



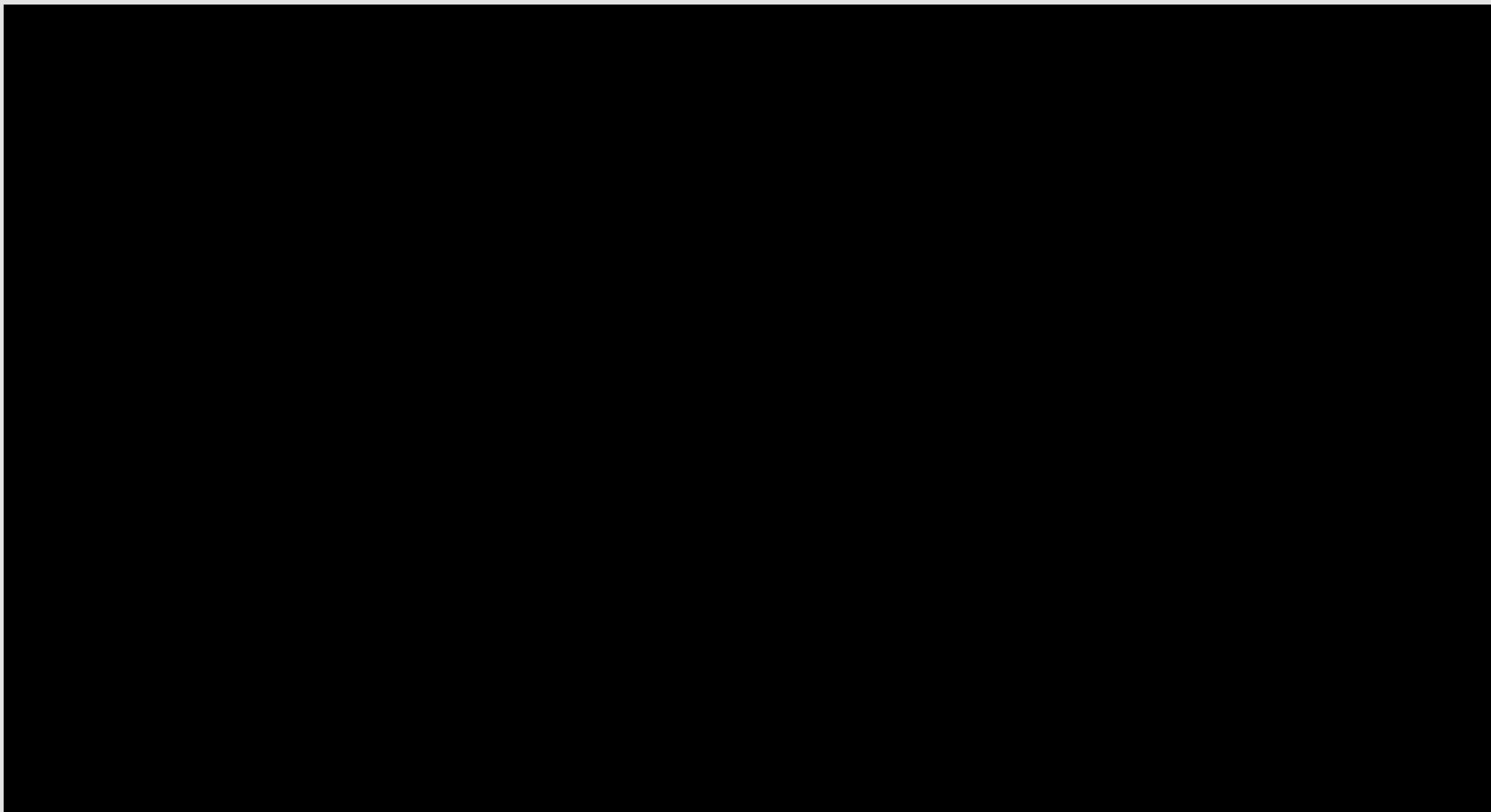
IWHC
INDONESIAN WILDLIFE HAZARDS COMMITTEE

NATIONAL WILDLIFE HAZARD MANAGEMENT COMMITTEE

a Roadmap to the Effective WHM Implementation

*Captain Achmad Sadikin - Coordinator
Indonesian Aviation Wildlife Hazard Management Working Group
Presented in the ICAO AP WHM WG/7
Pokhara, 5-9 May 2025*

Can Bird Strikes be Prevented?





2020-2021 on-site observations at
KNO, YIA, SUB, BTH



GLOBAL FACTS

- Globally, wildlife strikes killed more than **293 people and destroyed over 271 civil & military aircraft from 1988 - 2020.**
- More than 165 fatalities by bird strikes in **military accidents.**
- Wildlife strikes cost **USA civil aviation over \$620 million a year.**
- **97, 751 reported wildlife strikes from 2008 – 2015, compared to 42,508 from 2001 - 2007.**
- Since 1960:
 - **160 civil aircraft destroyed**
 - **49 destroyed from 2001 through 2010 alone**
- Globally, wildlife strikes have **destroyed over 271 aircraft since 1988.**
- **Dramatic INCREASE in strikes over the last 50 years... WHY?**

Sources:
FAA (2021). *Wildlife Strikes to Civil Aircraft in the United States, 1990 – 2020.*

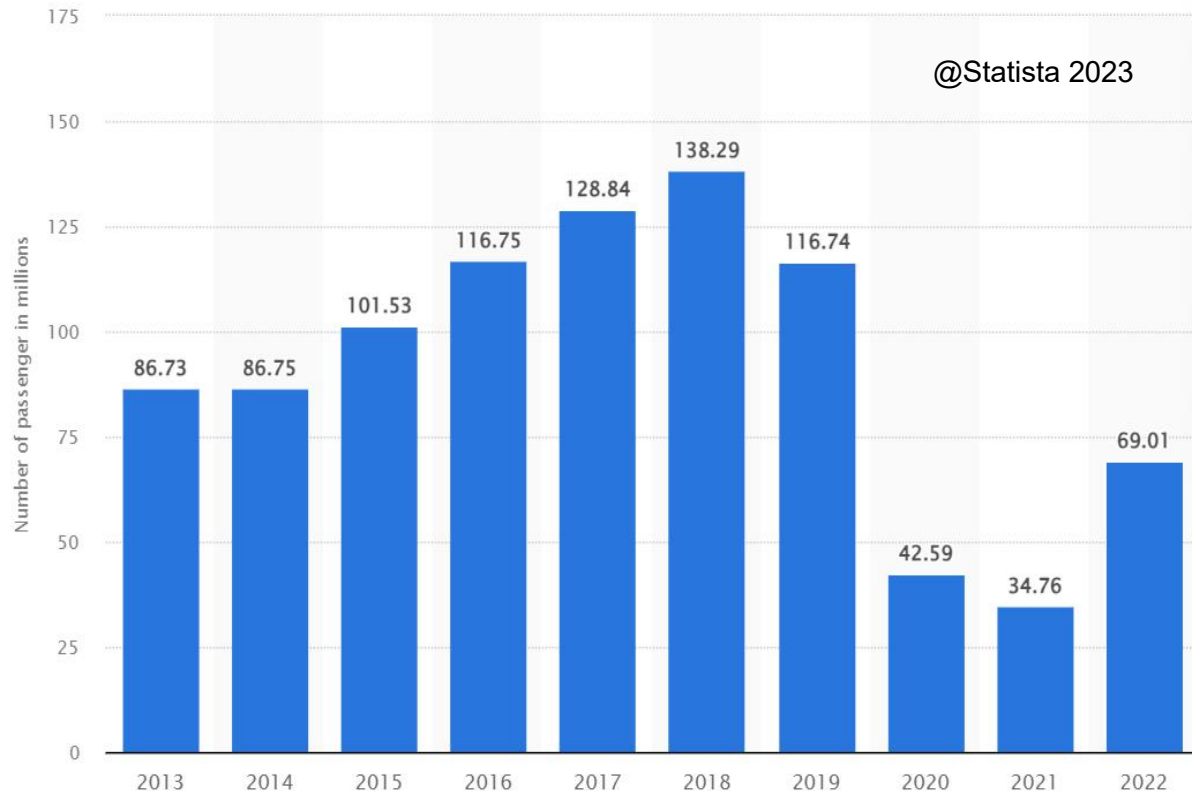
International Civil Aviation Organisation (2017).
2008 – 2015 Wildlife Strike Analysis (IBIS)

GLOBAL FACTS

Aircrafts are built to fly quieter and more efficiently than in the past,

Airplane travel is common = a lot more planes.

Environmental & Climate changes...



NATIONAL FACTS

Forest Cover Loss in Indonesia, 2000-05



Forest cover loss data: Hansen et al., South Dakota State University

Forest cover density data from the Vegetation Continuous Fields Project, University of Maryland

WRI information

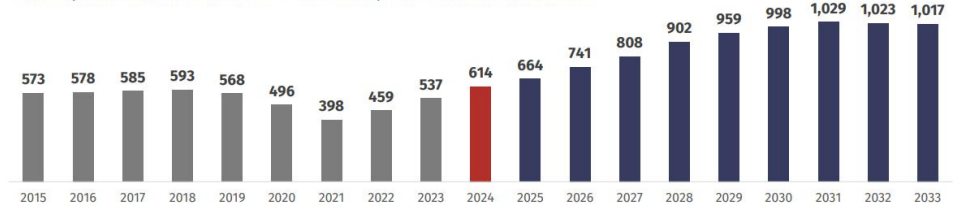
Environmental & Climate changes...

INDONESIAN WILDLIFE STRIKES DATA (??)

Number of Fleet in Indonesia

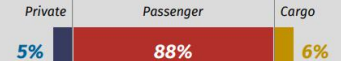


Indonesia Aviation growth in terms of number of fleet which also one of the biggest growth in Asia Region. Strategic effort in supporting the number of flights and the increasing number of passengers, as well as boosting air connectivity and air transport and logistics traffic capacity in the central and eastern parts of Indonesia contributes to the development of Aviation in Indonesia.



82 Fleet
Stored/On Ground

Portion by Function-Type



Sources: Aviation Week Network

Regulations

1. Undang-Undang Nomor 1 Tahun 2009: Penerbangan (***Indonesian Aviation Law***)
2. Peraturan Menteri Perhubungan No. PM 93 Th. 2016: Program Keselamatan Penerbangan Nasional (***Civil Aviation Safety Program***).
3. Peraturan Menteri Perhubungan No. PM 95 Th. 2021: Peraturan Keselamatan Penerbangan Sipil Bagian 139 (***Civil Aviation Safety Regulation Part 139***): Bandar Udara (***Aerodrome***).
4. Peraturan Direktur Jenderal Perhubungan Udara No. PR 21 Th. 2023: Standar Teknis dan Operasi Peraturan Keselamatan Penerbangan Sipil Bagian 139 Volume 1, Bandar Udara (***Technical Standard and Operations for the Civil Aviation Safety Regulation Part 139, Aerodrome***)
5. Peraturan Direktur Jenderal Perhubungan Udara SKEP 42 Th. 2010: Petunjuk dan Tata Cara Peraturan Keselamatan Penerbangan Sipil Bagian 139-03 Manajemen Bahaya Hewan Liar di Bandar Udara dan Sekitarnya (***Advisory Circular CASR 139-03 WHM on or in the Vicinity of an Aerodrome***).
6. Peraturan Menteri Perhubungan No. PM 62 Th. 2017: Peraturan Keselamatan Penerbangan Sipil Bagian 19 (***Civil Aviation Safety Regulation Part 19***) Sistem Manajemen Keselamatan (***Safety Management System***).

INDONESIAN AIRPORTS



251
Airports,
include
35
Join Military

inJourney
AIRPORTS

API

37



UPBU

179



Konsorsium

2

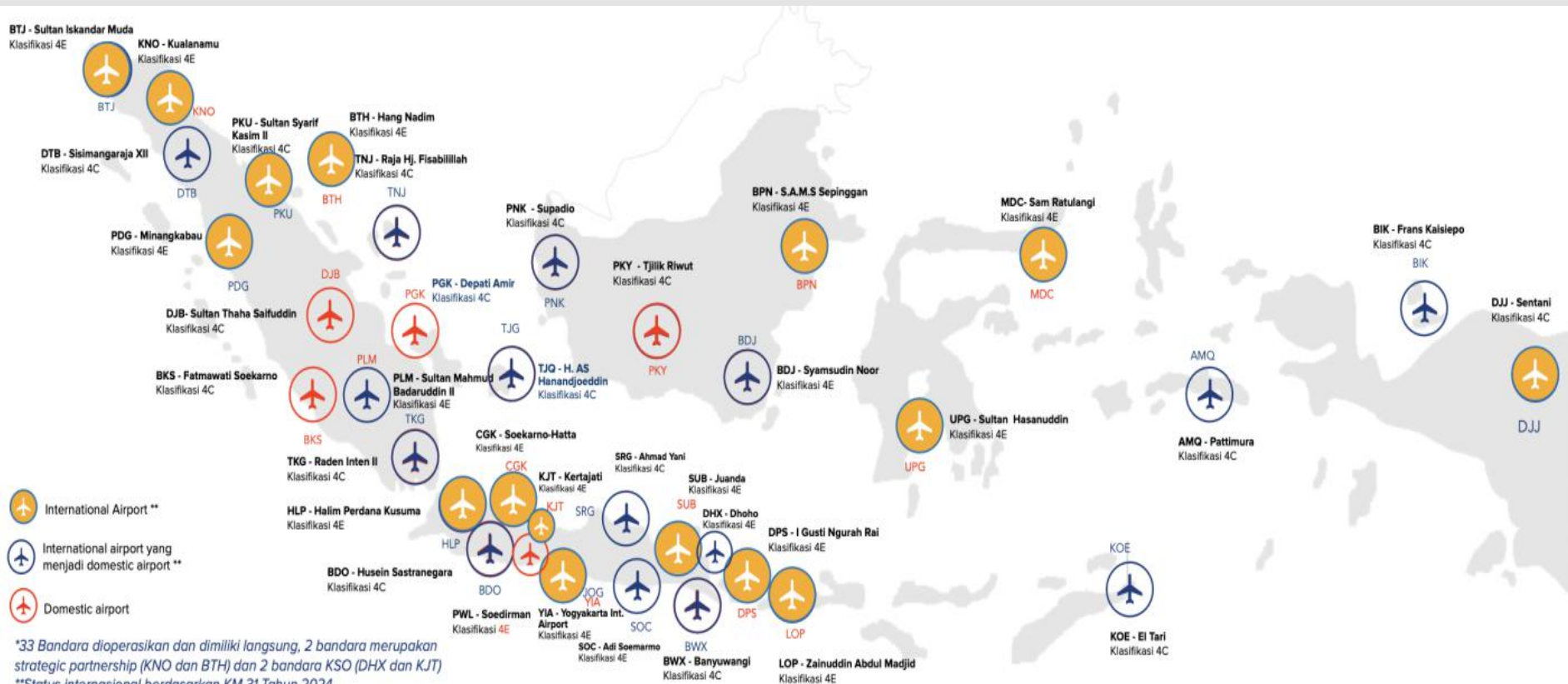


UPTD

Missionaries

34

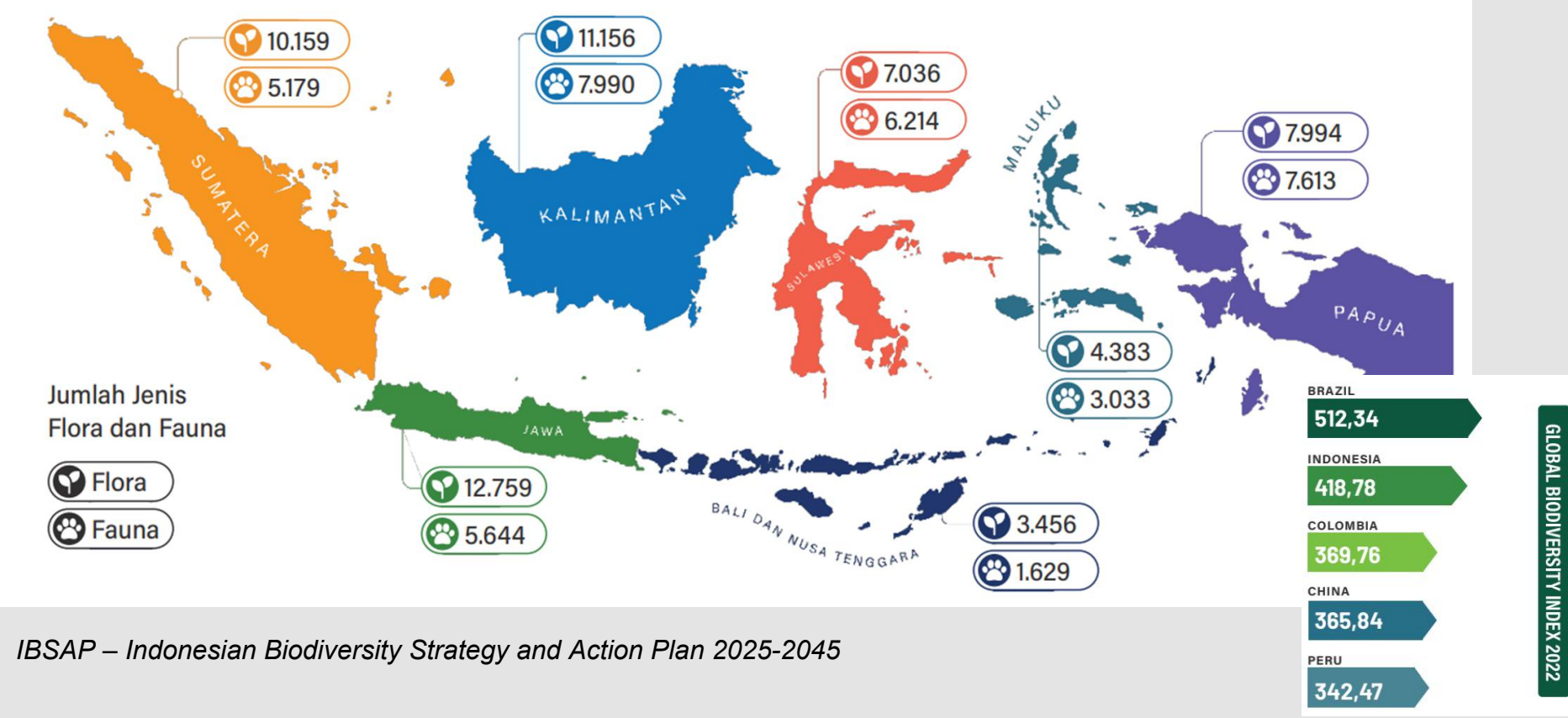
ANGKASA PURA INDONESIA AIRPORTS



*33 Bandara dioperasikan dan dimiliki langsung, 2 bandara merupakan strategic partnership (KNO dan BTH) dan 2 bandara KSO (DHX dan KJT)

**Status Internasional berdasarkan KM 31 Tahun 2024

INDONESIA, *Megabiodiversity country*



IBSAP – Indonesian Biodiversity Strategy and Action Plan 2025-2045



TN 4 – National Target 4

“Establishment of species and genetic biodiversity protection and conservation”

4.5. Pengelolaan konflik satwa liar dan jenis ikan dengan aktivitas manusia	4.5.1. Penurunan jumlah kejadian konflik satwa liar	Kejadian	KLHK, NGO
	4.5.2. Jumlah dokumen wildlife hazard management plan	Dokumen	KEMENHUB, ANGKASA PURA, JASA MARGA, KLHK, KKP
	4.5.3. Jumlah kegiatan penyelamatan spesies	Kegiatan	KLHK
	4.5.4. Penurunan jumlah spesies satwa liar dalam kejadian interaksi dan konflik satwa liar	Spesies	KLHK
	4.5.5. Jumlah pelabuhan/bandara yang menerapkan wildlife hazard management	Bandara [unit]	KEMENHUB, ANGKASA PURA
	4.5.6. Penurunan jumlah kejadian biota perairan terdampar	Kejadian	KKP
	4.5.7. Penurunan jumlah spesies biota perairan terdampar	Spesies	KKP
	4.5.8. Jumlah kegiatan penanganan biota perairan terdampar	Kegiatan	KKP
	4.5.9. Jumlah kegiatan penanganan konflik satwa liar	Kegiatan	KLHK
	4.5.10. Jumlah spesies yang dilakukan penanganan konflik	Spesies	KLHK

STATUS BURUNG DI INDONESIA 2024

Jumlah Spesies

1836
SPESIES BURUNG



Cica-kopi Jawa (*Pomatorhinus montanus*)



Status Konservasi



Jumlah Spesies Dilindungi**

558 SPESIES



Jumlah Spesies Endemis

542 SPESIES



Jumlah Spesies Sebaran Terbatas

470 SPESIES

** Berdasarkan PP. 101/2018 dan PERMEN LHK NOMOR 10/2019/PERMEN/LHK/NO.1/2019



IBA 228

Daerah Penting bagi Burung dan Keragaman Hayati

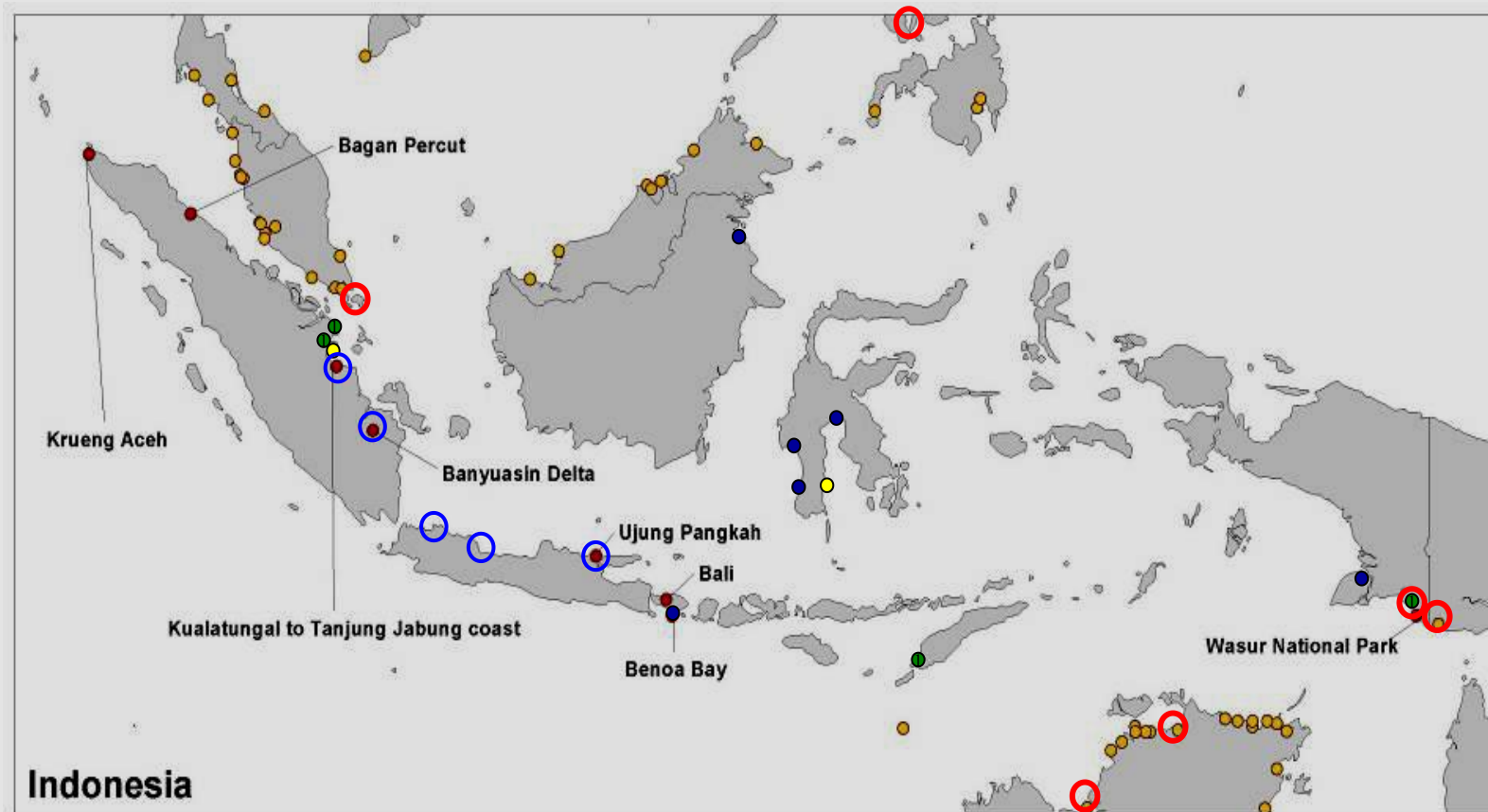


EBA 23

Daerah Burung Endemis



Important Sites for Migratory Water Birds in Indonesia



Our Roadmap

Indonesian Wildlife Hazards Committee

** Target: Nov 2026*

Working Group Establishment

1. Establishment of the Indonesian Aviation Wildlife Hazard Working Group
2. Establishment of the **MoU** between Ministry of Transportation (DG of Air Transportation), and Ministry of Environment & Forest (DG of Conservation & Ecosystem), as the main guidance for the regulation harmonization.
3. Establishment of the **National Plan** of the Wildlife Hazard Management Program.

2023



2022



2024



Re-consolidation & Promotions

1. Working Group team **re-consolidation**
2. Re-establishment of the WG **Action Plan timeline**.
3. **Re-engagement with DGCA Directorates:** Aircraft Operations & Airworthiness, Airports, Air Navigation Services
4. **Promotions and Educations**

Coordination

1. Follow-up on the **Memorandum of Understanding** between Ministry of Transportation (DG of Air Transportation), and Ministry of Environment & Forest (DG of Conservation & Ecosystem)
2. **Re-consolidation** of the Wildlife Hazards Working Group
3. Inter-Governmental Department **Regulation harmonization**

Workshop & Re-Gathering

1. Aviation Wildlife Management Stakeholder **Workshop**
2. **Gap Analysis**, Bird Hazard Risk map, Mitigation Action Plan, short-term recommendations on wildlife management

2014



2018-2021



Field Observation

1. **Re-engagement** of Aviation stakeholders and Ornithologist/ Biologist/ Ecologist experts
2. **Data and information collections** from various field observation, risk assessment, ecosystem analysis, and regulation harmonization
3. Initial **agreement** between DG of Air Transportation and DG of Conservation & Ecosystem

** Target: Nov 2026*

Wildlife Hazards Committee Establishment

1. Continuous **Observation, Data Collection, Verification & Hazard Identification.**
2. **Risk Assessment,**
3. **Surveillance,**
4. Working Group/ **Committee coordination** on:
 - **Data Sharing,**
 - **SPI,**
 - **Assurance,**
 - **Promotion.**
7. Working Group **Website establishment,**
8. Continuous **Engagement with external Stakeholders,**
9. **Ministries Coordination** for the Committee establishment

2025-2026



2024



Working Group Coordination & Collaboration

1. Regulatory engagement: SSP, DKPPU, DBU, DNP, API, AirNav, Baketrans, BRIN,
2. **FGD** with Aviation Stakeholders,
3. **WHM Training, Reporting Flow,**
4. Continuous **Observation, Data Collection, Verification & Hazard Identification,**
5. Working Group **Website** design,
6. Continuous **Engagement with external Stakeholders**

DG decree 157/2023 “Wildlife Hazard Management Working Group”

KEMENTERIAN PERHUBUNGAN
DIREKTORAT JENDERAL PERHUBUNGAN UDARA

KEPUTUSAN DIREKTUR JENDERAL PERHUBUNGAN UDARA
NOMOR KP 157 TAHUN 2023
TENTANG
KELOMPOK KERJA MANAJEMEN BAHAYA HEWAN LIAR
(WILDLIFE HAZARD MANAGEMENT WORKING GROUP)

DENGAN RAHMAT TUHAN YANG MAHA ESA

DIREKTUR JENDERAL PERHUBUNGAN UDARA,

- Menimbang : a. bahwa sehubungan dengan pertumbuhan lalu lintas angkutan udara, kemajuan teknologi, dan kondisi lingkungan di sekitar bandar udara, perlu meningkatkan keselamatan penerbangan khususnya terkait dengan bahaya hewan liar di sekitar bandar udara, guna meminimalisir terjadinya peristiwa keselamatan penerbangan (*safety occurrences*);
- b. bahwa sehubungan dengan pengelolaan bahaya hewan liar sebagaimana dimaksud pada huruf a, diperlukan adanya kerja sama, koordinasi serta kolaborasi antar pemangku kepentingan di bandar udara dalam rangka manajemen bahaya hewan liar;
- c. bahwa untuk meningkatkan kerja sama, koordinasi serta kolaborasi antar pemangku kepentingan sebagaimana dimaksud pada huruf b, perlu membentuk Kelompok Kerja Manajemen Bahaya Hewan Liar (*Wildlife Hazard Management Working Group*); dan

Pada tanggal : JAKARTA
: 25 Agustus 2023
DIREKTUR JENDERAL PERHUBUNGAN UDARA
ttd
M. KRISTI ENDAH MURNI

Salinan sesuai dengan aslinya
KEPADA BAGIAN HUKUM,



- To assist the establishment of The National Wildlife Hazard Management Committee,
- To assist Airport Operator on the WHM implementation: hazard identification & mitigation plan,
- To assist Airport Operator on the WHM implementation promotion,
- To collaborate with Local and International Institution / Bodies for the WHM implementation,
- To assist effective collaboration with related stakeholders,
- To promote WHM implementation by FGD,
- To assist data collection on the wildlife strikes and its impact,
- To assist WHM training for related personnel.

WHO ARE WE?

DJU, AP, AirNav, BKT,
BRIN, NGO, AOC

Our Coordination and Collaboration Activities

Internal		External	
Jul 2023	Support AP2 KJT on Hajj / SV	Nov 2022	World Birdstrike Association (WBA) Workshop
Aug 2023	Coordination with BRIN	May 2023	ICAO AP WHM WG-5
Sep 2023	Working Group Coordination	Sep 2023	Hearing with Wetlands International
Dec 2023	AP2 WHM Discussion	Oct 2023	AP1 SUB & BKSDA Jatim
Dec 2023	Working Group Coordination	Feb 2024	Rakor DJU, Bogor
Mar 2024	Coordination with DBU	May 2024	ICAO AP WHM WG-6
May 2024	Coordination with AP1, AP2, AirNav	Aug 2024	Australian Aviation Wildlife Hazard Working Group Forum
Aug 2024	Coordination with DBU	Sep 2024	TNI-AU & RAAF WHM awareness workshop
Jul 2024	AP1 SUB WHM workshop		

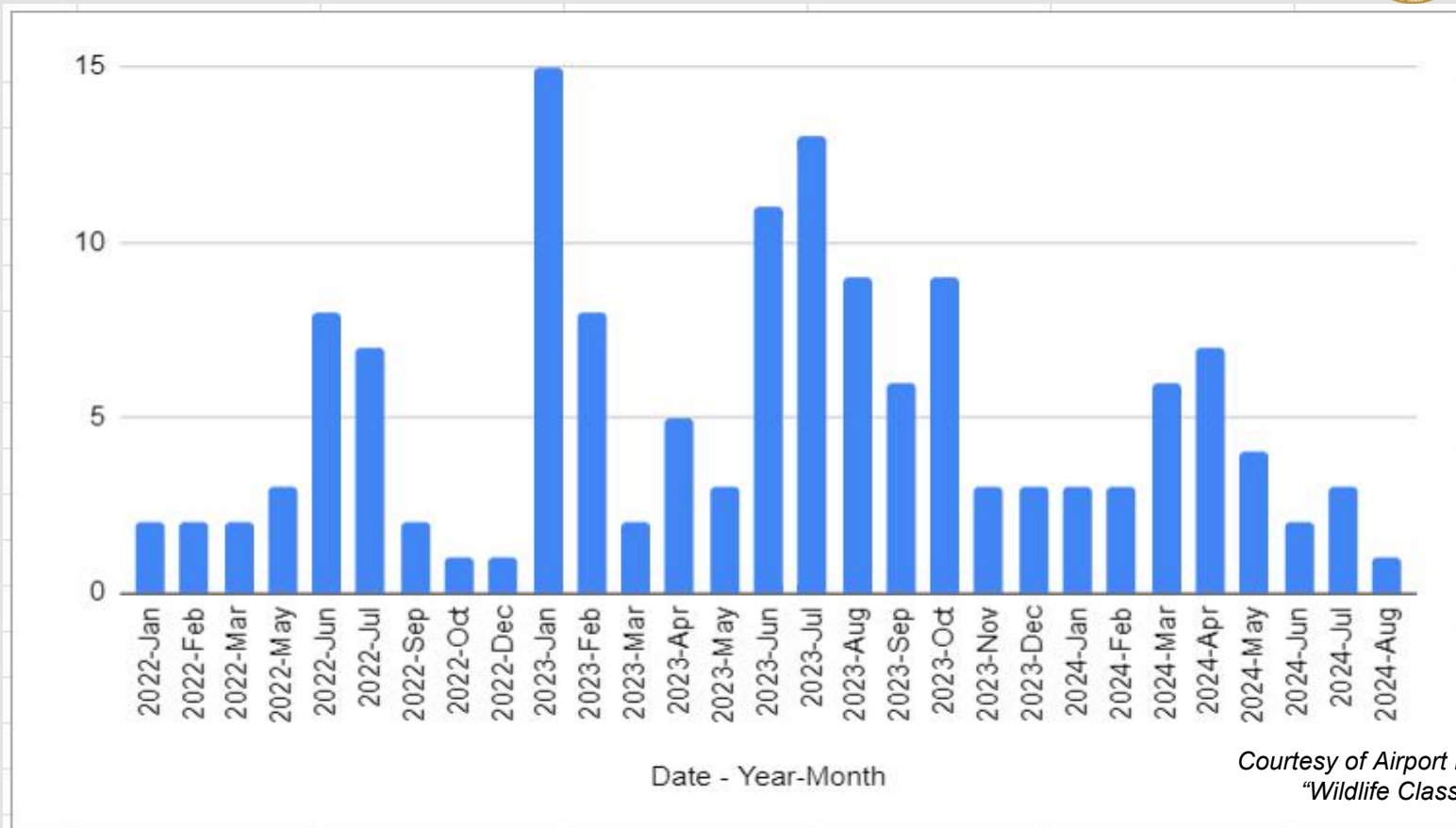
DATABASE and Dashboard



INDONESIAN WILDLIFE STRIKES DATA (??)

Compilation challenges

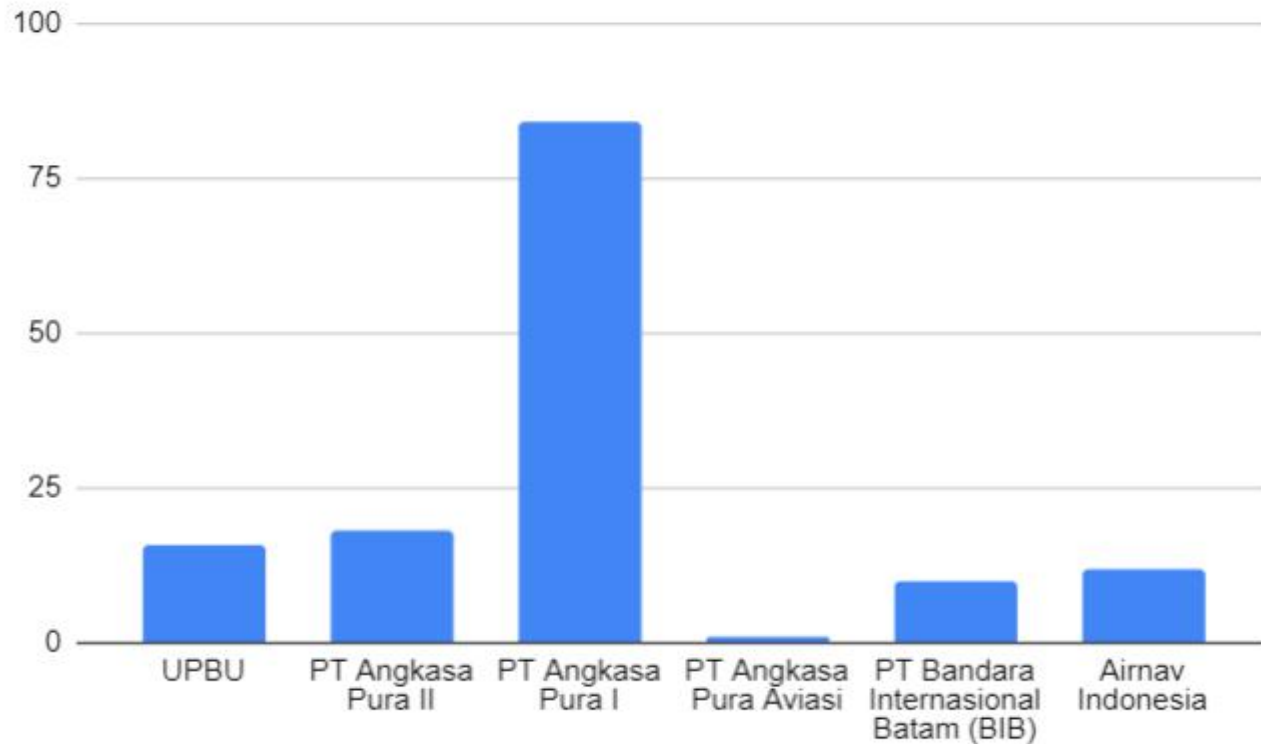
Wildlife strikes Summary Jan22-Aug24 period



A Sum of **144**
reported strikes

Courtesy of Airport Directorate, DGCA
"Wildlife Classification database"

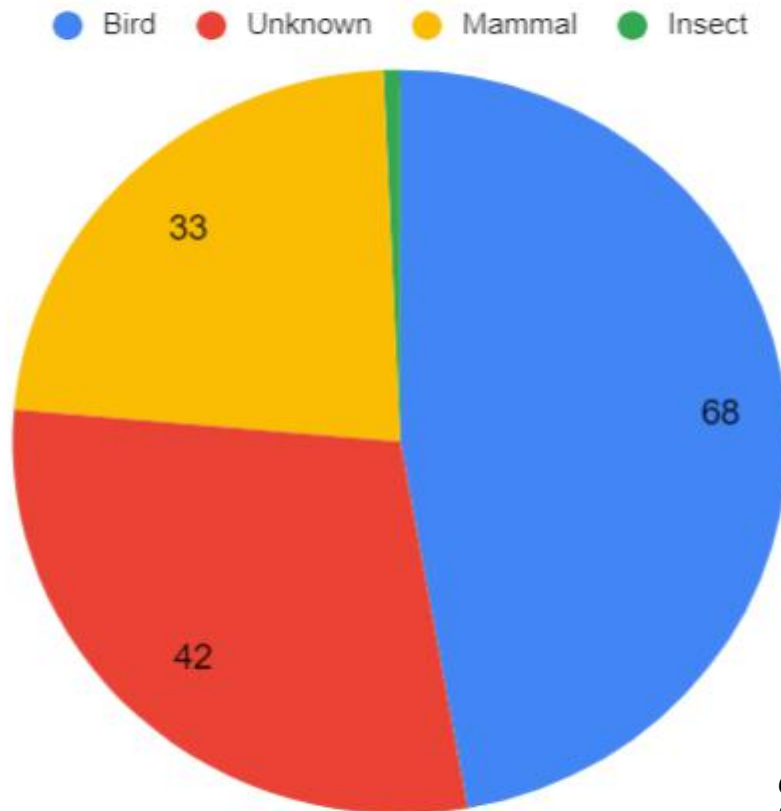
Wildlife strikes Summary by Airports, for Jan22-Àug24



Count of Airport / Air Navigation

*Courtesy of Airport Directorate, DGCA
"Wildlife Classification database"*

Wildlife strikes Summary by Species, for Jan22-Aug24



Courtesy of Airport Directorate, DGCA
"Wildlife Classification database"

Wildlife hazards and/or strikes REPORTING channels




HAZARDS
VRS - IMSIS

<https://imsis-djpu.dephub.go.id/vrs/>



STRIKES
MOR - IMSIS

<https://imsis-djpu.dephub.go.id/Portal/>

 MINISTRY OF TRANSPORTATION DIRECTORATE GENERAL OF CIVIL AVIATION	
Office Complex Soekarno-Hatta International Airport, C3 St., Tangerang, Banten- Indonesia Telp. (+6221) 225 66288, (+6221) 256 08887 Fax. (+6221) 225 66399 Website: hubud.dephub.go.id; e-mail: daao_dgca@dephub.go.id	
MANDATORY OCCURRENCE REPORT OCCURRENCES RELATED TO AERODROME & FACILITY (BIRD STRIKE AND WILDLIFE HAZARD)	
A. General Information	
Date / Time of Occurrence (UTC)	: 18 November 2024 / 16:51 UTC
Location	: Denpasar, Indonesia
Name of Airport	: I Gusti Ngurah Rai International Airport (DPS)
Information Weather	: METAR WADD 181700Z VRB02KT 9999 SCT017 28/25 Q1008 NOSIG=
B. Aircraft	
Flight Number	: QZ555
Aircraft Registration	: PK - AXY
Type Of Aircraft	: Airbus A320-216

Wildlife hazards and/or strikes REPORTING flow



KEMENTERIAN PERHUBUNGAN DIREKTORAT JENDERAL PERHUBUNGAN UDARA

Jl. Merdeka Barat No. 8
Jakarta 10110
Kotak Pos No. 1389
Jakarta 10013

Telepon : 3507623 - 3506661
3507577

Fax : 3505571
e-Mail : direktorat.bandarudara@dephub.go.id

Nomor : AU.101/12/16/DBU-2023
Klasifikasi :
Lampiran : 2 (dua) lampiran
Perihal : Pelaporan Bahaya Serangan Hewan Liar

Jakarta, 14 Juni 2023

Yth. PERIKSA ALAMAT TERLAMPIR

Menindaklanjuti Surat Direktur Bandar Udara Nomor : AU.101/162/16/2/DBU-2022 tanggal 8 Juli 2022 perihal Pelaporan Bahaya Serangan Hewan Liar, bersama ini disampaikan kembali bahwa sesuai dengan Peraturan Menteri Perhubungan Nomor PM 95 Tahun 2021 tentang Peraturan Keselamatan Penerbangan Sipil Bagian 139 tentang *Aerodrome* Subbagian 139.063 butir e. bahwa Penyelenggara Bandar Udara, Pemegang *Aircraft Operation Certificate* dan Pemegang *Operation Certificate* harus mencatat dan melaporkan setiap kejadian/kecelakaan Pesawat Udara akibat gangguan burung dan hewan liar kepada Direktur Jenderal. Adapun kejadian yang harus dilaporkan adalah kejadian yang terkonfirmasi dan tidak terkonfirmasi dengan definisi sebagai berikut :

- Serangan Terkonfirmasi yaitu laporan tabrakan antara burung atau hewan liar lainnya dengan pesawat udara yang ditemukan bukti berupa bangkai, sisa-sisa atau kerusakan pada pesawat (termasuk noda darah atau bulu).
- Serangan Tidak Terkonfirmasi yaitu laporan tabrakan antara burung atau hewan liar lainnya dengan pesawat udara yang tidak ditemukan bukti fisik.

Sehubungan dengan hal tersebut di atas, diminta kepada seluruh penyedia jasa penerbangan untuk melaporkan kejadian bahaya serangan hewan liar baik yang terkonfirmasi maupun yang tidak terkonfirmasi menggunakan format standar ICAO *Birdstrike Information System* yang dapat diakses melalui <https://bit.ly/ReportWildlife> pada kesempatan pertama dengan alur pelaporan sebagaimana tercantum pada Lampiran II.

Demikian disampaikan dan atas perhatian serta kerjasamanya diucapkan terima kasih.



Direktur Bandar Udara

Syamsu Rizal

19690409 199803 1 002

Tembusan :

- Direktur Jenderal Perhubungan Udara;
- Direktur Kelaikudaraan dan Pengoperasian Pesawat Udara;
- Direktur Navigasi Penerbangan;
- Kepala Kantor Otoritas Bandar Udara Wilayah I – X.

Courtesy of Airport Directorate, DGCA
Surat Direktur Bandar Udara
No. AU.101/12/16/DBU-2023, tgl 14 Jun 2023
PELAPORAN BAHAYA SERANGAN HEWAN LIAR

<https://bit.ly/ReportWildlife>

Safety Management System (SMS) approach for Predictive Safety in Birdstrike Risk Management:

1. Safety Policy and Objectives

- a. **National Commitment:** The Civil Aviation Authority (CAA) and the National Wildlife Hazard Committee establish a formal policy that prioritizes wildlife risk management.
- b. **Define Roles:** Clear responsibility are assigned to airports, airlines, environmental authorities, and data providers under a national wildlife hazard policy.
- c. **Integration with State Safety Program (SSP):** Bird/Wildlife strike prevention is incorporated into the SSP framework as a strategic safety objective.

2. Safety Risk Management (SRM)

- a. **Hazard Identification:**
 - i. Historical strike data, seasonal patterns, and bird radar to identify hotspots and trends.
 - ii. Collaboration with ecological and wildlife agencies to define habitat management and land-use changes near airports, to monitor climate changes impacts, and migration routes.
- b. **Risk Assessment:** Severity and likelihood of birdstrike events, and predictive modelling for early warnings.
- c. **Risk Mitigation:**
 - i. Develop targeted seasonal control measures, NOTAMs, and revised WHMP procedures.
 - ii. Recommended procedure changes for flight operations during peak migration periods.

CONCLUSION

3. Safety Assurance

- a. **Performance Monitoring:** Define Safety performance Indicators (SPIs)
- b. **Safety Audits and Surveys:**
 - i. Conduct wildlife hazard inspections at airports baspredictive risk data.
 - ii. Use results to evaluate WHMP effectiveness.
- c. **Data Validation:** ensure birdstrike data is complete, timely, and accurate.

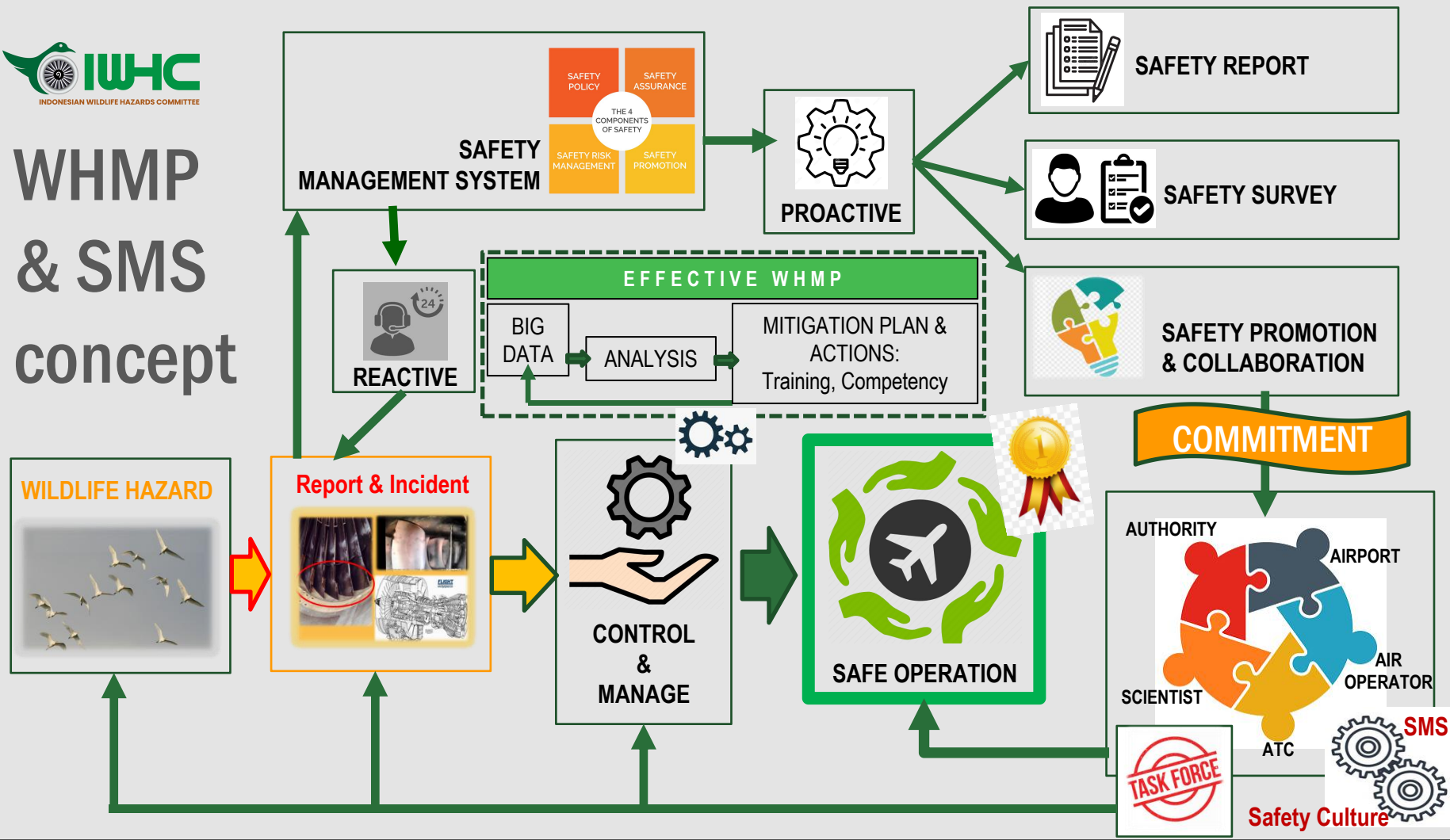
4. Safety Promotion

- a. **Training and Awareness:**
 - i. Seasonal briefings for Pilots and ATCs on bird hazard forecast.
 - ii. Train airport wildlife personnel using real-time data tools and case studies.
- b. **Information sharing:**
 - i. Publish predictive bird hazard bulletins and disseminate alerts across aviation stakeholders.
 - ii. Engage in regional data exchange to understand cross-border migration risks.

Key words:

Collaboration and Database

WHMP & SMS concept



Question ??





Dank u Dankon Köszönöm
Sağol 謝謝 Obrigado Ευχαριστώ Tack
감사합니다 Gracias Danke 谢谢 धन्यवाद
Хвала Merci Thank you Спацибо Tak
有り難う Grazie شكراك Asante תודה
Teşekkür ederim Tak شکرا ありがとう Kiitos
Благодаря 감사합니다 Dziękuję ขอบคุณ
Спациби Terima kasih متشكرم Mulțumesc

Captain Achmad SADIKIN
achmadsadikin@airasia.com