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Management Working Group (AP-WHM/WG/7)

Pokhara, Nepal, 5 to 9 May 2025

**Agenda Item 4: Progress Update on Tasks assigned to States and
International/Regional Organizations**

**AN OVERVIEW OF WILDLIFE HAZARD MANAGEMENT
AT GREENFIELD NAVI MUMBAI INTERNATIONAL AIRPORT, NAVI MUMBAI, INDIA**

(Presented by India)

SUMMARY

This paper presents NMIAL's experience in establishment & commencement of the Wildlife Hazard Management at the new greenfield airport – Navi Mumbai International Airport, Maharashtra, India.

1. INTRODUCTION:

1.1 Navi Mumbai International Airport Limited (NMIAL), a subsidiary of Adani Airports Holdings Limited (AAHL), is a Greenfield Airport under development jointly by NMIAL and City & Industrial Development Corporation (CIDCO) at Navi Mumbai in Maharashtra. The runway orientation of the Navi Mumbai International Airport (NMIA) is 26/08 which is near parallel to the primary runway (27/09) of Chhatrapati Shivaji Maharaj International Airport (CSMIA) Mumbai, ensuring simultaneous and independent operations at both airports. With this, NMIA and CSMIA will form first dual airport in the city in India. The NMIA site spans an area of 1160 hectares and the surroundings encompass a diverse range of habitats, including wetlands, mangroves, forests, water bodies, grasslands, forest patches, farmlands, bird sanctuaries, and urban areas with human settlements. The length of the runway is 3700 m with 2 parallel taxiways.

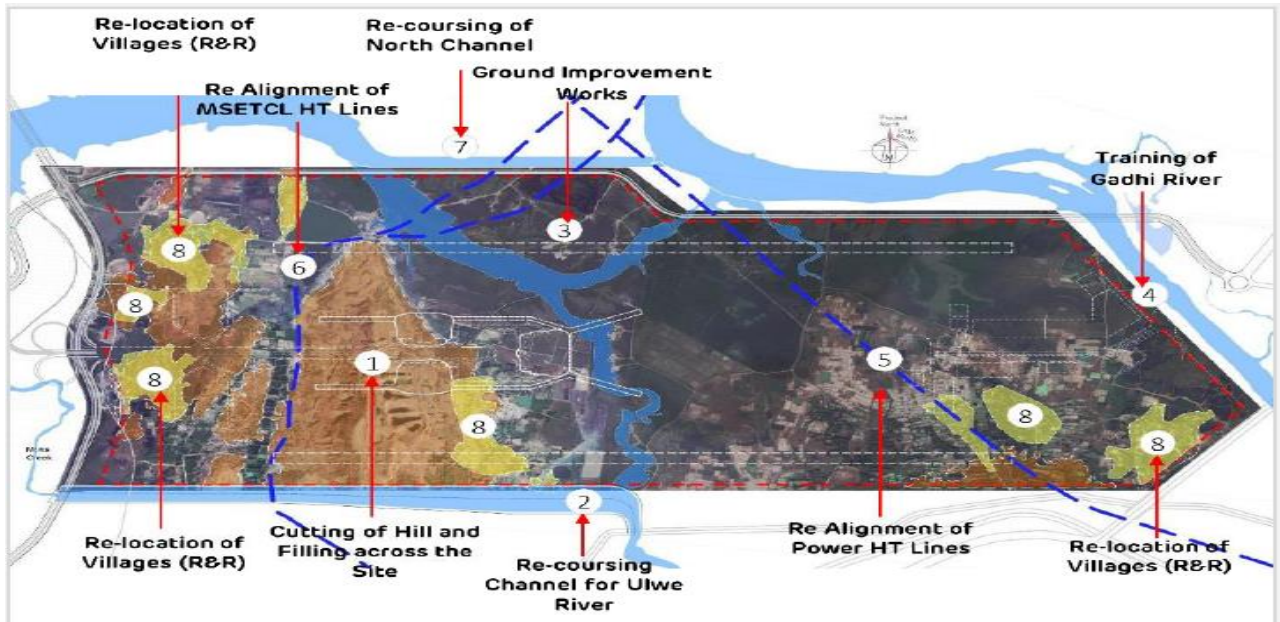
1.2 The ICAO Code of the airport is VANM & IATA- NMI.

2. DISCUSSION

2.1 PRE-OPERATIONS PHASE

- NMIA site of 1160 hectares, was characterized by varied natural topography. The site exhibited significant variations in its natural topography, owing to multiple natural features like low-lying areas, Hill with an elevation of over 100 m, and River flowing south to north through center of the site. EHVT lines passing through the site, one eastern and the other on the western part of the site. The nine villages were located on higher terrain, in western & southern parts of the airport site.

- Habitats around NMIA include diverse environments like Wetlands, Mudflats, Mangroves and Creeks, Grasslands and Rivers.



- During the planning stages, a comprehensive wildlife hazard assessment was conducted to identify potential wildlife attractants in the area. CIDCO appointed Bombay Natural History Society (BNHS) to carry out bird surveys which include migratory birds in the year 2018 for 10 years. The survey identified a total of 231 species from the study area (upto 10 Kms) although the species recorded from the NMIA airport construction site has decreased from 80 to 60 species till 2023 and further decrease to 26 species at inside Airport in 2024.
- Various Avian species around the NMIA observed during initials survey were classified into five types based on various habitats and feeding behaviors, i.e. Surface Feeders, Dive Feeders, Aerial Hunters, Ground Hunters, Shore Feeders.
- Bird populations in the NMIA area varies seasonally and are quite fascinating, with migratory species arriving during different times of the year, especially in the winter months, migratory birds from various regions arrive, adding to the local avian diversity.
- Winter Migrants: Many species from colder regions migrate to the NMIA area to escape harsh winters. These include flamingos, various types of ducks, waders like sandpipers and plovers, and raptors such as eagles and kites.
- Summer Migrants: Some species migrate to the area during the summer for breeding purposes. These can include certain types of terns, bee-eaters, shrikes, swifts and other shorebirds.
- Study of BNHS on flamingoes**: The data gathered by BNHS from the trackers attached on bird's shows that migratory birds, (flamingos), being large in size, tend to fly closer to the water surface while flying over short distances, to move from a primary site to a nearby roosting site. The local movement of birds is observed to be commonly restricted to an

altitude of less than 50 m above sea level. The flight pattern of birds in adjoining creek, potentially including their path intersecting with the approach path of NMIA runways was also part of study. Flight procedures for Navi Mumbai airport with 3-degree glide slope and worst-case scenario (full length departure) were considered and according to the data visualization, aircraft taking off or landing on NMIA runways typically is at an altitude significantly above the observed flight elevation of migratory birds in the creeks.

2.2 PRE-LICENSING PHASE

- A detailed Wildlife Hazard Management Programme (WHMP) is developed as per PANS Aerodrome Doc 9981, outlining specific measures to be implemented including active & passive methods and regular wildlife monitoring. We are also engaged in conducting thorough risk assessments to identify potential wildlife hazards and their impact on operations.
- Airport WHM training of officials involved has been conducted through external agencies and internal training programs are being implemented to effectively recognize, identify, and respond to wildlife hazards.
- Aerodrome Environment Management Committee (AEMC) has been constituted as per DGCA and order issued by City Development Department, GoM and first meeting conducted on 13th Feb 2025.
- Constituted an AEMC subcommittee, which is meeting every month to discuss all matters pertaining to wildlife and the environment.
- Conducting joint inspections with local municipal officials, gram panchayat and identified all the wildlife attractants and requested the municipal officials to take appropriate action to control wildlife activities.
- Standard Operating Procedures/checklists have been prepared for setting down different processes needed for safe and effective day-to-day operations.
- Collaboration with local authorities, and wildlife experts to develop effective WHM strategies. NMIA also appointed an external agency “Birdgard India” to carry out WHM assessment survey in and around NMIA upto 13 Kms radius covering all the seasons.
- Procurement of various bird scaring devices, pyrotechnics and deployed wildlife catching teams to catch stray dogs and snakes and handovers to municipality and forest department for relocation.

2.3 OPERATIONAL PHASE

- Regular scheduled operations at the NMIA are planned to commence from end of July/August beginning 2025.
- In terms of active control, adopted the process of monitoring & deterrence mechanism by deploying bird-scaring personnel, using various devices and pyrotechnics

- The runway strip is divided into grids for monitoring, counting and recording bird movement and their behaviour.
- Regular inspections of operational areas are conducted to eliminate roosting and nesting sites. Boundary walls and Perimeter Intrusion Detection Systems (PIDS) are installed to prevent wildlife intrusions, covering drains with nets are adopted to prevent birds.
- Awareness sessions being conducted for all agencies working at project sites and stakeholders. Additionally, NGOs are involved in awareness programs for the community, sharing leaflets, and displaying posters to enhance awareness among villagers.
- Continuous monitoring and evaluation of wildlife activity to ensure the effectiveness of Wildlife Hazard Management (WHM) measures. This includes the use of GPS-based software applications for bird counting and real-time monitoring of wildlife movements.
- Night surveys are carried out on a necessary basis for monitoring nocturnal bird activity.
- Established a system for reporting bird/wildlife strikes and incidents as per DGCA directives and requirements.
- Wildlife hazard risk assessment is currently being conducted by an external agency. Based on the initial assessment survey, both short-term and long-term recommendations are being implemented. Additionally, in-house assessments are periodically carried out to evaluate the effectiveness of various mitigation measures.
- With all these integrated & collaborative efforts, we strive to make the skies safer for both birds and aircraft operating to and from NMIA.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) share the best practices for WHM; and
- c) discuss any relevant matters as appropriate.

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