

Aerodrome Wildlife Hazard Management Program Guidelines



Introduction

This module is designed to provide an insight on the importance of an aerodrome WHMP and step by step process on development and implementation of the program effectively.

Regulatory Guidelines

As per ICAO ASM Doc 9137 Fifth Edition,
Chapter 9 ,Para 9.1 -9.4 &
ICAO DOC 9981 PANS Aerodromes
3rd Edition Chapter 6 , Para 6.1-6.3

Topics Covered

This module covers the following topics:

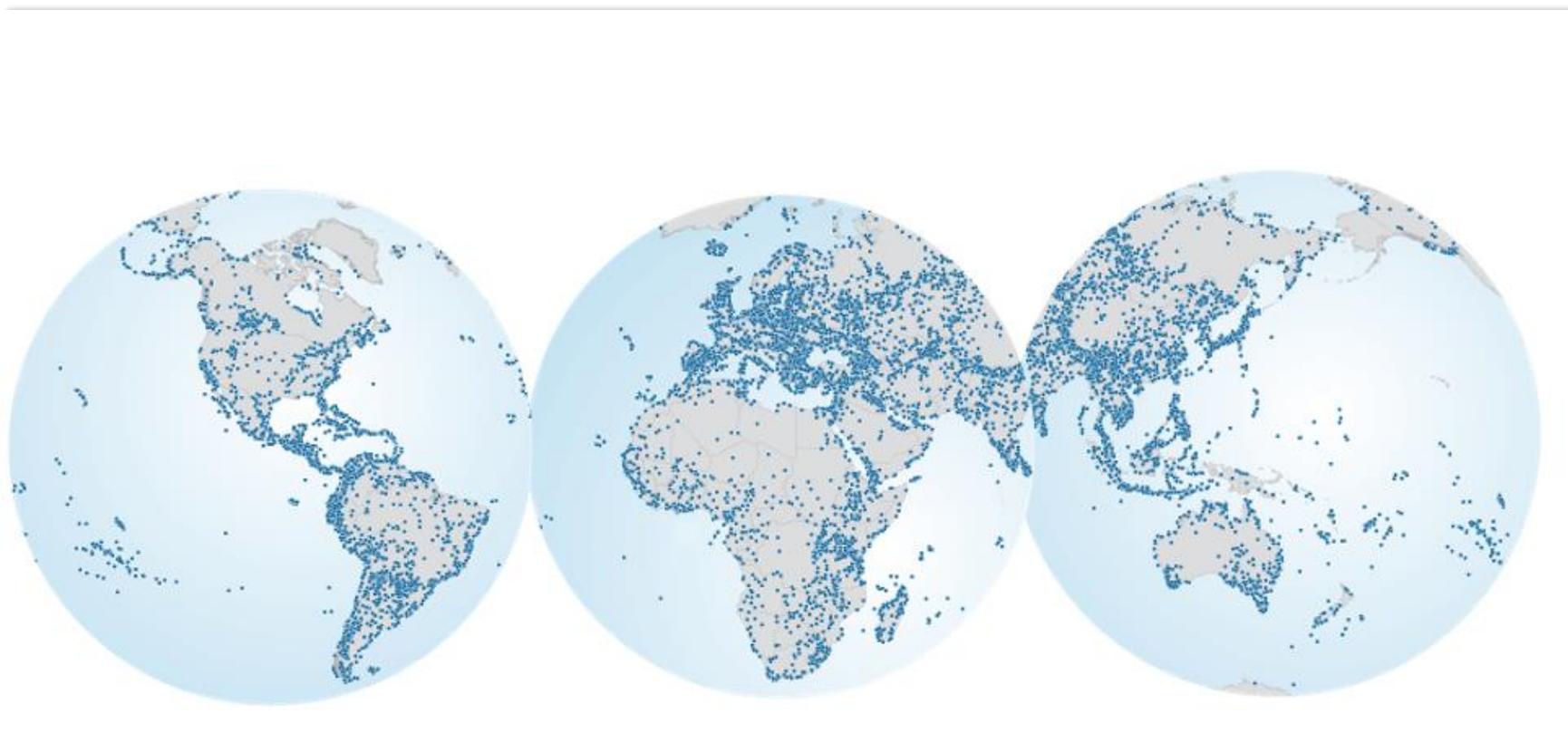
- Aerodrome WHA
- Assessment of Potential hazardous sources in and around airport
- Categorization of zones
- Development of guidance documents
- EOPs/SOPs
- Categorization of Critical area
- Management of PHZ
- Critical area categorization of zones
- Mapping of flora and fauna in PHZ
- Training
- Stake holder engagement
- Off airport WHM management



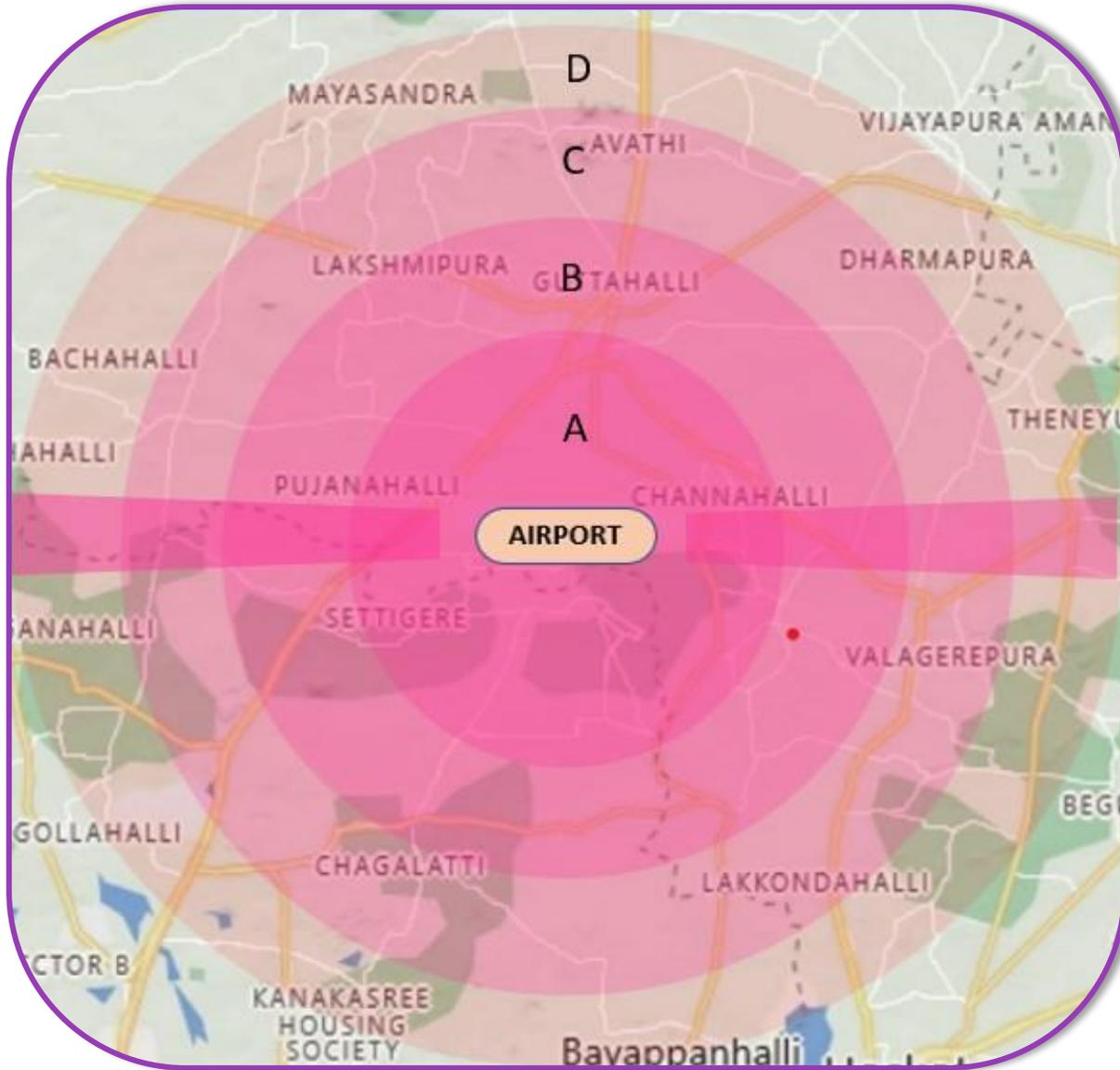
Focus Areas

The graphic consists of a large light gray circle containing the text 'Focus Areas'. At the bottom right of the circle, there is a green curved bar and a small gray dot.

Airspace belongs to us



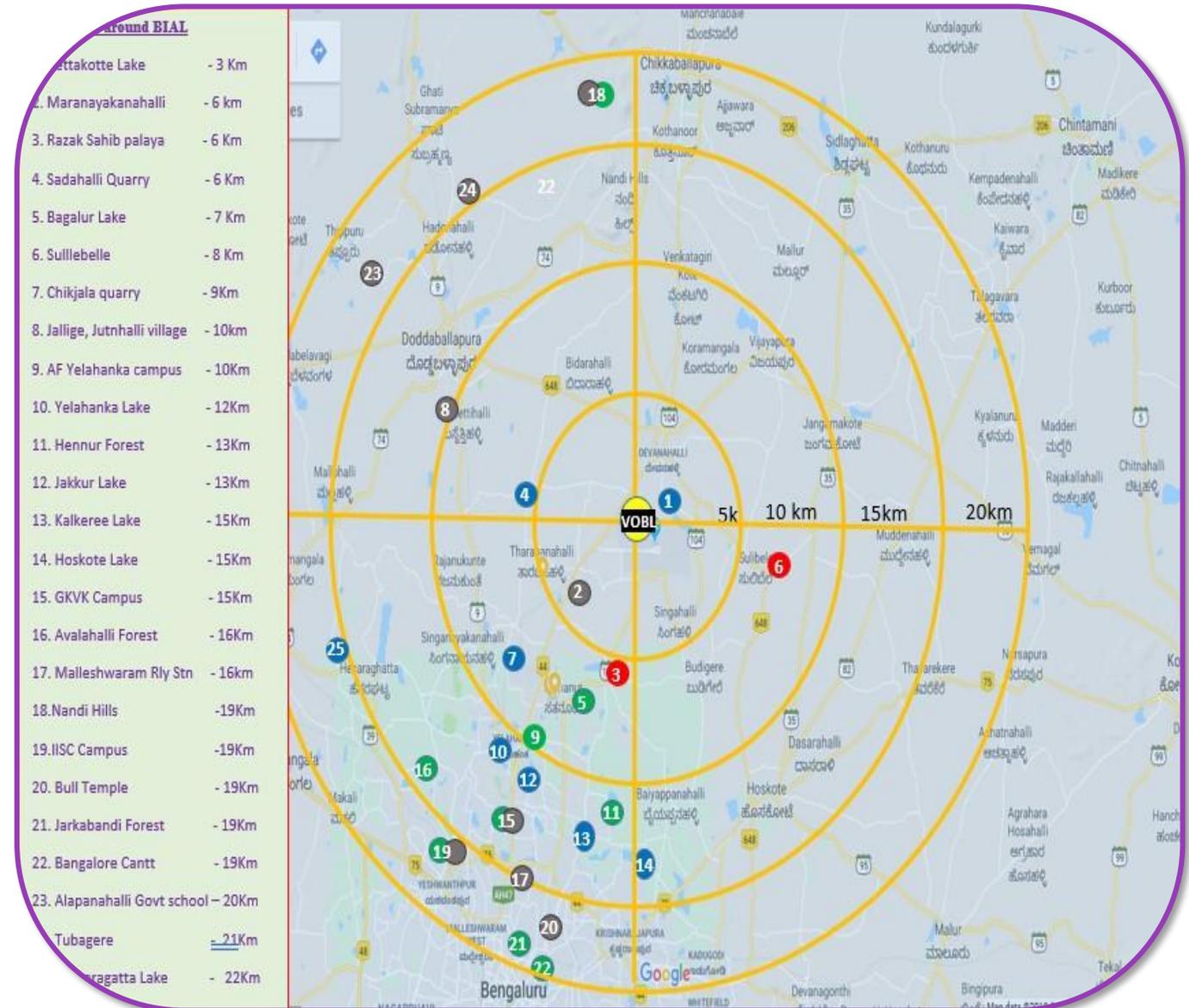
Aerodrome Topography/Ecosystem



- Environment impact Assessment Survey
- Assessment of Aerodrome topography
- Assessment of Flora and Fauna within aerodrome area
- Study of flora and fauna and its sources around 13 kms radius
- Categorization of zones
 - Mapping hazardous sources
 - Mapping hazardous species
 - Mapping hazardous bird clusters

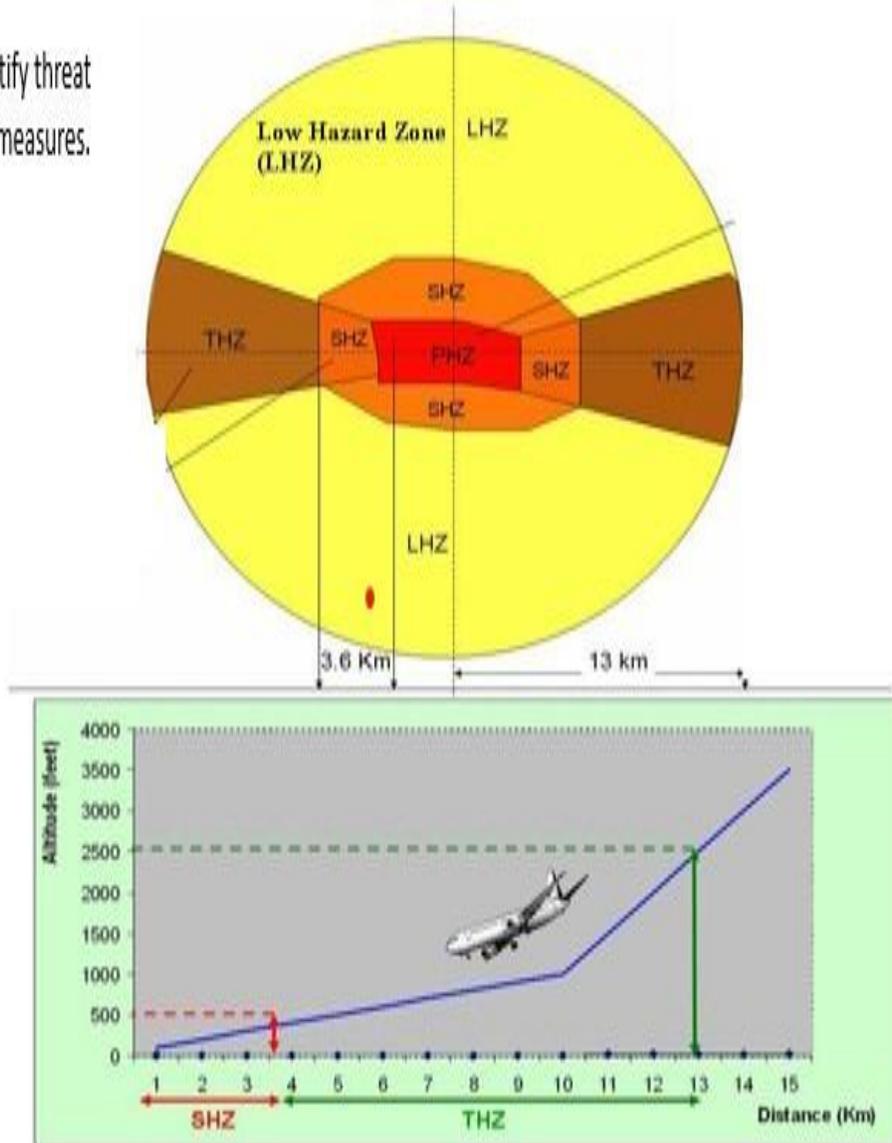
Mapping Potential Hazardous sites around aerodrome – Step 2

- Mapping distance (aerial/land)
- Mapping size of clusters
- Mapping source of attractants
- Mapping movement patterns
- Mapping of lakes
- Mapping of water birds
- Mapping lakes with fish breeding permits
- Mapping illegal slaughterhouses
- Mapping illegal fish farms
- Mapping landfills
- Mapping city waste management centers



Categorization of zones – Step - 3

Survey of 13 KM radius – identify threat sources – suggest preventive measures.



Primary Hazard Zone(PHZ)

- Critical area of Airport

Secondary Hazard Zone(SHZ)

- Surrounding villages within 2 Km from ARP and approach/take off funnel

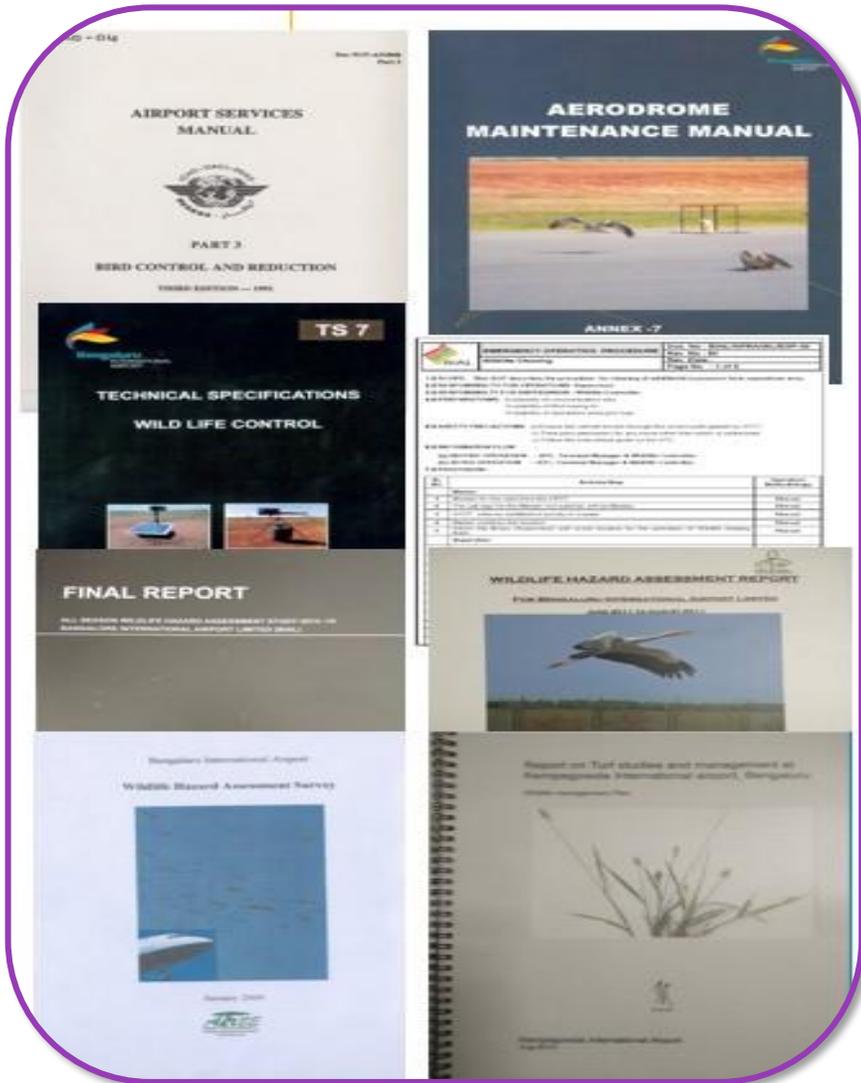
Tertiary Hazard Zone(THZ)

- Areas beyond 2 Km on approach/ take off funnel

Least Hazard Zone

- Areas to be monitored for Potential Hazardous bird attraction

Primary Guidance documents – Step 4



- Wildlife Hazard Assessment report
- WHM Manual/Program covering the following topics
 - Aerodrome biodiversity
 - Flora and fauna details of critical area
 - Critical area categorization
 - Flora and fauna of PHZ
 - List of potential hazardous species
 - Mapping of critical movement over critical area
 - Development of Active control management plan
 - Development of Vegetation/habitat management plan
 - Work flow

Emergency/Standard Operating procedures

	STANDARD OPERATING PROCEDURE BASHM DIVISION	Doc. No: BIAL/GS/BASHM/SOP-22
		Issue Date: 01 April 2008
	PROCEDURE FOR WILDLIFE HAZARD SURVEY AROUND 13 KM RADIUS OF AIRPORT	Rev. No: 04
		Rev. Date: 15 Mar 2023
		Page No : 1 of 3

1.0 SCOPE: This SOP describes the procedure for wildlife hazard assessment survey around 13 km radius of airport

2.0 TABLE OF CONTENTS

Sl.No	Content	Page No
1	Events while carrying out the survey around 13km radius of airport.	1
2	Activities while carrying out survey around 13km radius of airport.	2
3	Documentation	2
4	Follow up	2
5	Revision history	3

3.0 LEGISLATION/REGULATION: ICAO DOC 9137 ASM PT 3 WHM 5th Edition

4.0 DOCUMENT OWNER: Haridasan V DGM, BASHM & HABITAT MANAGEMENT DIVISION

5.0 RESPONSIBILITY FOR OPERATIONS: Duty Manager BASHM.

6.0 RESPONSIBILITY FOR SUPERVISION: DGM BASHM.

7.0 PREPARATIONS:

- a) Schedule the survey and send cab request to concerned agencies.
- b) Check the serviceability of Camera.
- c) Check the validity dates of equipment entry and exit pass
- d) Check the area of survey correlating with google map.
- e) Prepare grid map/google map of planned places for survey.

8.0 SAFETY PRECAUTIONS:

- a) Always wear PPE.

9.0 INFORMATION FLOW :

- a) BEFORE OPERATION : DGM BASHM
- b) AFTER OPERATION : DGM BASHM

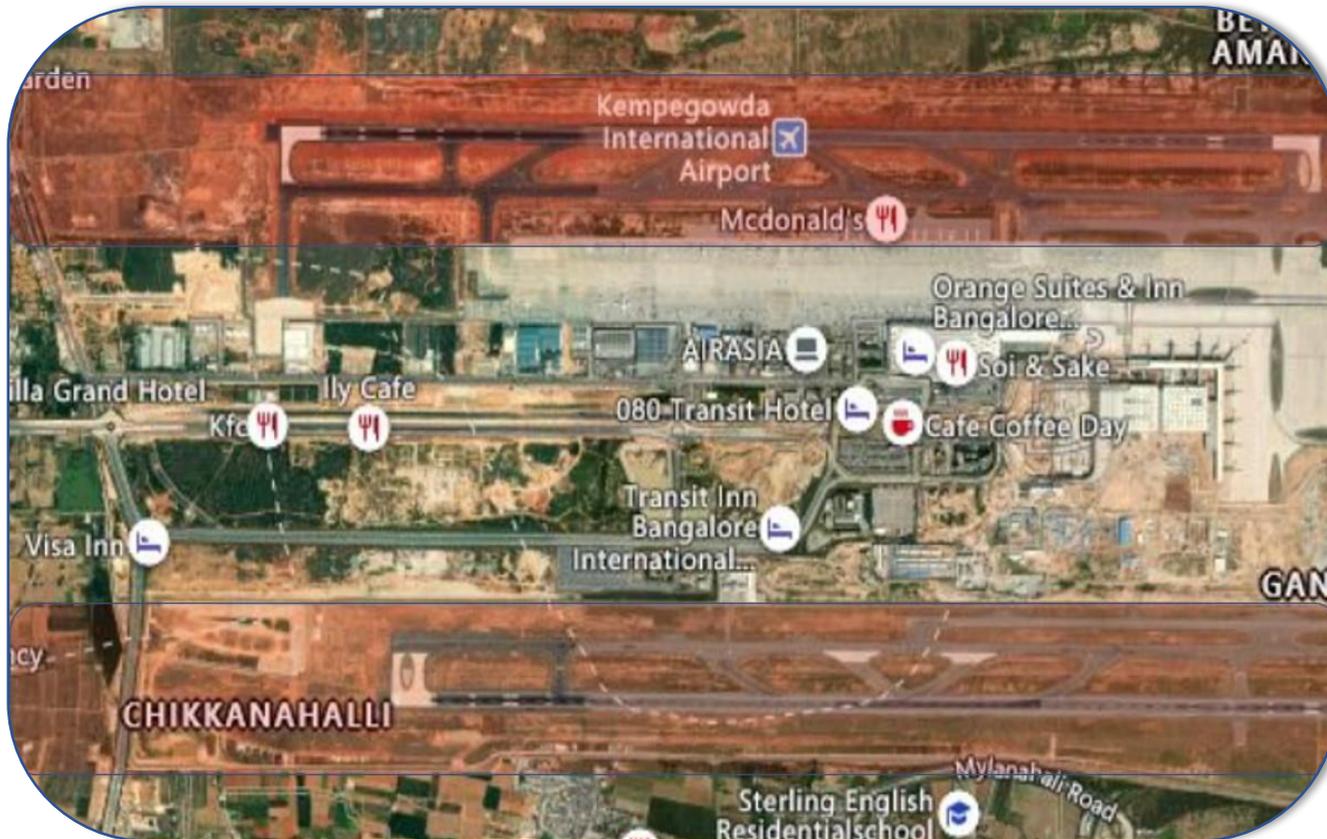
10.0 PROCEDURE:

SL No	Activity / Step	Responsibility	Operation Methodology
1	Roster the survey for monthly covering the following: AEMC survey with safety team - Monthly 13 Km radius survey with consultant or with BASHM team – 2 surveys Minimum 1 survey to conducted in a month (13 km survey dates to be planned on BASHM assessment and	DM BASHM	Manual

- Procedure for Wildlife/Bird alert on critical area
- Procedure for Reporting of Carcass/FOD in critical area

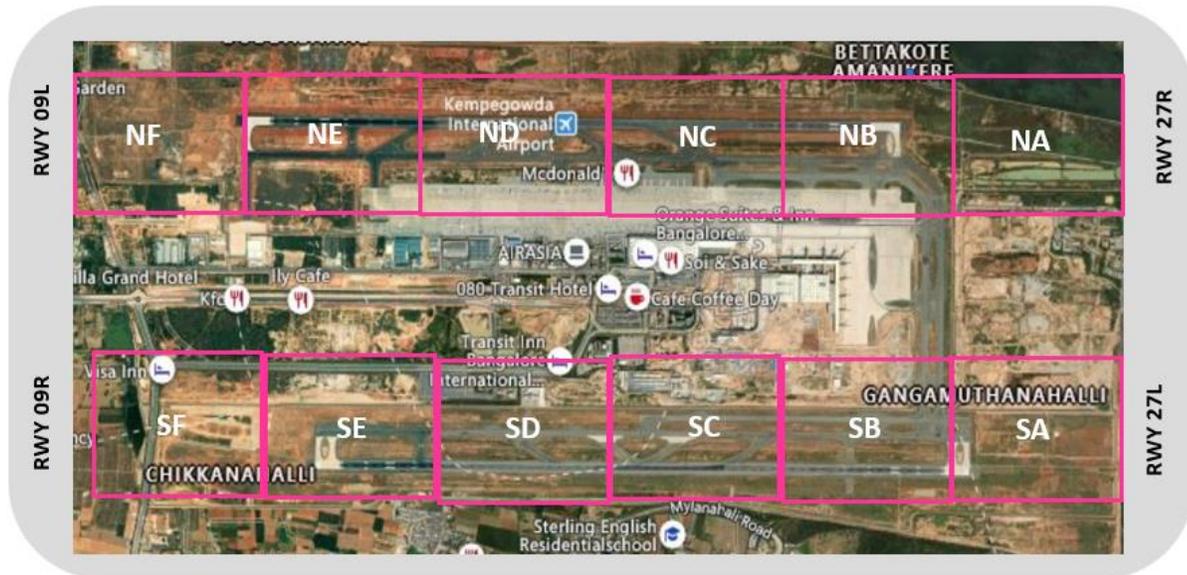
- Daily Briefing on bird scaring team
- Procedure for issue of Bird hazing kit
- Procedure for deployment at critical area
- Usage of cracker bombs
- Usage of six shot launchers
- Deployment of Zon guns
- Maintenance of bird scaring devices
- Procedure for training
- Procedure for Daily inspection
- Procedure of bird monitoring and recording
- Procedure for survey around airport area
- Deployment procedure during LVOP condition
- Procedure for retrieval of carcass and identification
- Procedure for sending carcass for DNA analysis
- Process for stake holder engagement meeting
- Process for AEMC meeting

Management Primary Hazard Zone – Step - 4



- Mapping of flora and fauna at PHZ
- Mapping of critical habitat
- Mapping of grass species at critical area
- Mapping of Project sites
- Mapping of Waste management process
- Mapping of open drain and drain exits
- Mapping of critical bird movement path over critical area

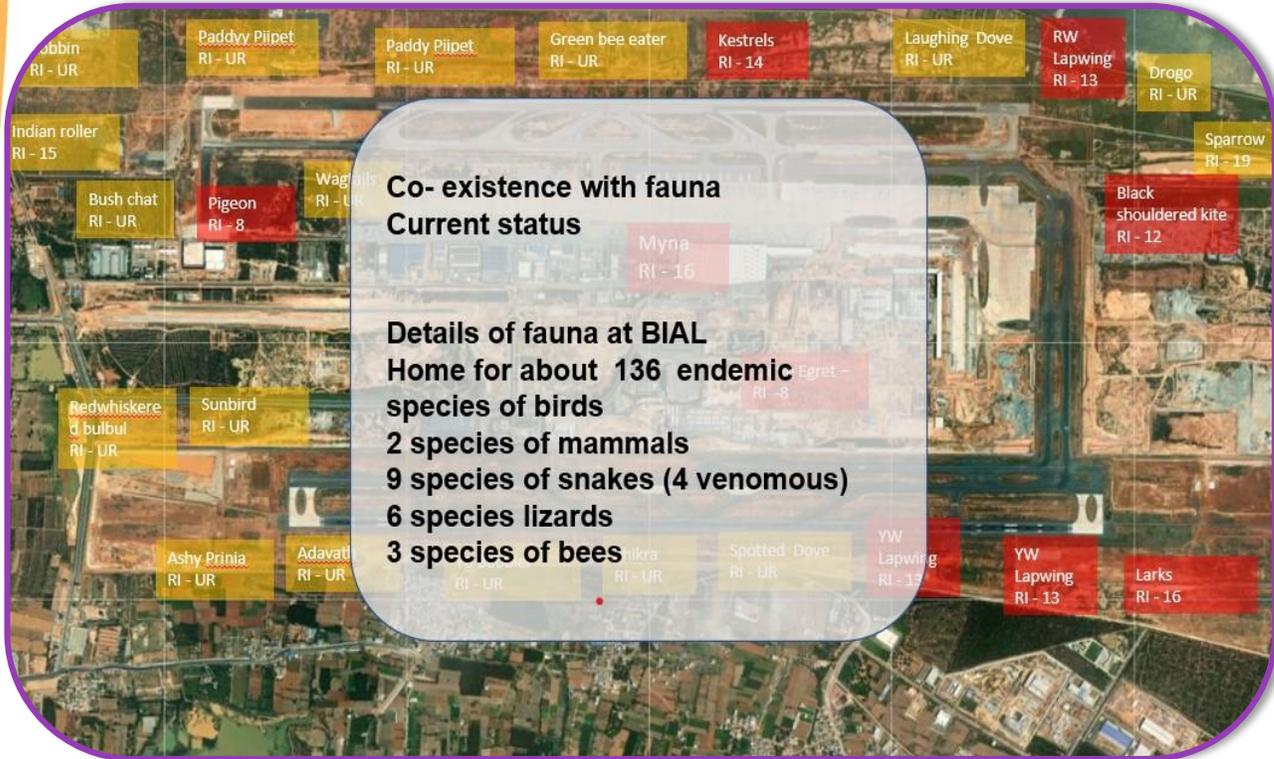
Critical area – WHM zones – Step -5



Critical area to be divided into convenient zones for WHM:

- Quick and easier bird movement recording
- Quick identification of bird presence
- To facilitate quick attention of bird chasers
- To facilitate quick response for follow me to reach the incident site for bird scaring/FOD/carcass retrieval
- Identification of critical bird movement path over PHZ
- Deployment of bird chasing team
- Critical area to be monitored for bird movement & bird strike from dawn to dusk

Continuous Mapping of aerodrome habitat – Step - 6

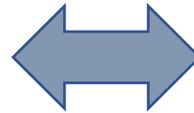


- Process to be developed for flora and fauna mapping of entire critical area
- Identify potential hazardous species of aerodrome habitat and airspace
- Identify least hazardous species and their areas of activity

Generalist vs specialist species - Aerodrome environment

GENERALIST

Species	Avg Mov	TBM%	HR
		Average	
Black kite	54475	29%	1
Swallow	16263	4%	7
Cattle egret	8218	4%	5
Pigeon	7602	19%	6
Lapwing	3608	3%	9



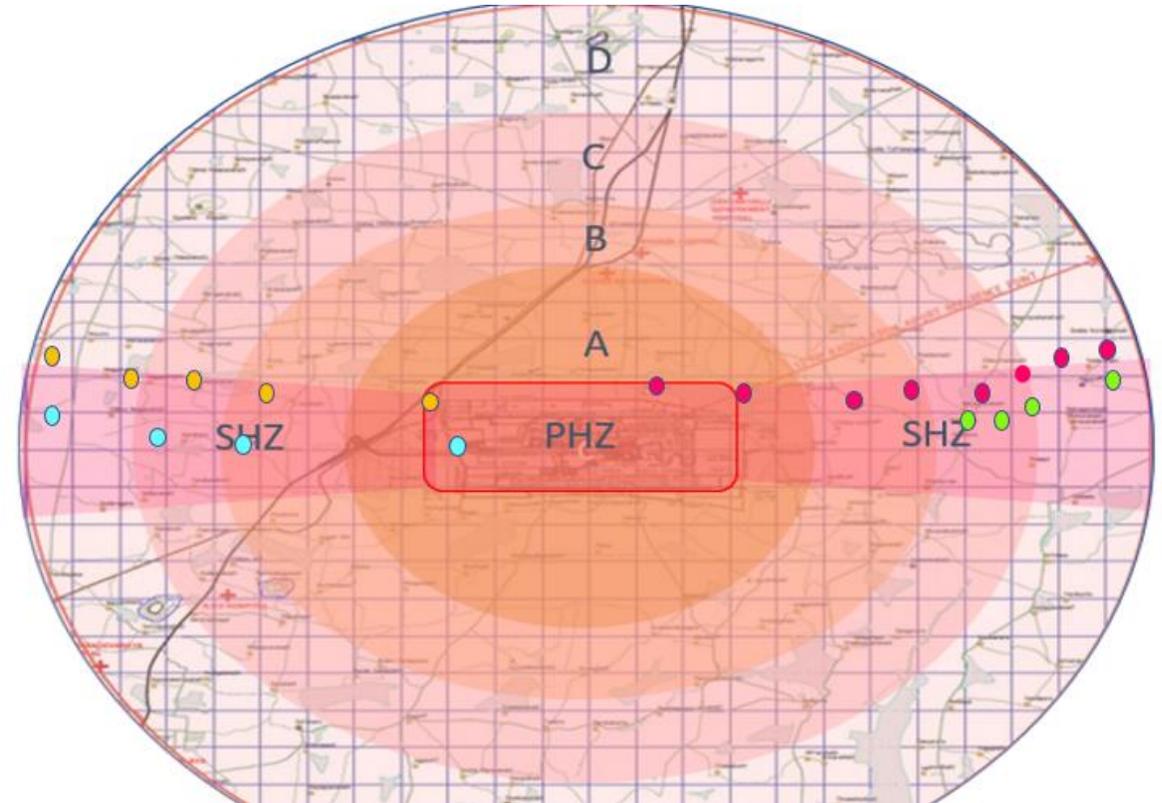
SPECIALIST

Species	Avg Mov	TBM%	HR
House crow	54475	29%	2
Marsh harrier	3467	0.1%	17
Kestrel	15621	1%	8
Parakeet	50377	16%	4
Black-shoulderd kite	5721	0.2%	16

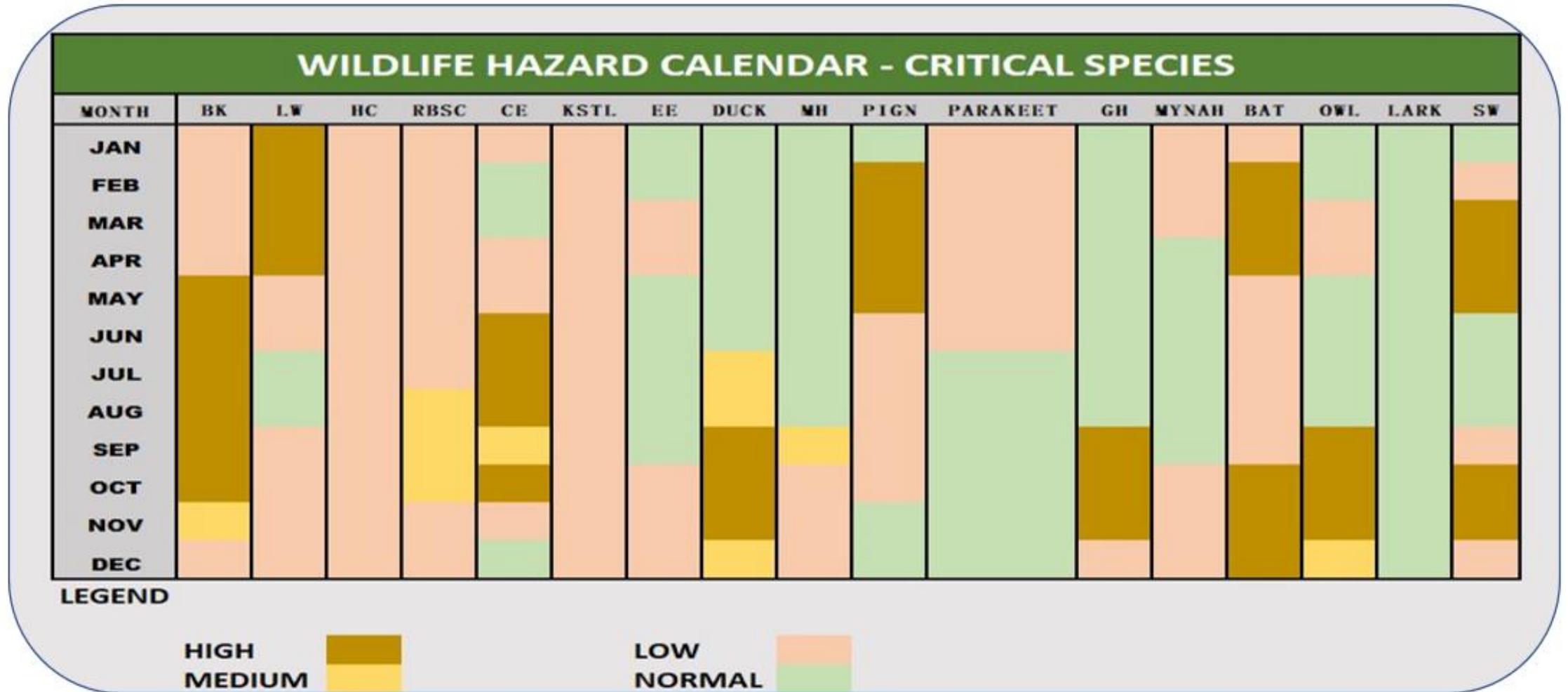
Bird strike data analysis - Potential track

DAY	Altitude		Runway				PHASE
	In feet		09L	09R	27L	27R	
D	100		6	0	1	5	A
A	500		9	0	0	3	R
Y	1000		8	0	2	3	K
	2000		3	0	2	2	
	3000		5	0	0	0	P
	5000		2	1	1	1	H
	6000		4	1	0	0	A
	7000		3	2	0	0	S
	8000		2	9	0	0	E
	9000		2	9	0	0	
	10000		0	1	0	0	

Data extracted from 2020 after ops of second runway



Wildlife Hazard Calendar



Monthly mapping of off airport areas – Step 7

BAT CLUSTERS

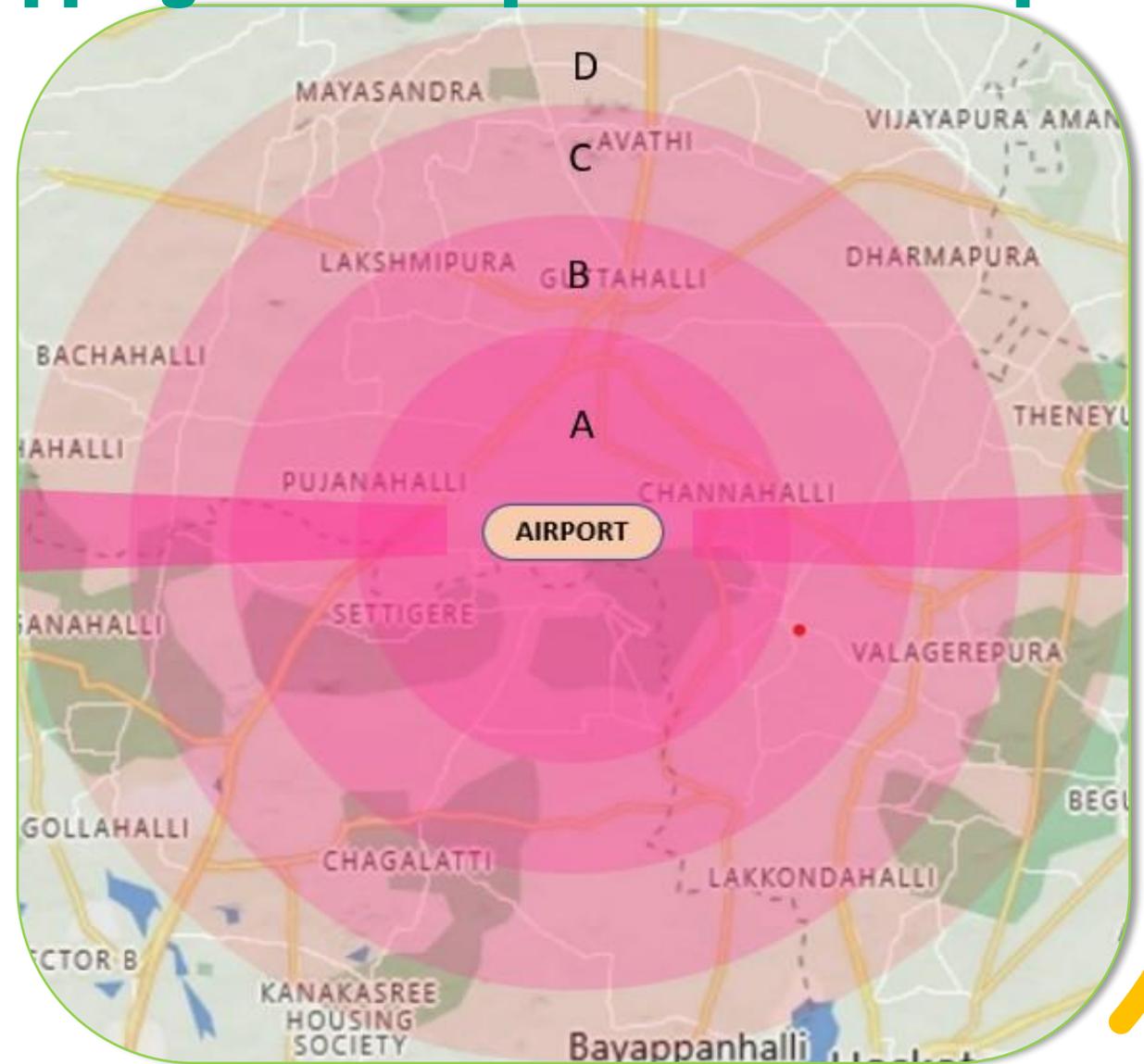
A	B	C	D
1	-	3	2

LAKES – WADERS

A	B	C	D
12	13	12	14

BIRD COLONIES

A	B	C	D
4	6	5	6



Training schedule – Step - 7

WHM Staff

- Induction Training
- On job training
- Competency & assessment test
- Recurring training

Initial training for outsourced team

- Competency test & assessment
- Recurring training
- Weekly field training
- Weekly continuous training

Stake holder engagement meeting – Step - 8

- **Monthly**

Monthly AOCM meeting

- **Quarterly**

RST Meeting

AEMC Sub Committee meeting

- **Half-yearly**

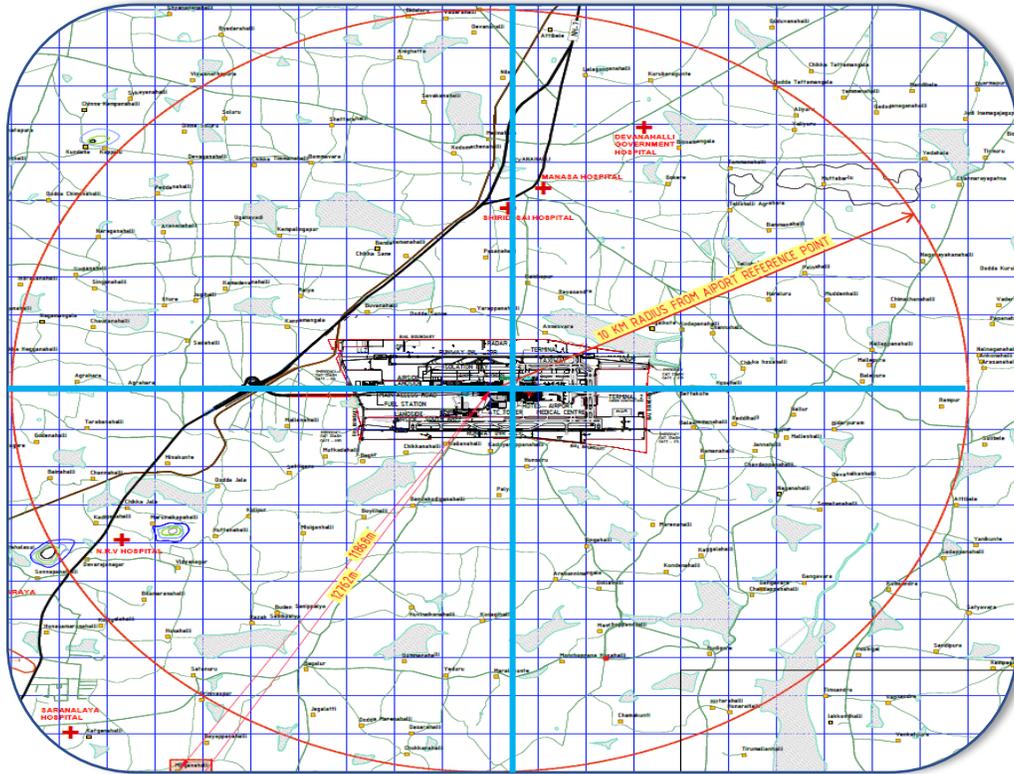
AEMC meeting

- **Annually**

National Bird Control Meeting

Airport Operators Safety Group meeting

Off Airport Management – WHMP Part -1 – Step -9



- Survey around airport
- Divided the 13 km radius to 4 quadrants
- Monthly safety recce with stake holder
- Awareness campaign among villages and eating joints
- Fortnightly wildlife hazard survey
- Mapped the potential hazardous sites around airport
- Refuse dumps
- Illegal fish breeding sites
- Landfills
- Bat colonies
- Kite settlements
- Potential bird sourcing water bodies

Achieved results

99 illegal fish breeding sites permanently closed
Posters placed at prominent places around the airport
Anneswera village adjacent airport awarded with the best waste management village



June 14, 2023

WHMP Part -2 AEMC – Step -10



Airport WHMP issues are handed by AEMC Sub Committee

- Meets quarterly yearly
- All stake holders including villages heads part of this committee
- All issues related to WHMP attended
- Unresolved issues such as fish breeding permits are closed with the support
- Well cooperated support extended from Govt to airport

Airport Environment Management Committee

- Meets once in a year
- Chaired by BDA Chairman
- All unresolved issues from AEMC sub committees are resolved with the support of AEMC



Off airport - Passive control initiatives - Step 11

- Monthly recce survey with stake holders
- Process for checking the area of impact(collecting vital information such as height)
- Process for visiting the site and inspect the area
- Process for identifying the potential hazardous sites
- Process for taking up cases with local bodies
- Process for follow up in mitigating the issues

Survey around water bodies

- Process to monitor the water bodies
Fishing
Leasing the lake for fish breeding
Bird congregation over lakes
- Process to identifying waste dumping in water bodies
- Process to identify pollution in lakes impacting disturbance to water birds

Man vs bird

Agencies / Updated: Jun 5, 2022, 06:00 IST

 FACEBOOK

 TWITTER

 LINKEDIN

 EMAIL



HIGHLIGHTS

- Fishers bursting crackers at small waterbodies to ward off waterbirds have lake activists up in arms
- Fishermen given licences from panchayat, fisheries dept

WHM a ceaseless endeavor

Facts about birds

- Airspace belongs to birds
- Birds are intelligent
- Highly adaptive
- Action upon instincts

Aerodrome operator's responsibility

- Engage a dedicated WHM specialist
- WHA Survey
- Develop & implement an integrated WHMP
- Develop & engage a Wildlife Monitoring system
- Conduct data analysis and improve upon the program
- Conduct stake holder engagement events
- Review the WHMP

Stake holders' responsibility

- Airlines
- Ensure WHMP at operating aerodrome
- Ground handlers
- Ensure safe handling of aircraft waste and GSE areas without posing sources for bird attraction

THANK YOU

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