

Abstract Title:

Airport Bird/Wildlife Strike Hazard Mitigation Initiative in Nepal

Presenter:

MR. RAM MANI THAPALIYA

Researcher/ Program Coordinator

Airport Bird/wildlife Strike Hazard Assessment and Management Program

Capacity Building International Network Pvt. Ltd. (CBIN) *partner with*

Civil Aviation Authority of Nepal (CAA Nepal)

Abstract

Tribhuvan International Airport (TIA) situated in the middle of the country at an elevation of 4,390 feet in a valley surrounded by hills which was introduced as Gaucharan a first landing strip in Nepal in 1949 and declared international airport in 1964. TIA is situated on 085° 21'28" E longitude and 27° 41'50" N latitude. Bird strike was pronounced problem when a landfill started near TIA. The first bird strike incident took place in 1996 however Bird strike human fatality recorded in September 2012. Bird activities at TIA increased extremely during 2000 and caused 6 bird strikes from August to October 2000. Major Bird strike recorded 74 since 1996 till now at TIA.

The polluted rivers on either side of runway, un-scientific municipal solid waste management and emergence of earthworms near the runway and taxiways after monsoon rains in late summer are some of the bird attractants. Birds of prey such as kites, eagles, vultures are major bird types hazardous to aircraft operations at TIA of which major bird strike recorded in 1996 since SOPEJ / CBIN has been actively working in the field of wildlife hazard and environmental management Program at TIA and other airports of Nepal.

In respect of actual bird strikes to aircraft, TIA has adopting the requirement included in International Civil Aviation Organization (ICAO) essentially considered the Airport Habitat Management - grass and surface water including transient accumulations management, exclusion of roosting opportunities in buildings and trees within the airport perimeter. TIA is also proactive on-airport control systems - bird activity monitoring, bird deterrence methods, ATC alerting channels. However TIA lacking avian and wildlife radar to detect the birds in a cloudy, rainy or even in the dark hours around airport vicinity. According to ICAO definition of a 13km radius circle around the airport perimeter where bird attractants or related bird activity have the potential threat to the operational safety of aircraft, regrettably TIA is closed to the communities.

The selection of a balance of appropriate risk management methods will depend not only on the apparent effectiveness of deterrence of birds but often on an understanding of any particular reasons why given species are present in the airport vicinity therefore CBIN has made recommendation to CAA Nepal to carry out baseline bird survey at TIA and other two proposed International airports in Nepal. Presently, CAA Nepal is undertaking various program of action to mitigate the problems of birds/wildlife at TIA and other major airports in Nepal by developing integrated management plan with CBIN.

1. Nepal: A Glimpse

- 1.1. Land Locked
- 1.2. North - China
- 1.3. West, south, and east – India
- 1.4. Average length 885 Km (East – West) and average width 193 Km(North – South)
- 1.5. Cultural heritage (temples, stupas, durbar)
- 1.6. National heritage (flora and fauna)
- 1.7. Ecological region
 - 1.7.1. High Himalayas 4877m – 8848m
 - 1.7.2. Middle Mountain 610m – 4877m
 - 1.7.3. Terai 60m – 610m

2. Introduction

- 2.1. Gaucharan (Pasture Land) in Kathmandu used as the first landing strip in Nepal in 1949.
- 2.2. Situated on $085^{\circ} 21'28''$ E longitude and $27^{\circ} 41'50''$ N latitude
- 2.3. Declared international airport in 1964
- 2.4. Bird strike was pronounced problem when a landfill started near TIA in 2000



- 2.5. First bird strike incident took place in 1996 – Thai Airways
- 2.6. Bird strike human fatality recorded in September 2012 – Sita Dornier 601
- 2.7. More than 70 bird strike recorded at TIA since 1996
- 2.8. Bird activities at TIA increased extremely during 2000 and caused 6 bird strikes in a single month

3. Studies/workshops Made on Bird Strike situation at TIA

- 3.1. Bird strike hazards associated with landfill sites in the Kathmandu valley and bird strike prevention recommendation, 1995.
- 3.2. Solid waste management in Nepal, report on fact-finding mission, 1996.
- 3.3. Study on bird strike risks at TIA, Nepal, 1998

- 3.4. Workshop on bird strike prevention and an assessment of wildlife hazard management program at TIA, 2001
- 3.5. Baseline bird study at TIA, Pokhara Airport and Bhairawa Airport 2016 to being started soon.

4. TIA Environment

- 4.1. Open slaughterhouses in the market near TIA
- 4.2. Garbage and unmanaged solid waste near TIA.
- 4.3. Rivers close to TIA (Manohara and Bagmati) are very polluted and it attracts many birds.
- 4.4. Jungle area within 1 – 3 Km from TIA



Field near TIA causes in the rising of insects and earthworms which eventually attracts birds.



5. Bird Species

5.1. Total bird species in Nepal – 879

5.2. Total bird species at TIA– 39

5.3. Major threatened birds at TIA

5.3.1. Black Kite (*Milvus migrans*)



5.3.2. House Crow (*Corvus splendens*)

5.3.3. Steppe Eagle (*Aquila nipalensis*)

5.3.4. Red-Headed Vulture (*Sarcogyps calvus*)

5.3.5. Egyptian Vulture (*Neophron percnopterus*)

6. Other Wild Life Hazard at TIA



6.1. Monkey

6.2. Dog

6.3. Cow

- 6.4. Buffalo
- 6.5. Rat
- 6.6. Rodent
- 6.7. Earthworm
- 6.8. Cat



7. Measures Taken for the Control of Bird Activities at TIA since 2001

- 7.1. Sweeping of runway and taxiway surfaces
- 7.2. An inspection by soil and insecticide expert in the airport
- 7.3. Spraying of Benomyl
- 7.4. Cleaning the runway and blowing the siren to drive birds away
- 7.5. Use of professional shooters
- 7.6. Insurance of NOTAM
- 7.7. Closure of Aerodrome
- 7.8. Removal of unauthorized food vendors from airport premises
- 7.9. Issue of Directives to Airline Companies
- 6.10 Advice from ACI-Asia Region
- 6.11 Acquisition and installation of bird dispersal devices
- 6.12 Formation of a high level "Airport Bird Control and Reduction Committee"
- 6.13 Falconry program (proposed)
- 6.14 Wildlife and avian radar (proposed)

8. Program conducted by CBIN/SOPEJ *in association with* CAA Nepal

- 8.1. Rally
- 8.2. Poster
- 8.3. Organic Composting Demonstration
- 8.4. Student mobilization & motivation Women empowerment Program
- 8.5. Conduct Cleaning movement



8.6. National Consultation Meeting (NCM)



8.7. Cleaning environmental sanitation campaign on polluted Bagmati river surrounding TIA - Active participation of government of Nepal, Nepal Military, Nepal Police, scout, tourism industry, local community, students, and metropolitan city. Perhaps a big environmental sanitation and anti-pollution campaign in the world.





9. Future Plans of CAA Nepal

9.1.Short-term Plan

- 9.1.1. Continue the present control measure
- 9.1.2. Staff and equip TIA Bird Control Unit sufficiently
- 9.1.3. Provide sufficient logistic support to TIA Bird Control Unit
- 9.1.4. Conduct a long-term study to gather information about behavior, species, number and migratory patterns of birds at TIA
- 9.1.5. Carry out the study of waste and garbage disposal that attract wildlife that affect environment of TIA.
- 9.1.6. Identify and use environmentally safe chemical to prevent insects and earthworms near runway and taxiway

9.2.Mid-term Plan

- 9.2.1. TIA should continue the effective measures taken in short term.
- 9.2.2. Discover new methods for discouraging birds from airport.
- 9.2.3. Implement Bird Control Program based upon findings of bird and environmental studies.
- 9.2.4. Keep the record of bird strike and analyze for future planning.
- 9.2.5. Conduct awareness program for people living in the surrounding area of the airport about the connection between bird strike and environmental sanitation.
- 9.2.6. Develop policies and rules suitable to implement airport zoning with reference to bird control.

9.3.Long-term Plan

- 9.3.1. Implement all aspects of the Bird Control Program
- 9.3.2. Keep airport and its environment clean to minimize the attractiveness of airport to birds
- 9.3.3. Evaluate mid-term plan and correct the shortcomings.
- 9.3.4. Make a continuous study to develop the best combination of controlling measures

Conclusion and Recommendation

CAA Nepal has been adopting reliable measures techniques to disperse the birds visiting the airport however following recommendation has been made.

1. CAA Nepal should continue 'Garbage and for Waste Control' program which was one of the major conclusions of study of Dr. Richard A. Dolbeer submitted to CAAN in 2001.
2. CAA Nepal should consider having avian and wildlife radar to detect the birds in a cloudy, rainy or even in the dark hours within and around airport vicinity.
3. CAA Nepal should consider to adopt proposed Falconry program as soon as possible.
4. CAA Nepal should consider having avian and wildlife radar to detect the birds in a cloudy, rainy or even in the dark hours within and around airport vicinity.
5. CAA Nepal should consider having bird/wildlife study in the major airports of Nepal not only to understand the apparent of bird//wildlife but also understand the particular reasons why given species are present.
6. CAA Nepal should select the appropriate program of action to mitigate the problems of birds/wildlife by developing integrated management plan with CBIN.

References

Richard A. Dolbeer, B. K. (2001). 2001 Bird Strike Committee-USA/Canada, Third Joint Annual Meeting, Calgary.
D.C.L. Karn (2014) Regional Workshop on Airport wildlife hazard management program at TIA, 2014, Kathmandu