

# STUDY ON BIRD STRIKE HAZARD IN AND AROUND RAJIV GANDHI INTERNATIONAL AIRPORT (RGIA), HYDERABAD INCLUDING MULTI SECTOR SPECIAL ECONOMIC ZONE (SEZ) LOCATED WITHIN RGIA

**Final Report**

November 2018

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A Centre of Excellence under the Ministry of Environment, Forest & Climate Change,  
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## EXECUTIVE SUMMARY

GMR Hyderabad Aviation Limited approached Sálim Ali Centre for Ornithology and Natural History (SACON) to study the bird community of the multi-sector Special Economic Zone (SEZ) located near the Rajiv Gandhi International Airport (RGIA), Hyderabad and the possible threat to aircraft movements due to proposed activities at the SEZ. The study had two components: (1) a comprehensive study of the birds of the airport area and (2) a special study of the SEZ area and the potential hazard posed by birds to aircraft.

The field study was conducted in the airfield, adjacent multi-sector SEZ and in the surrounding landscape (10 km radius) from March to July 2018. Systematic sampling of the bird species present in the airport area and within a 10 km radius from the centre of the runway was conducted using the point count and transect count methods. The sighting rates, activities and movements of all the bird species of the study area were recorded. Bird observations specific to the SEZ was also studied. Inventory of plant species and general observation of plant communities in the SEZ area were also carried out through systematic sampling. As the presence/abundance of a particular bird species is related to the land use and land cover, the habitat complexities of the airport and its surroundings were studied by mapping the land cover of an area of approximately 10 km radius around the airport.

A total of 114 species of bird were recorded in an area of 10 km radius around RGIA during the field investigations. Of these, 102 species were recorded through the systematic sampling process and the rest through opportunistic observations. Thirty-three of these were wetland species, and 81 were terrestrial birds. Forty-three species were recorded from the immediate surroundings of the runway during runway transect counts. The Blue Rock Pigeon and Red-wattled Lapwing were observed to be the dominant species close to the runway.

Although the airport buildings are supposed to be pigeon-proof, it was observed that pigeons are building their nests in those areas where pigeon-proofing measures have not been carried out and that they are using the roofs of the buildings as their roosting sites. In some areas, pigeon-proof nets were found to be damaged. This should be

managed by fixing pigeon-proof nets in all essential and appropriate places of the buildings. Bird-repellent chemicals can also be used in places where proofing cannot be carried out, such as roofs and window shades. Pigeon traps should be used to capture and relocate the pigeons beyond 10 km from the airport.

Red-wattled Lapwings were recorded close to the runway, and hence they are a potential hazard to aircraft. Exposed brown patches of soil are potential breeding microhabitats of the lapwings. Hence, creating grass cover all over the exposed areas near the runway is important to minimize the number of lapwings along the runway.

Very often, the Indian Peafowl is found inside the airport due to the presence of extensive natural vegetation around the southern part of the primary runway, which provides feeding and roosting sites. Clearing the bushy undergrowth of the airside can reduce the availability of potential breeding grounds for peafowls inside the airport.

Overall, there is a diverse bird community within a 10 km radius of RGIA, consisting of urban birds, farmland birds and wetland birds.

Five major land cover classes (shrubland, agriculture, water body, settlements and barren land) were recorded within a radius of around 10 km around the airport. Land use and land cover analysis of the area around the airport revealed that human settlement is the predominant type (91.7 km<sup>2</sup>), followed by agriculture (89 km<sup>2</sup>) and shrub cover (76 km<sup>2</sup>). Though water bodies make up only 2.7% of the total area studied, altogether, the water sources of the landscape (16 major sources and more than 100 minor sources) harbor nearly 30% of the bird species, largely water birds.

The water bodies present in the airfield attract significant numbers of waterbirds, including Open-billed Storks and Spot-billed Ducks. However, these two species were not encountered anywhere near the runway during the study, and hence they are presumed not to be potential hazard species for aircraft, at present.

Regular movements of Cattle Egrets were observed every day. Large flocks moved across the eastern tip of the runway. They travelled from north to south, from their roosting sites to their feeding grounds (paddy fields and poultry farms), in the morning (between

6 am and 7 am) and returned in the evening (between 5:30 pm and 6:30 pm). An attempt should be made by the airport authorities to prevent the movement of these birds from their regular flight path by shifting their feeding grounds, such as poultry farms, beyond the 10 km radius to minimize the bird hazard to aircrafts. Also, bird alert message shall be sent to pilots by the Air Traffic Control (ATC) authorities during the time of flights, to prevent collision of air crafts with birds.

The bird community of the SEZ area near RGIA, Hyderabad, was studied in relation to the habitat characteristics and the potential threat they may pose to aircraft. Eighty-nine bird species were recorded from the SEZ area. Thirty percent of these were insectivore, 23% omnivore, 9% granivore, 7% frugivore, 2% nectivore and 2% piscivore. The SEZ area has different micro-habitats, such as open lands, grasslands, small water bodies and small patches of forest, which provide food and shelter for these birds.

The existing commercial establishments and the proposed expansion of activities in the SEZ area do not have any aspects that can potentially attract or offer any safe habitats for birds. The bird species recorded in the SEZ area during the present study were common bird species found in scrublands and grasslands.

It is presumed that the existing barren/natural areas are going to be converted to commercial establishments according to the multi-sector SEZ plan. The natural vegetation (shrubs and ground layer) is expected to be removed from the area, and this may lead to local displacement of many bird species that are presently dependent on these resources. Hence, the proposed developmental activities are not likely to increase the populations of different bird species in the SEZ area.

Over 30+ Red-wattled Lapwings in the SEZ area were observed to fly from the SEZ towards the runway and return regularly. When the remaining unused open lands of SEZ get converted to commercial use, these birds may lose their feeding and breeding grounds, and likely to move away from the area.

The levels of diversity and activity of the birds in the built-up area of the SEZ were very low. However, Blue Rock Pigeons were found to be roosting on the roof of main building of the GMR Aerospace Company. This can become a potential threat if appropriate

measures are not taken. There should be an appropriate architectural and ecological consultations to be taken up by the airport authorities, while developing new buildings so that roosting of gregarious birds in the SEZ area can be prevented.

It is suggested that a proper solid waste disposal system be established in the SEZ area once the new constructions are done so that aggregations of scavenging birds such as kites, crows and mynas in the habitat can be prevented. On the observations and findings of this study, no potential danger to the aircraft operations at RGIA is expected to arise from the proposed SEZ.

