraft information across the module as applicable;

ENTITY: COMPLIANCE & FILLING OF DIFFERENCES (ICAO SARPS)

MODULE: COMPLIANCE CHECK LIST AND FILLING OF DIFFERENCES

- Provisions to add corresponding Standards in relation the Specific Annex, Volume/Part, Chapter/Appendix;
- Integrate the ICAO SARPs Amendment affecting any of the Standards;
- Provisions of filing the details of differences, progress of completion, Adopted/Effective/Applicable Dates;

ENTITY: STATE LETTERS & SARPS AMENDMENTS

MODULE: STATE LETTER & ICAO SARPS AMENDMENTS

- Provisions to add Multi Type State Letters, Record keeping for Reference, Subject, Publication Date, Reply Due Date and Action details;
- Provision to add the Amendments integrated with the State Letter Module;
- Create a 'Plan Manager' and 'Reply to ICAO' provision for related State Letters.

ENTITY: PROTOCOL QUESTIONS (USOAP CMA, USAP, FAA IASA, SSPIA)

MODULE: MANAGEMENT OF PROTOCOL QUESTIONS FOR USOAP CMA, USAP, SSPIA & FAA IASA

- Provisions to bulk upload Protocol Questions (PQ) of any audit program;
- Define Area, Sub Area, Critical Elements for each PQ;
- Provision to isolate PQs for MIR, SSC PQ, SSP PQ, Offsite PQ, Priority PQ;
- Provisions to integrate the Compliance Standards related to the PQ;
- PQ search pattern for al findings, CAP and Self-Assessment;
- Progress documented for each PQ;
- Audit/ICVM counter parts record keeping

ENTITY: ACCIDENT INVESTIGATION (AIG)

MODULE: MANAGEMENT ACCIDENT INVESTIGATION (ANNEX-13 PROVISIONS)

- Provisions to upload Airport, Manufacturer and Aircraft Information for an Accident/Incident;
- Provisions for High Risk Category and Occurrence category including injury details.
- Provision for Accident/Incident Notifications and establishment of Investigation in-Charge (IIC);
- Provision to create the Investigation Group and Events and assignment of the respective tasks;
- Provisions to finalize the Safety Recommendations (SR) and Reports;
- AIG PQ search pattern for al findings, CAPs and Self-Assessment;
- Management of an Accident/Incident entirely with Schedule of Events.

ENTITY: MISC MODULES

MODULE: CENTRAL NOTIFICATION, ALERT AND REPORTS

- This module may be customized as per the need of CAAs;
- The alerts either in email or SMS or both should be activated once negotiated with CAAs;
- Notification and Alert for internal and industry counterpart to be provisioned as prescribed by CAAs;