

**REVIEW OF THE STUDY REPORT ON "PROBABLE
IMPACT OF MINING ON MIGRATORY BIRD SPECIES
AND THEIR FLYWAY PASSAGE" AND SITE-SPECIFIC
TANGIBLE MITIGATIVE MEASURES FOR THE
PROTECTION OF MIGRATORY BIRDS AT PROPOSED
LIMESTONE MINES AT MAHUVA, BHAVNAGAR BY
NIRMA LTD., BHAVNAGAR**

REPORT SUBMITTED TO
NIRMA LTD., AHMEDABAD

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भारतीय वन्यजीव संस्थान
Wildlife Institute of India

**Review of the Study report on "Probable Impact of Mining on
Migratory Bird Species and their flyway passage" and site-
specific tangible mitigative measures for the protection of
migratory birds at proposed limestone mines at Mahuva,
Bhavnagar by Nirma Ltd., Bhavnagar**

Report Submitted to
Nirma Ltd., Ahmedabad

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Introduction

The Central Asian Flyway (CAF) is among the world's most critical migratory bird corridors, connecting breeding grounds in northern Eurasia with wintering sites in South Asia. Supporting over 600 bird species, the flyway includes wetlands, grasslands, and coastal ecosystems that serve as essential stopover, feeding, and breeding sites for migratory birds. These habitats, however, face increasing threats from human activities, including industrial expansion, habitat modification, and pollution.

Gujarat plays a pivotal role in the CAF, with its coastal wetlands and agricultural landscapes attracting numerous migratory and resident bird species. Nirma Ltd. has proposed limestone mining operations in Mahuva Tehsil, Gujarat covering three lease areas totalling over 1,600 hectares. This study assesses the potential impacts of limestone mining on migratory birds and their habitats, focusing on mitigation measures to ensure ecological sustainability while accommodating industrial needs.

Study Area

The study area includes the core zone of the mining lease and a 10-kilometer buffer zone. The core zone comprises 1,625.99 hectares of agricultural and wastelands, with no forest or protected areas. The buffer zone encompasses parts of the Nikol Malan Samadhiyala Bandhara, an Important Bird and Biodiversity Area (IBA) critical for globally threatened migratory species such as the Steppe Eagle, Common Pochard, and River Tern.

This region is a mosaic of wetlands, salinity ingress control bunds, agricultural lands, and coastal ecosystems that provide foraging and resting grounds for migratory waterbirds and terrestrial species. The interconnected drainage systems and seasonal water-logged areas further enhance the area's ecological significance.

Methodology

The study involved:

- Reviewing existing reports and field data, including Environmental Impact Assessments (CEMC 2023a, 2023b, 2023c) and avian surveys by Dr. Bharatkumar Jethva .
- Conducting field surveys from November 2024 to January 2025 during peak migratory periods, employing methods like total counts for waterbirds and point counts for landbirds.
- Documenting habitat features, potential threats, and the specific impacts of mining activities.

Bird observations were complemented by eBird data (2022–2024) and literature review, ensuring a comprehensive understanding of avifaunal diversity and its seasonal variations.

Key Findings

Buffer Zone

- Bird Diversity in and around Mining lease area: The region supports 276 bird species, including 124 migratory species. Eight species are globally threatened (e.g., Greater Spotted Eagle, Common Pochard), and ten are near-threatened (e.g., Ferruginous Duck, Black-tailed Godwit).
- Hotspots: Nikol Bandhara and Malan Bandhara are key habitats, recording 231 and 227 species, respectively. These wetlands support significant populations of species like Eurasian Wigeon and Eurasian Coot, with global conservation significance.
- Conservation Status: Thirty-eight species fall under Schedule I of the Wildlife Protection Act, 1972, offering them the highest legal protection in India. Several species are also listed in CMS Appendices, emphasizing their importance for international conservation efforts.

Mining Lease Area

- The proposed limestone mining lease area supports 31 migratory bird species. This includes globally threatened species like the Common Pochard and River Tern.
- Among these 31 species, five falls under Schedule I of the Wildlife Protection Act, 1972.

Potential Impacts of Mining

- Mining activities can lead to habitat loss, fragmentation, and pollution, negatively affecting migratory bird populations. Specific risks include:
- Degradation of wetlands and agricultural habitats.
- Disturbance from noise, light, and human activities.

Recommendations and Mitigation Measures

The recommendation provided in the report includes the following

General Recommendations

- Designate crucial waterbird habitats within the project area as no-disturbance zones, ensuring critical habitats remain unaffected.
- Restore degraded habitats through native vegetation planting and soil stabilization after mining
- Employ noise and air pollution control measures to reduce stress on birds.
- Implement shielded lighting to minimize light pollution, especially during migratory seasons.
- Promote eco-friendly livelihoods like birdwatching tourism to align community interests with conservation goals.
- Regular surveys to monitor migratory bird populations and their responses to conservation measures.

Site-Specific Strategies

- Padhiarka and Doliya Mining: Protect Samadhiyala Bandhara and surrounding mudflats.
- Vangar Madhiya Mining: Focus on maintaining water channel integrity and reducing artificial light impacts.
- Gujarada, Dudheri, Dudhala Mining: Avoid tree plantations in water-logged areas, and safeguard adjacent mudflats.
- No drilling & blasting shall be part of the mining methodology

Conclusion

The study underscores the avifaunal richness and global significance of the Mahuva region for migratory bird conservation. With the implementation of the proposed mitigation strategies and a collaborative approach involving stakeholders, it is possible to diminish the adverse impacts of limestone mining while conserving the region's biodiversity.