THE IMPLEMENTATION OF WILDLIFE HAZARD MANAGEMENT AT JUANDA INTERNATIONAL AIRPORT OF SURABAYA - INDONESIA
AERODROME DATA

- Airport Name: JUANDA-SURABAYA
- Operator: PT. Angkasa Pura I (Persero)
- Location: Sidoarjo – East Java
- ARP Coordinate: 07° 22’ 51” S, 112° 47’ 11” E
- Status – Usage: Public – International
- Runway Dimension: 3000 x 45 m
  Instrument Precission Cat. I
- Critical Aircraft: B 747 400
NATIONAL REGULATION

1. Ministry of Transportation Decree Number 55 Years 2015 (CASR Part 139) Aerodromes.

2. DGCA Decree Number 42 Years 2010 (Advisory Circular CASR 139 – 03) Wildlife Hazard Management on and in the Vicinity of Aerodrome.

3. DGCA Decree Number 468 Years 2011 (Advisory Circular CASR 139 – 15) Birdstrike Reporting Procedures.

4. DGCA Decree Number 39 Years 2015 MOS (Manual of Standard) CASR Part 139 Volume I Aerodromes.
DGCA Decree Number 42 Year 2010

Article 2

1. Airport operator must carry out the management of wildlife that are part of procedures at Aerodrome Manual.

2. Airport operator must designate units or personnel to monitoring and control of bird strikes and wildlife hazard at the airport vicinity.
DEFINITION

“Any (reported) collision between birds or other wildlife and aircraft”

“A collision between wildlife and a moving aircraft”

“ Strikes which occur as a result of a collision between an aircraft and a bird”

“A group of birds in the airport vicinity that may cause possible danger or significant risk to aircraft operation”
LOCATION of JUANDA AIRPORT
JUANDA AIRPORT LAND USE CONDITION

- Generally uneven form.
- Some of the land consist of loose soil and muddy that provide food for birds (worm and insects).
- Very slow water absorption (stagnant for a long time), during the rainy season.
- Type of grass on the airside generally reeds and weeds that attracting birds for nesting.
JUANDA AIRPORT LAND USE CONDITION
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- Land at the airport vicinity mostly fish pond and paddy fields.
- Water ponds existence on the airside that provide food for birds (fish).
- Land conditions mostly composed of loose soil, muddy, bushes provide food for birds and comfortable place for nesting.
JUANDA AIRPORT LAND USE CONDITION
JUANDA AIRPORT
LAND USE CONDITION

- Juanda airport surrounded by pond, wetlands and mangrove.
- The habitat of birds have less favourable for birds life due to land conversion.
- Increased construction of residential around the airport makes natural habitat of birds is reduced which causes the birds take advantage of terrestrial vegetation in areas airport and surrounding.
JUANDA AIRPORT LAND USE CONDITION
HOW DEVELOPMENT ACTIVITIES AROUND THE AIRPORT DURING THE LAST 10 YEARS ...?
REPORTING

Airport operator should record and report any aircraft event (incident/serious incident/accident) from the interruption of birds and wildlife to DGCA to delivered to ICAO.

If bird strike and wildlife hazard have been considered to be very dangerous for flight safety, for short term and seasonal, the warning must be given to the pilot through NOTAM.
NOTAM

NOTAM will only be enabled or issued when there is a significant increase from birds or wild animals. NOTAM will provide specific information on the species, the point of convergence, is most likely the location and flight path of birds.

WARR AD 2.23  ADDITIONAL INFORMATION
- Between 2230 – 0200 and 0930 – 1100 daily, seasonal birds activity observed in the vicinity of aerodrome, pilots to be vigilant.
BIRDSTRIKE EVENT AT JUANDA AIRPORT

Cattle Egret (*Bulbucus Ibis*)

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* until September 2015
# Birdstrike Data

## At Juanda Airport - Surabaya

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<th>ENRUT</th>
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BIRD POPULATION DISTRIBUTION MAPS AND WILDLIFE AT JUANDA AIRPORT
AUGUST 2015

- Bubulcus ibis: 7%
- Dendrocygninae: 2%
- Ardeola speciosa: 0%
- Others: 91%

SEPTEMBER 2015

- Bubulcus ibis: 4%
- Dendrocygninae: 12%
- Ardeola speciosa: 0%
- Others: 84%
AUGUST 2015

- Bubulus ibis (Cattle egret): 13%
- Dendrocygnae (Whistling duck): 2%
- Ardea speciosa (Javan pond heron): 0%
- Others: 85%

SEPTEMBER 2015

- Bubulus ibis (Cattle egret): 0%
- Dendrocygnae (Whistling duck): 3%
- Ardea speciosa (Javan pond heron): 0%
- Others: 97%
ZONA 1

ZONA 2

ZONA 3

ZONA 4

**AUGUST 2015**

- **Bubulcus ibis**
  - Cattle egret

- **Dendrocygninae**
  - Whistling duck

- **Ardeola speciosa**
  - Javan pond heron

- Others

83%

16%

1%

0%

**SEPTEMBER 2015**

- **Bubulcus ibis**
  - Cattle egret

- **Dendrocygninae**
  - Whistling duck

- **Ardeola speciosa**
  - Javan pond heron

- Others

82%

18%

0%

0%
ACTION PLAN TO REDUCED BIRD STRIKE AT JUANDA AIRPORT

✓ Grass cutting:
  - not too short (named sized) to reduce the appearance of worm as bird food.
  - for a particular area (soil loose and muddy) implemented by Handy Grass Cutter.
  - carried out at night to avoid the arrival of the bird

✓ Using the BirdStrike Vehicle (with 42 sound of predators)

✓ Routine inspection and patrol in perimeter area.

✓ Completion of the airport perimeter.

✓ Implementation of waste management.
BIRDSTRIKE VEHICLE AT JUANDA AIRPORT
Checking the condition of airport fence
Implementing Focus Group Discussion and Wildlife Hazard Meeting with stake holders at the airport in order to seek the solution of birdstrike problems with keynote speaker (bird expert) from Bogor Agricultural University.

On site orientation as a preliminary study to determined species or type of birds that exist in the Juanda Airport and surrounding which have potentially hazard and endanger flight safety.

Basic training about how to handle birdstrike by bird experts of Bogor Agricultural University.
Focus Group Discussion and Wildlife Hazard Meeting
BIRD STRIKE TREATMENT PROGRAM
FOR SHORT TERM AND MEDIUM TERM

✓ Spraying insecticide to kill insects and worm in the grass.
✓ Flatten the soil or land in the airside gradually which have been the habitat of bird.
✓ Gradually will improve water pond into steep periphery to keep the birds not to perch on the edge of water pond for eating.
THE EDGE OF WATER POND
EXISTING CONDITION

THE EDGE OF WATER POND
PLANNED CONDITION
Improving the Human Resources Juanda Airport to comprehend the basic knowledge of bird through training.

Developing an integrated approach system include:

- Monitoring
- Habitat management
- The use of special equipment
- Land use policy
On site Orientation & Basic training
✓ MONITORING

- Conduct regularly monitoring of the species or type, behaviour, number, movement area, time and movement pattern of birds inside and outside the airport area.

- Conducting research of bird population around the airport and the handling.
Species of Birds

- Tidak Berbiak
- Kuntul besar *Egretta alba* Great Egret
- Kuntul kerbau *Bubulcus ibis* Cattle Egret
- Kuntul perak *Egretta intermedia* Intermediate Egret
- Kuntul kecil *Egretta garzetta* Little Egret
- Cangak abu *Ardea cinerea* Grey Heron
- Cangak merah *Ardea purpurea* Purple Heron
- Blekok sawah *Ardeola speciosa* Javan Pond Heron
- Berbiak
- Pecuk-padi kecil *Phalacrocorax niger* Little Cormorant
- Pecuk-padi hitam *Phalacrocorax sulcirostris* Little Black Cormorant
- Pecuk-ular asia *Anhinga melanogaster* Oriental Darter
- Dewasa
- Berbiak
- Remaja
- Betina
- Kokokan laut *Butorides striatus* Striated Heron

**BAGIAN EKOLOGI DAN MANAJEMEN SATWA LIAR DEPARTEMEN KONSERVASI SUMBERDAYA HUTAN DAN EKOWISATA FAKULTAS KEHUTANAN IPB 2009**

(Sumber Gambar : MacKinnon et al. 1998); Burung dengan tanda * adalah spesies dilindungi menurut Peraturan Pemerintah Nomor 7 tahun 1999 tentang Pengawetan Jenis Tumbuhan dan Satwa
BEHAVIOR of BIRDS

Roosting / nesting site ("house" of bird to take a rest or sleep)

Afternoon

Morning

Foraging site (looking for food (fish/worm/insect etc))
HABITAT MANAGEMENT

Diverting habitat of birds to keep away from sensitive areas for aviation activities with:

- Reducing the preferred habitat
- Repair the edge of water pond near the runway into a steep form.
- Water pond on landside is made as comfortable as possible for birds and minimize human disturbance.
THE USE OF SPECIAL EQUIPMENT

- Juanda Airport has had a bird repellent tool, but the use of the tool is less effective.

- Applying principal “trial, observe, improve” to acquire equipment that can emit sound in accordance with avian predators target.
✓ LAND USE POLICY (MULTISECTORAL)

- Airport are integral part of a landscape which is the habitat for birds.
- Handling birdstrike not only by Airport Operator (PT. Angkasa Pura I) but is the responsibility of the various parties (stakeholder) in this case the entire airport community, surrounding communities and local government related to spatial land use around the airport.
WILDLIFE MANAGEMENT PROGRAM
AT JUANDA AIRPORT

- Prevention and control of bird strike.
- Increased community understanding of birds and how to develop habitat condition on public land, farm land and fish pond.
- Empowerment of communities around the airport with CSR program focused on joint use public lands that support preservation of the environment for the birds life in line with the Sustainable Airport Program (Eco Airport).
CONCLUSION

- Handling birdstrike is not only the responsibility of Airport Operator but also the responsibility of all parties (stakeholders) in this case the entire airport community, surrounding communities and local government related to spatial land use around the airport.

- Bird strike danger to the safety of flight can not be avoided or eliminated all together, but it can be reduced by efforts in harmony with environmental sustainability and suitanable continuous.
THANK YOU

Report Wildlife Strikes