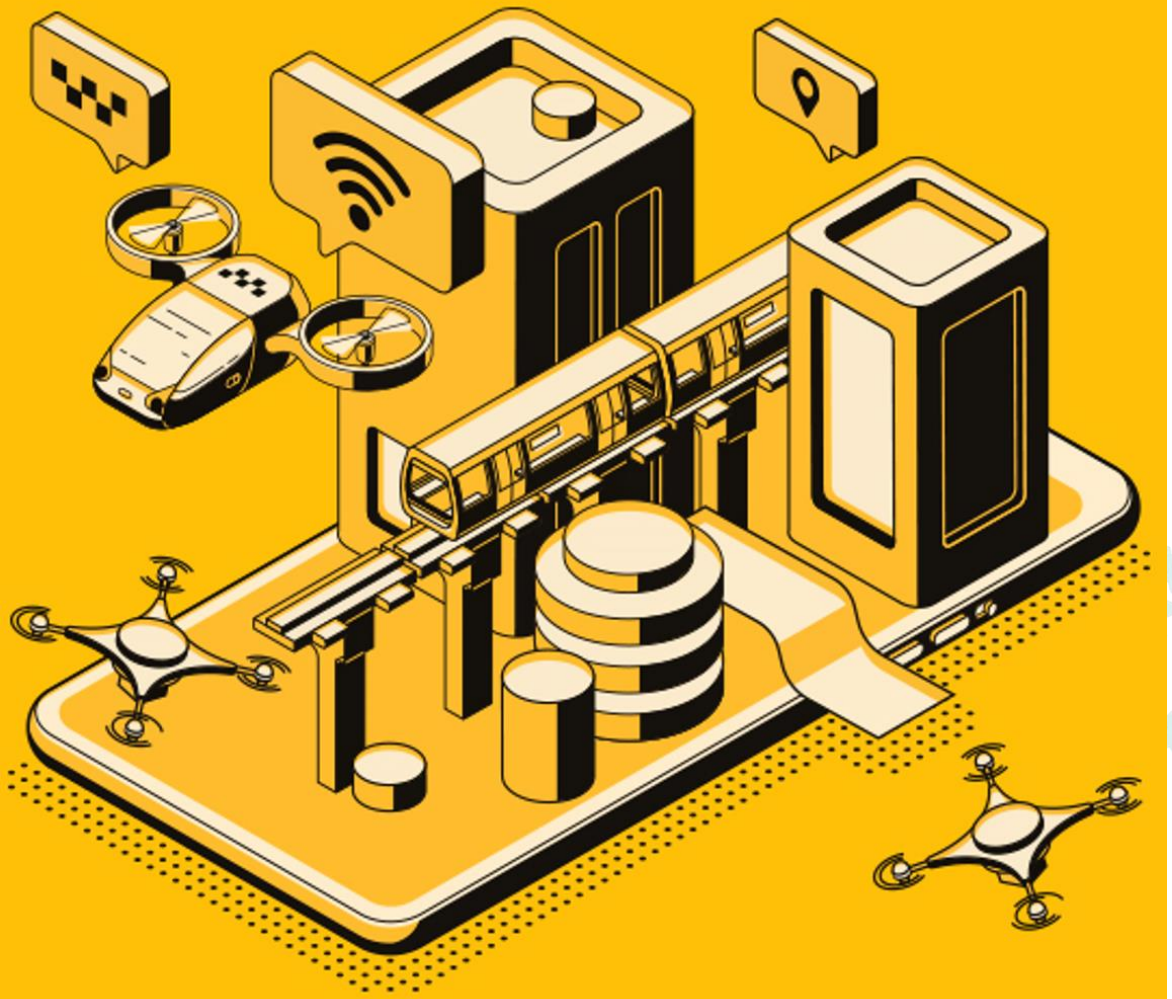
AAM regulatory framework

Directorate General of Civil Aviation of Indonesia

ICAO Asia-Pacific Workshop on Innovation and Emerging Technologies on Aviation



The Mission

- DGCA Indonesia is in process to integrate Unmanned Aircraft System (UAS) and Advanced Air Mobility (AAM) into the nation's aviation landscape. This initiative aims to revolutionize urban transportation and logistics through innovative aircraft technologies.
- Trying to capture the best approach to adapt existing regulations for AAM (eVTOL) aircraft and operations
- Considering to develop Performance and Risk Based Approach regulations

CONTENT

CONTENT

Current UAS CATEGORIZATION IN INDONESIA

Based on Max. Take-off Weight

CASR 107

25 Kg /
55 lbs.

Remote Pilot Certificate / RPC (Online Registration)	**REMOTE PILOT**	Remote Pilot License
Small UAS (8 digits) Online Registration	**REGISTRATION**	Aircraft Registration
• Registered Operator (RPC) • For Air Transport: ROC	**ORGANIZATION**	Remote Pilot Operator Certificate (ROC)
Not Applicable	**DESIGN CRITERIA**	Airworthiness Standard, Special Condition, others

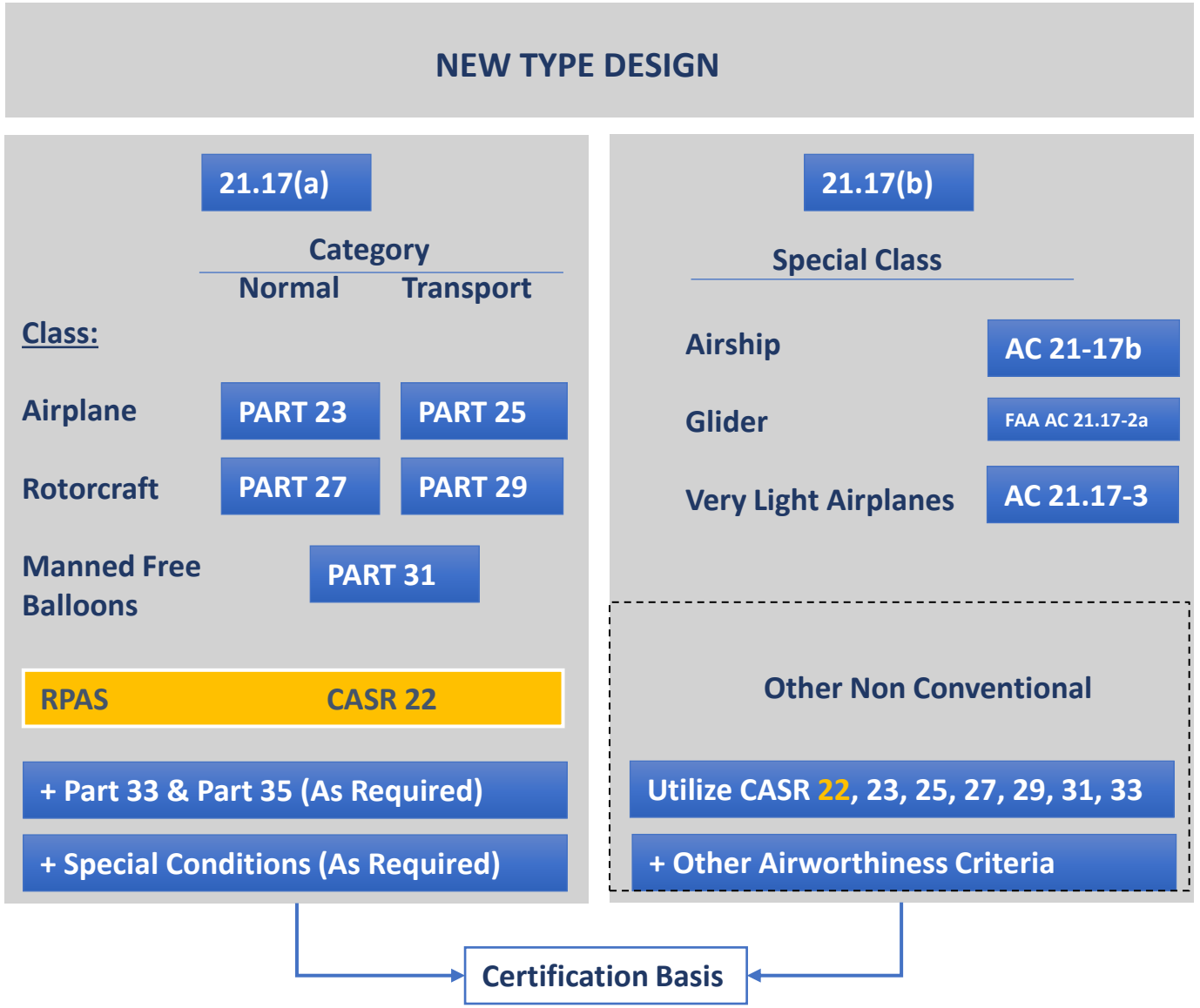
AIRSPACE

- Priority using segregated airspace, VLOS, Daylight, unpopulated
- BVLOS, Cargo, Night, Multi drone Operations need Operation Safety Risk Assessment

• Hobbies/Recreational (Max 7kg, community based) • Basic Operation • Extend basic: SORA	**OPERATION AUTHORIZATION** Period time, altitude, specific area operation, based on risk assessment	Restricted Category, Special Operation

Applicable Regulations

- Special Classes (Non Conventional Aircraft)
- Some/Mostly (CAA) do not have definitions for eVTOL (yet) in the regulatory basis



Current UAS/RPAS OPERATIONS in Indonesia

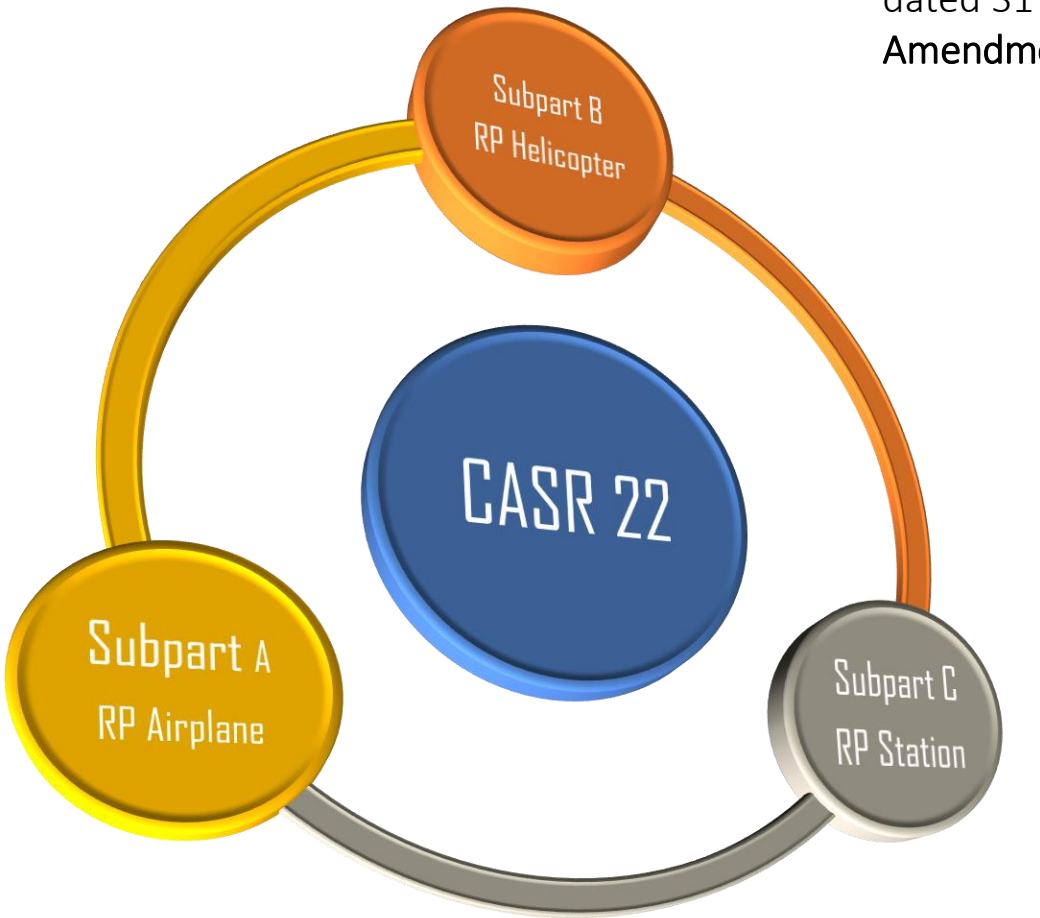
Basic Operation Limitations (CASR 107)

- Not operate from moving vehicle
- Daylight only
- VLOS only
- Multi-drone operation is not allowed
- Do not over people (unless direct participant)
- Do not bring dangerous goods
- Max speed 87 kts, ≤ 400 ft AGL
- Visibility min 3 NM

Expand Basic Ops using SORA

Certified UAS

ICAO State Letter AN 3/5.12-21/20 dated 31 Mar 2021 (Adoption of Amendment 108 to Annex 8)



CASR 22 Airworthiness Standard for RPAS

- Flight
- Structure
- Design & Construction
- Powerplant
- System & Equipment
- Operating Limitation & Information
- Environment & Human Factor
- Remote Pilot Integration
- Remotely Piloted Unique Considerations
- Remote Pilot Crew Compartment Safety
- RPS Security

SAIL I	SAIL II	SAIL III	SAIL IV	SAIL V	SAIL VI

CONTENT

REGULATION HARMONIZATION

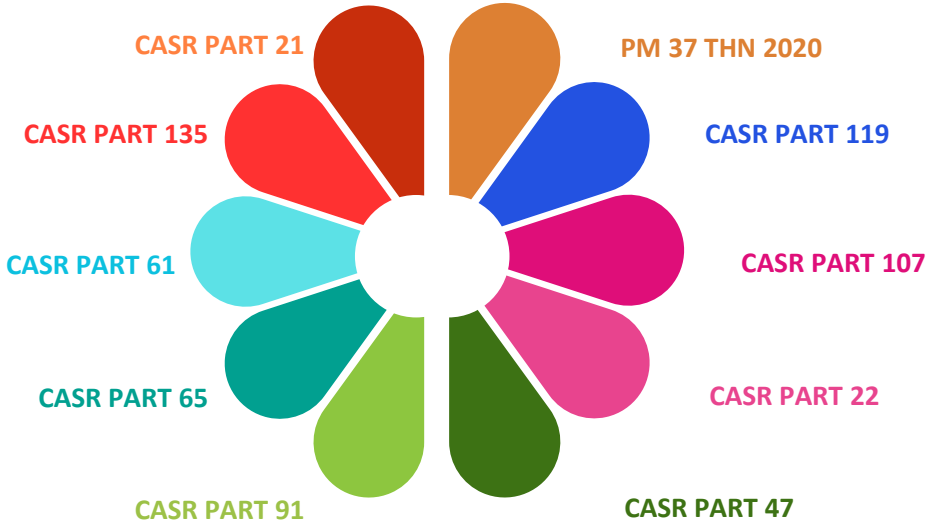
ICAO ANNEX 6 Part 4 – Remotely Piloted Aircraft System (RPAS)
Standar dan Rekomendasi International untuk operasi RPAS

Focus area:
- Flight Operations
- Performance Operating Limitation
- RPAS Instrument, equipment anf flight document
- RPAS Comunication and Navigation equipment
- RPAS Maintenance
- FOO (Flight Operation Officer)
- Remote Flight Crew
- Operation Manual
- Flight time and flight duty limitation

How to Harmonize those regulations??

UU No 1 Tahun 2009

PP No 32 Tahun 2021



DGCA Regulations related to AAM

Regulations from other Ministries, Agencies, or Institutions that may require harmonization with existing UAS or AAM regulations

- UU No 36 Thn 1999 tentang Telekomunikasi
- UU No 24 Thn 2020 tentang Perjanjian Internasional
- UU No 3 Thn 2002 tentang Pertahanan Negara
- UU No 34 Thn 2004 tentang TNI
- UU No 3 Thn 2005 tentang Sistem Keolahragaan
- UU No 26 Thn 2007 tentang Penataan Ruang
- UU No 43 Thn 2008 tentang Wilayah Negara
- UU No 32 Thn 2009 tentang Perlindungan dan Pengelolaan Lingkungan Hidup
- UU No 10 Thn 2009 tentang Kepariwisataan
- UU No 11 Thn 2010 tentang Cagar Budaya
- UU No 12 Thn 2011 tentang Pembentukan Peraturan Perundang - undangan
- UU No 21 Thn 2013 tentang Keantariksaan
- UU No 23 Thn 2014 tentang Pemerintah Daerah

INDONESIA POSITION for AAM – on going

Opening Opportunities for AAM Projects in Indonesia

1. Facilitating trials (EHANG, OPPAV KARI, Skyports)
2. Support domestic industries as AAM pilot project (Vela Airtaxi, Iter Aero Cargo delivery Drone)

Preparation of AAM Roadmap

Identifying existing regulations and planning for new, flexible regulations responsive to AAM technological advancements

Covering:

1. Airworthiness (and Cont.), Operations Aircraft and Personnel certification
2. Airspace Management
3. Infrastructure and security (Vertiport, charging stations, urban airports)

Coordinating with relevant agencies, institutions, and local aviation industries in AAM and UAM development

Active Engagement in International Working Groups

1. JARUS
2. UCWG
3. AAMWG
4. APAC Workstream

Steps in Developing Roadmap

1. Establish Task Force
2. Mapping Needs and Challenges
3. Consultation and Collaboration
4. Goal and Objective Setting
5. Identification of Action Steps
6. Development of Work Plan
7. Testing and Evaluation
8. Commitment, Iteration and Updates

Framework of roadmap development in Indonesia

Short Term

- Establishment of Unmanned Aircraft Working Group,
- Regulatory Renewal,
- Human Resource Development,
- Pilot Testing – Pilot Project,
- Participation in International Activities/Working Groups,
- Promotion/Safety Campaign, and Socialization

Middle Term

- Implementation of new regulations,
- Evaluation of Pilot Testing – Pilot Project,
- Infrastructure Development,
- Partnership with Industry and Academia,
- Development and certification of local industry (TKDN),
- Strengthening supervision and security,
- Promotion and Socialization

Long Term

- Implementation of transportation system integration;
- Active role in the international arena,
- Innovation and development of technology ecosystems

TIMELINE – Implementation of Commercial UAS in Indonesia

Indonesia Regulations For Unmanned Aircraft:

- Indonesian Law No. 1 Year 2009 on Aviation
- Goverment Regulations No. 32 Year 2021 Aviation Sector Organization
- Minister Of Tranasport Regulation No 63 Year 2021 Small Unmanned Aircraft System;
- Minister Of Tranasport Regulation No 37 Year 2020 Operation of Unmanned Aircraft in Indonesian Airspace
- Minister Of Tranasport Regulation No 98 Year 2015 Certification Procedures for Product and Parts.
- Minister Of Tranasport Regulation No 34 Year 2021 Airwhorthiness Standart Remotely Piloted Aircraft System.
- Policy Letter No. 29 tahun 2024 tentang Specific Operation Risk Assessment.

Oct 25

Acceleration of regulatory enhancement:

- Taskforce establishment (special teams)
- Work plans
- Regulatory review

Jan 26

Regulation finalization and testing:

- Pilot project - phase 1
- Collaboration with industry
- Regulation socialization

Apr 26

Initial Implementation & Oversight :

- Implementation of new regulations
- Execution of Phase 2 trials (limited operations)
- Strengthening of safety and oversight systems (UTM)

Aug 26

Evaluation and Further Planning :

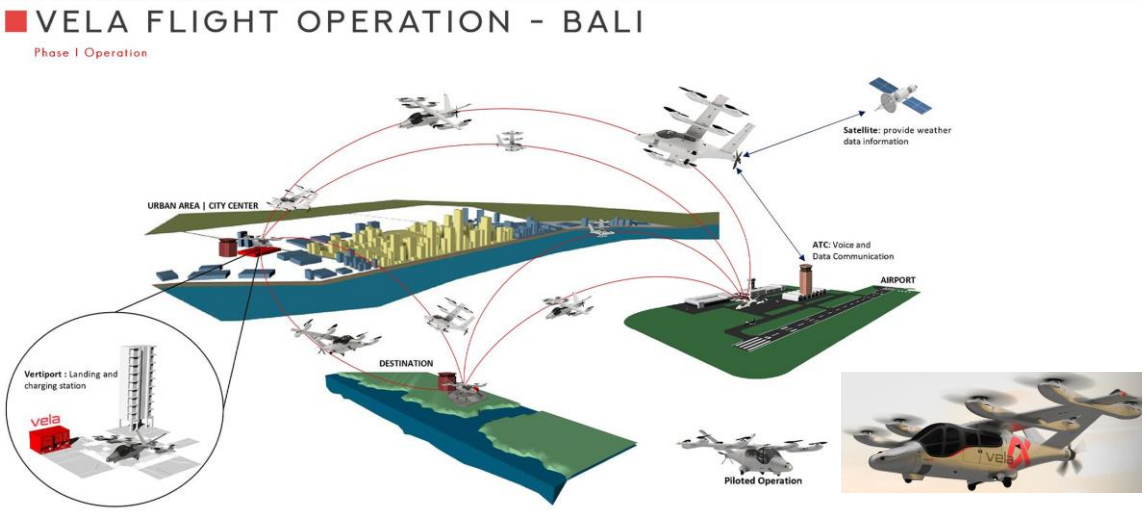
- Trial phases evaluation
- Lesson Learned & recommendation

Dec 26

- **Fully Implementation**
- **Oversight process**

AAM Project in Indonesia

Project	Type	Status
IA-25 Drone Delivery	Domestic	Type Certificate process
Vela Prima Nusantara eVTOL	Domestic	In Development
KARI/Hyundai OPPAV	Foreign	Demonstration/ Trial
EHANG 216	Foreign	Plan for TC Validation
ARCHER eVTOL	Foreign	Preliminary Discussions

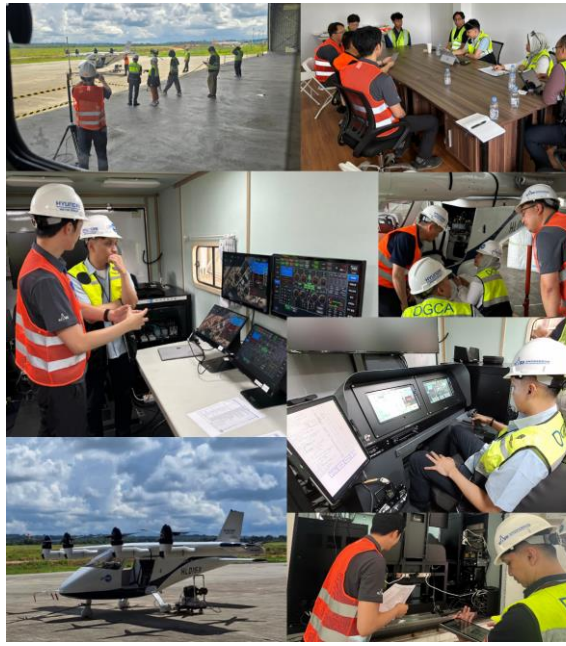


Trial / Proof of Concept

Demo flight EHANG 216, Using Special CoA:

- Bali 25-26 Nov 2021
- Tangerang 06 Des 2023
- Jakarta 20 Feb – 05 Mar 2024

OPPAV KARI – Korea, using Special Flight Authorization



UAS DATA (<25 KG) in INDONESIA

Ref. Database SIDOPI-Go

Klik link website SIDOPI-Go

Remote Pilot : 11442 certificates

UAS Registration: 4751 certificates

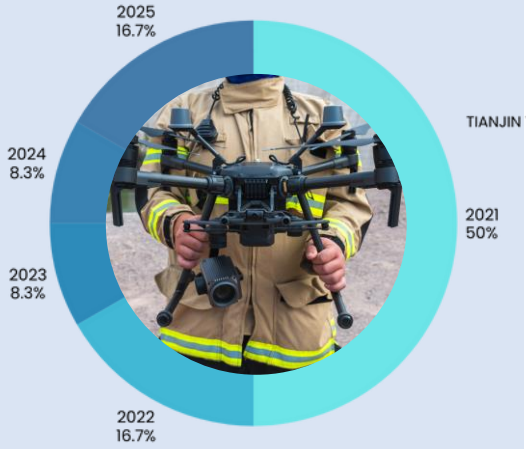
Operational Authorization:

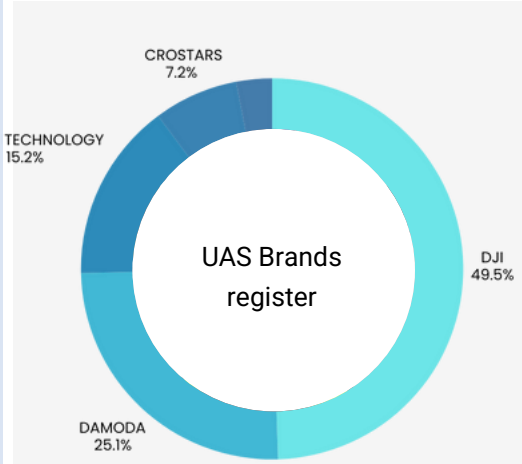
- Year 2023 : 326 approvals
- Year 2024 : 474 approvals
- Year 2025 : 406 approvals

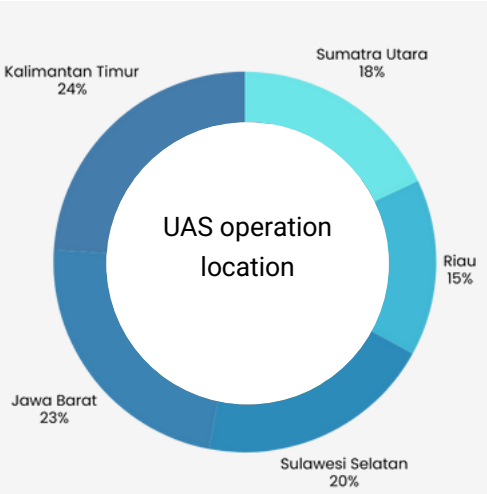
*Data per Oktober 2025

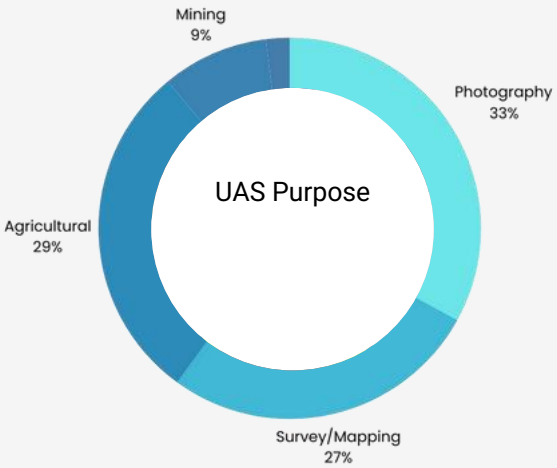
UAS Training Provider

- PT. Drone Edutek Indonesia
- APDI
- PT. Terra Drone Indonesia
- BP3- CUrug
- Nusadrone
- PPI Curug
- Halo Robotic
- Drone Pilot Academy
- SPUKTA UGM
- API Banyuwangi
- Hexatara
- PT. Intan Angkasa
- PT. Adam Arga









UAS-AAM Project in Indonesia

Indonesia Product

Foreign Product

Type Certification Iter Aero – small Cargo RPAS

DOA Certification Process – Vela Prima Nusantara (eVTOL Air Taxi, 5 Pax)

Cargo UAS – HY100 URSA, China (Working Arrangement for TCV between CAAC-DGCA on process)

Cargo UAS – V2000CG Autoflight, China (Working Arrangement for TCV between CAAC-DGCA on process)

Airtaxi EHANG 216, China (TC Validation Application)

Archer – Airtaxi, USA (Preliminary meeting)

Dronamic (Preliminary meeting)

UAS Tsingfly, China (Preliminary meeting), and Demo Flight

Intercruise - Airtaxi

Others
- eVTOL OPPAV KARI Korea, Demonstration
- Skyport Cargo Delivery, Demonstration

Preparation for implementation

Transition

INTO SERVICE

AAM Certification Focus:

- International Airworthiness “Safety” Standard to identify Target Level of Safety
- Novel design, electric propulsion
- System Safety Assessment
- Software and Hardware
- Human Machine Interface (HMI)

CONTENT

Strengthening Key Aspects to Support UAM/AAM Development

REGULATION

1. Airworthiness Standard
2. Electric Powerplant Standard
3. Remote Pilot License
4. Operator Certificate
5. Continuing Airworthiness & Operations
6. Low Altitude Airspace & Sandbox
7. Cyber Security
8. Radio frequencies approval

INFRASTRUCTURE

1. Vertiport & Helipad
2. Charging Station
3. MRO
4. UTM (UAS Traffic Management)

HUMAN RESOURCES

1. Training and Competency (engineer, ATC, Pilot)
2. Transfer knowledge
3. Standardization of Syllabus

COST (INVESMENT)

1. Innovative financing schemes (fiscal incentives, research)
2. Supporting infrastructure development
3. Supporting certification and initial operations of AAM/UAM/eVTOL

HARMONIZATION

1. Cross-ministerial, industry, and academic collaboration
2. Regulatory harmonization with international standards (ICAO, EASA, FAA)
3. Objective: interoperability, safety, and accelerated technology adoption

After all the certification matters,

WHAT NEXT?
Public Acceptance?

Thank You