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ASSEMBLY — 38TH SESSION

TECHNICAL COMMISSION

Agenda Item 29: Aviation Safety – Monitoring and Analysis

NATIONAL AVIATION SAFETY DATABASE SYSTEM

(Presented by Indonesia)

EXECUTIVE SUMMARY
This paper provides information on the National Aviation Safety Database System. This new safety database consists of a collection of systems in which there are a variety of support modules, which serve to produce electronic transactional process incident reports, sourcing their data from the airline industry in Indonesia.

Strategic Objectives:	To assist national aviation safety management by using electronic services.
Financial implications:	Not applicable.
References:	

1. **INTRODUCTION**

1.1.　　　　The Directorate General of Civil Aviation, Ministry of Transportation, is implementing the State Safety Programme as part of national aviation safety management in compliance with international standards in the field of civil aviation safety. Aviation safety management Standards are those issued by ICAO. At the level of each Member State, it is the role of the government, in line with the standards, to provide for adequate management of safety, and for regulating and supervising the implementation of safety management systems (SMS), which are implemented by the airline operators, airport operators, air navigation service providers, aircraft maintenance organizations and training organizations/flying schools.

2. **DISCUSSION**

2.1.　　　　In accordance with the roadmap for planning of national aviation Safety Management Systems, the Directorate General of Civil Aviation has provided for 3 phases, namely:

　　　　　　a)　Infrastructure Development and the National Aviation Safety Database Systems (SDKPN) in 2011-2012;

    b)   Development of Dashboard Report database systems for national flight safety in 2012-2014; and

    c)   Redundancy Infrastructure Development and integration of systems for the years 2013-2016.

2.2   **Architecture of National Aviation Safety Database System**

2.2.1   The architecture of the National Aviation Safety Database System describes the application system and role in supporting the work process. Application systems identified from the data and information need to support the decision for every sub-process and the needs for information exchange. The architecture for National Aviation Safety Database System classifies applications into 4 parts:

Master Application

Applications are inserted into the Master Application section, if the application is important for the operation of the organization, but as a supporter and not directly determining the success of the organization in achieving its vision and mission. Those applications clustered into the Master Application include:

Regulations and Policy Management

    This application serves as a storage place and as a reference for rules and regulations in the field of aviation, either of the Indonesian government or at international level, and are grouped according to the needs of each supporting organization of State Safety Programs including the aviation industry to facilitate the search for such regulations.

    This system is also used as a container to safe keep the Safety Management System Manual (SMS) document created by any organization implementing an SMS to assist the National Aviation Safety Program Office (NASPO/KPKN) or the Directorate General of Civil Aviation in the management of SMS documents so that they can more quickly evaluate the document.

    The SMS operator can always update its SMS documents and record the version of the document.

Organization Management System

    This system serves to record the structure of the organization and the person in charge of the implementation of the aviation safety agency or organization that implements the State Safety Programme (SSP) and Safety Management System (SMS). User Management settings throughout the application SDKPN are well managed in this application. Inside, there are organization and personnel profiles of each interested party in the running of SSP and SMS.

Personnel Lisencing
Inspector Management System

    This system serves as managing the data and profiles of Flight Inspectors all over Indonesia. There is a level of information management inspector, as well as competence and certification in accordance with the grouping field.

Aviation Personnel Management System

The system serves as managing data and implementing SMS Flight Personnel profiles scattered across Indonesia, there is information management and expiration Rating License / Certification Flight personnel. So that it can help the inspector to supervise the flight personnel if the validity of the license is expired can be taken out if the personnel are still on duty and in the urge to always renew competency license / certification.

Aircraft Registration and Operation

The system serves as a data and information management profile for aircraft owned by an airline operator, including information on historical incidents, accidents that occur and flying hours as well as the fulfillment of airworthiness requirements, including the implementation of the applicable Airworthiness Directives.

Hazard Library

This system serves as a data recorder for potential dangers / hazards which are grouped into three categories, namely economic hazards, technical hazards, and natural hazards. These data will be the master data to perform hazard identification in the Risk Management System.

Key Operational

Applications are included in the section Key Operational, if the application is considered to be very important and directly supports the achievement of the vision and mission of the organization.

Those clustered in the Master Application include:

Mandatory Occurrence Reporting Management Systems

This application module serves to record and consolidate and data on incidents and serious incidents that occurred in the operations of the organization implementing the SMS. It is equipped with a safety performance indicator function, so that the safety performance of any organization implementing the SMS can be shown.

Wildlife Management Report

This system is used to store data of incidents when wild animals enter the Movement Area of an aerodrome (apron, runway).

Bird Strike Management

This system is used to store data of incidents when an aircraft encounters a bird strike.

ATS Occurrence Report

This system is used to record data on air traffic service occurrences, as well as data on occurrences that impact serviceability of ATS facilities, for example those caused by damage or expiry of calibration period.

Dangerous Goods Occurrence Reporting

This system is used to record data on dangerous goods occurrences, in particular those occurring in flight.

Serious Incident/Accident Reporting

This application module serves for data recording and analysis of serious incidents and accidents of aircraft.

Voluntary Confidential Reporting

This system serves as a data recorder of voluntary reports of potential hazards including hazards that are reported by the general public or flight personnel. The collected data can be followed up and analyzed as a material to conduct hazard identification.

Flight Hours Reporting

This system serves as a flight data recorder clock of each aircraft owned or operated by an airline operator. The system has the standard reports required by the Office of Program KPN, so the airlines can integrate their system with this system, enabling them to send reports through their database system.

Airworthiness Directive Management

This system manages and disseminates Airworthiness Directives (AD) to the airlines that operate an aircraft in accordance with the Manufacture and Type specified in the AD. This system facilitates the work of inspectors to supervise the implementation of the AD by the respective airlines by monitoring AD deadlines and checklists that have been implemented

Risk Management System

This system serves to identify potential hazards, including hazards/significant hazards identified by the implementing organization of the SMS or hazards identified by the DGCA. A hazard that has been identified will be assessed according to the level of risk and the mitigation required. Hazard identification results obtained from surveillance, inspections, audits, brake-checks, occurrence reporting, and voluntary reporting are managed by the DGCA and Significant Hazard Reporting of the aviation industry.

Safety Oversight Systems

The Safety Oversight System application contains modules that are used to record the process of certification, auditing, surveillance and inspection by the Directorate General of Civil Aviation in the implementation of the SSP.

DGCA Internal Audit Systems

The Internal Audit application system contains modules that are used to perform the internal audit process by using the USOAP / CMA Audit Protocol, State Aviation Activities Questionnaire and Annexes Compliance Checklist to support the ICAO Continued Monitoring Approach in ensuring the level of effective implementation of the ICAO SARPs by the DGCA.

Safety Data Collection, Analysis and Exchange

This application package is used to create a Database Information Exchange that can be used by internal DGCA staff to access the Mandatory Occurrence Reporting System, Confidential Occurrence Reporting System, and assist in setting ALOS.

Safety-Data-Driven Targeting of Oversight of Areas of Greater Concern or Need

This application package contains the data and information in the form of periodic reports on the results of the implementation of safety policies, and prioritizes corrective measures in the form of inspections, audits and surveillance based on the analysis of the data and information of the periodic reports. The system is able to aggregate national level safety risks

Executive Dashboard

The application executive dashboard is to provide information that is both analysis and comparison, for use by the leader of the organization in decision-making.

Alert Management System

The Alert Management System application serves to disseminate information that is specific and special to interested stakeholders.

Reporting Reconciliation

This application is used to record data resources of DGCA.

ALOS Dashboard

This Executive Information System application is used to display the level of crash safety indicators and the effective level of implementation of critical element 8 USOAP, safety targets and the real level of achievement. This application also displays the level of safety performance indicators for latent conditions, incidents, and serious incidents and the real achievement levels. It also displays safety performance targets and the real level of achievement. By looking at the information and determine the outcomes of performance and flight safety program, it can help executives to review the achievement of the targets in order to adjust the ALOS.

The above architecture of the National Aviation Safety Database System can be summarized in the following graph which contains a collection of applications in conjunction with another, known as Landscape Application:
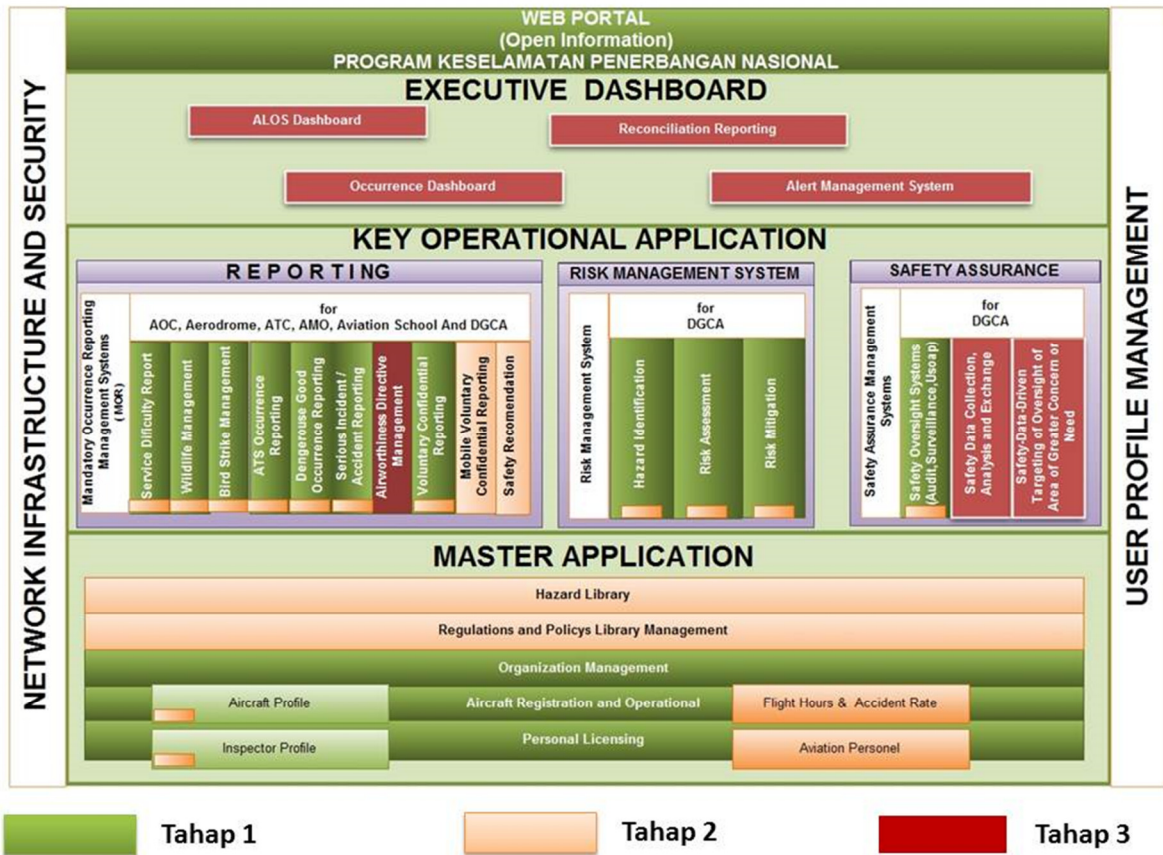
3.   **REGULATORY FRAMEWORK**

- Law No. 1 of 2009 on Flight (State Gazette of the Republic of Indonesia Year 2009 No. 1, Supplement to the State Gazette of the Republic of Indonesia Number 4956);
- Government Regulation No. 3 of 2001, about the Security and Safety of Flight (State Gazette of the Republic of Indonesia Year 2001 No. 9, Supplement to the State Gazette of the Republic of Indonesia Number 4075);
- Government Regulation No. 70 Year 2001 on Airport Affairs (State Gazette of the Republic of Indonesia Year 2001 Number 128, Supplement to State Gazette of the Republic of Indonesia Number 4146);
- Regulation of the Minister of Transportation No. KM 11 Year 2010 on National Order of airport affairs;
- Presidential Decree Number 10 Year 2005 concerning the Organization and Duties of State Ministries of the Republic of Indonesia as amended by Presidential Decree Number 50 Year 2008;
- Presidential Regulation No. 47 Year 2009 on the Establishment and Organization of the Ministry of State;
- Regulation of the Minister of Transportation No. KM 20 Year 2008 on the Organization and Administration of the Department of Transportation, as last amended by Regulation of the Minister of Transportation No. KM 60 Year 2010;
- Regulation of the Minister of Transportation No. KM 20 Year 2009 on Safety Management System (Safety Management System);

- Regulation of the Minister of Transportation No. KM 8 of 2010 on the National Aviation Safety Program;
- Decision of the Director General of Civil Aviation KP.001 No. IN 2012, of the Working Group of National Aviation Safety Program;
- ICAO Standard and Recommended Practice on Safety Management; Annexes 1, 6, 11, 13, 14 and 17;
- AN/474 Doc 9859, Safety Management Manual;
- AC No: 120-92, Introduction to Safety Management Systems for Air Operators;
- CAP 730. Safety Management System for Air Traffic Management.

No.	Modul	Ref./ Dasar Hukum Nasional (R.I)	Ref./ Dasar Hukum Internasional	PELAPOR Report to DGCA	Keterangan
1.	Service Difficulty Reporting (SDR)	• CASR Part 21, § 21.3 • CASR Part 121, Subpart – V, § 121.703;	• ICAO Annex – 8 • ICAO Annex – 6	• Aircraft Manufacturer; • TC and STC holders; • Holder of TC Licensee • Part Manufacturers: Holders of PMA & TSOA; • AOC Holders • Aircraft Operators	
2.	Dangerous Good Occurring Reporting	• CASR 92,	• ICAO Annex-18	• Penyelenggara Bandar Udara;	
3.	Birdstrike Occurrence Reporting	• CASR/PKPS 139, §139.049; § 139.123. • AC CASR Part 139–15 (KP. 468 TAHUN 2011)	• ICAO State Letter AN 4/9.1-79/179 tanggal 23 November 1979. • ICAO Bird Strike Information System/IBIS	• Airport Operators; • Aircraft Operator (Airlines); • Flight Service providers; • Pilots, • Ground handling, • ATC; • Aircraft Maintenance Officer • Airport Authority;	
4.	Serious Incident and Accident Reporting	• CASR 830 • CASR/PKPS 139, • AC 139-04 (SKEP/40/III/2010)	• ICAO Annex – 6 • ICAO Annex – 14	• Aircraft Operator to: DGCA & KNKT (NTSC).	
5.	Voluntary Confidential Occurrence Reporting	• Law No.1/2009, Chapter XIII , Section 4 – Safety Management Systems Aviation Service Provider • CASR SMS, §7.b.(1)	• ICAO Annex –	• Aircraft Operator (Flight Service Providers) • International Airport Operators • Domestic Airport Operators • Public	
6.	Wild-life Occurrence Reporting	• CASR Part 139 • AC CASR Part 139–15 (KP. 468 TAHUN 2011)	• ICAO Annex -	• Airport Operators	AC CASR 139-03 (no longer valid, REPLACED with AC139 –15).
7.	ATS Engineering Occurrence Reporting	• CASR 170, Subpart-H • AC 170-02	• ICAO Annex-11 • ICAO Annex-2	• ATC Service • Aircraft Operator	
8.	ATS Occurrence Reporting	• CASR 170, Subpart-H; • AC 171-01; AC 171-2; AC 171-3	• ICAO Annex-11 • ICAO Annex-2	• ATC Service	
9.	*Safety Recommendation from National Transportation Safety Committee (NTSC)*	• Transportation Ministry Decree No. KP.3/HK.403/PHB-94	• ICAO Annex-13		

10.	Risk Management Systems	• CASR/PKPS SMS, para.7. • CASR 139.089	• ICAO Annex-6 • ICAO Safety Management Manual (Doc 9859)	• Airport Operators	
	Risk Assessment & Risk Mitigation	• CASR 121 • CASR 139.089 • AC120-92 (SKEP-256-IV-2011)	• ICAO Annex-6		
	Safety Assurance Management System (Safety Oversight, DGCA Internal Audit)	• Aviation Law No.1 /2009, Chapter-XIII, section 4 • CASR SMS	• ICAO Safety Management Manual (Doc 9859)	• Airport Operators • Aircraft Operators	
	USOAP – carried out by ICAO to the member states' authorities		• ICAO Annexes 1 – 18		A Civil Aviation Authority activities as part of the safety program

4.   **CONCLUSION**

4.1   Indonesia has built a national aviation safety database system, and also the supporting technology infrastructure, and presently continues the development of systems and technologies, especially the Executive Dashboard Management System. The Assembly is invited to note the information in this paper.

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