

ASSEMBLY – 35TH SESSION

EXECUTIVE COMMITTEE

Agenda Item 16: Improvement of safety oversight

AVIATION SAFETY IN NEPAL

(Presented by Nepal)

INFORMATION PAPER

SUMMARY

Nepal is making concerted efforts for ensuring safe, secured and efficient air transport system. In order to achieve the ICAO's goal of minimizing accidents and enhancing flight safety, a change in approach seems necessary. The introduction of air safety related equipment and strategies need to be tailored for Nepalese context.

1. INTRODUCTION

This paper seeks to present an overview of aviation safety in Nepal and the unique challenges being faced owing to its difficult topography. Nepal has two-third of its landmass covered by mountains where about 60 percent of its airports are located. Some of the airports are in the remote mountainous area where the reach of road infrastructure still seems to be rather far in the future. Consequentially, air travel continues to be the sole means of access to these places. Over the last fifty years, His Majesty's Government of Nepal has made significant investments with considerable assistance from donor nations, in the field of aviation infrastructure. This infrastructure continues to serve the purpose envisaged by the planners. Opening of the "skies" in early 1990s witnessed a boom in air travel as private operators moved in a territory that hitherto had been the domain of a state carrier. The benefits accruing from this, to the public, have not been without some accompanying glitches like inadequate quality of service. The Civil Aviation Authority of Nepal (CAAN), mandated by law, has been actively pursuing its objectives of ensuring safe, reliable and efficient air transportation in Nepal.

2. AIR TRANSPORT GROWTH AFTER LIBERALIZATION

Nepal adopted the liberal sky policy in 1992 to provide a healthy and competitive environment for the development of airline industry in a paradigm shift from an environment that for decades had been dominated by the state carrier. The fact that the volume of traffic, both passenger and aircraft movement rose significantly within twelve years (1991 to 2003), clearly vindicates the motive behind this liberalization. As of 2003, there are 16 airlines providing services to various parts of country.

Apart from fixed wing operators, the induction of rotary wing aircraft in transportation has been a boon in extending services to remote reaches of Nepal, where the development of infrastructure for fixed wing operations is still a formidable task. The table below illustrates the growth of domestic air traffic at Tribhuvan International Airport (TIA).

Category	Year	
	1991	2003
Aircraft movement	11,811	53,140
Cargo movement (ton)	326	3,122
Passenger movement (number of passenger)	2,15,957	7,89,065
Aircraft fleet	21	53

3. NEPAL'S STATUS ON IUSOAP

Pursuant to Assembly Resolution A32-11, and in accordance with the updated MOU on 6 September 1999, ICAO Universal Safety Oversight Audit Programme, (USOAP) audit for Nepal was carried out in 1999 and based on its findings an immediate corrective action plan was formulated, demonstrating Nepal's commitment towards ensuring safety. The remedial steps by CAAN resulted in:

- Significant increase in the number of safety inspectors for improved surveillance
- Appointment of an appropriate aviation medical consultant
- Fully updated technical library
- Appropriate modification of the NCAR and the Flight Operations Inspector's Manual
- Recruitment of expertise for helicopter and Boeing operations.

Follow up audit in the year 2002, showed that the progress in addressing the above concerns was indeed satisfactory as majority of the findings are now closed. In particular, as compared to 28.45% for the global aggregate of the lack of effective implementation of findings, Nepal was compared favourably with an aggregate of 17.53% for the 1999 audit, which fell to 5.68% after the follow up audit in 2002. However, issues like organization structure and adequate number of qualified technical personnel still require further improvement and are being actively worked out.

4. AIRLINE'S REGULATORY AUDIT

The airline safety audits being conducted by the CAAN since 2001 have unveiled deficiencies, especially in the areas of flight operations, manpower training, and documentation. The increasing number of air operators has also necessitated a corresponding increase in the number of audits being carried out. The auditing process usually involves:

- Initial Certification – Prior to issuing air operator certificate
- Routine Surveillance – Auditing to ensure systematic conformance with current regulatory standards and their approval document
- Special Purpose audit – Audit depending operational circumstances.

Suitably timed follow-ups after audits are also carried out to ensure proper remedial actions. These audits have been helpful in appreciating the importance of industry standards like Crew Resource Management (CRM), Safety Management System (SMS) and Flight Operation Qualify Assurance (FOQA) for proactively improving safety. The remediation of the audit findings from the audits has been satisfactory.

5. CO-OPERATION WITH COSCAP-SA

Under the auspices of the ICAO, the Co-operative Development of Operational Safety and Continuing Airworthiness Project - South Asia (COSCAP-SA) office was established in Nepal in 1998 in order to overcome deficiencies in the flight safety oversight capabilities of participating States. In line with its establishment objectives of providing a regional core of highly qualified flight operations and airworthiness inspectors, the COSCAP-SA has been organizing and conducting various trainings and seminars in Nepal. Apart from producing guidance materials and manuals for use by airworthiness and flight operations inspectors, it has also provided invaluable assistance in conducting safety audits and control of bird strike problems at Tribhuvan International Airport, Kathmandu. Some of the trainings conducted by COSCAP-SA in the past four years include:

- CFIT abatement
- JAA flight crew licensing
- Safe Transportation of dangerous goods
- Crew Resources Management - Train the trainers
- Safety Management Systems
- Approach and landing accident reduction (ALAR)
- Flight operations inspection
- Airworthiness Surveillance.

The direct benefits of these trainings include a better appreciation of the importance of safety culture in airline companies. Also, the participation of a larger number of industry manpower in these trainings (held locally at a nominal cost) has been a major achievement.

6. AIRCRAFT ACCIDENT REDUCTION AND SAFETY ENHANCEMENT

In 1998, the erstwhile Department of Civil Aviation transformed into Civil Aviation Authority of Nepal, an autonomous body responsible for the development and regulation of civil aviation. The CAAN is in the process of proactively implementing globally accepted strategies like FOQA, CRM and the SMS for improving air safety. It can be stated with satisfaction that despite increasing volume of traffic, the accident and fatality rates in Nepal have been negligible.

CFIT abatement: On account of Nepal's mountainous terrain where most of the airports are located, along with unpredictable weather, controlled flight into terrain (CFIT) continues to be the major cause of air accidents. In a short flight leg of about 25 NM, the aircraft over flies a terrain ranging from 200m MSL to 4000 m MSL. The topography does not allow for IFR flights to remote airports and all the flights are conducted under VFR procedures. Despite ICAO requirements, GPWS equipage has not proved to be of much use as the excessive number of nuisance alerts detracts from the expected benefits from its installation. The category of STOL capable aircraft being used in domestic operations are not of recent design and a study is underway at Honeywell for examining the feasibility of effectively using EGPWS in the existing aircraft. The fact that more than 65% of the air accidents in Nepal have been attributed to CFIT in the past decade is a stark reminder of the seriousness of the situation.

In line with the ICAO requirements on the mandatory installation of predictive terrain hazard warning system in suitable category aircraft, the CAAN has mandated the installation of EGPWS on applicable aircraft. Nepal is also planning to establish a CVR/FDR readout facility so that incident/accident investigation can be conducted expeditiously.

However, CAAN is also aware of the fact that company culture has a great bearing on flight safety. Ensuring the continued existence of a safe company culture is major challenge in the implementation of effective safety oversight.

Precision Approach: Nepal's only international airport in Kathmandu has a VOR/DME non-precision approach. Further, the terrain underlying the approach path to Kathmandu airport has resulted in the implementation of a "step down" approach. However, most of the international carriers flying into Nepal do not seem to be comfortable with the existing non-precision approach and prefer to confine flight operations during daytime. This results in an uneven distribution of traffic density, even though the airport is fully equipped for night operations. Studies in the past have indicated that the installation of ILS is not feasible due to the terrain limitations. Therefore, a suitable GNSS based precision approach seems necessary.

CRM induction: There is a growing realization about the significance of crew resource management in ensuring safety within the Nepalese aviation industry, especially airline operators. In fact, in a majority of air accidents, human factors have been indicated as a contributory cause. The CAAN has been encouraging airlines to actively participate in the CRM trainings/workshops being organized by the COSCAP-SA and CAAN. This has undoubtedly assisted airline operators in appreciating the benefits of developing systematic CRM programs to be employed as a part of company indoctrination. The inclusion of top level airline management in the CRM and SMS trainings being conducted by COSCAP-SA and CAAN has been fruitful in achieving both vertical as well as horizontal dissemination of this important concept. Nepal agrees that CRM must be expanded into company resource management and safety must be accepted as a value rather than a priority that can change with circumstances.

7. COOPERATION REQUIRED FROM ICAO

In the absence of adequately trained in-house manpower in Nepal, achieving higher air safety standards can only be realized by regular availability of suitable training, with some ICAO member States having truly established enviable safety records, seeking appropriate assistance from them is not unreasonable. However, in some areas, country-specific technical assistance will yield more tangible benefits to participating States than generalized training.

It will be appropriate for ICAO to urge member countries with the necessary expertise to actively devote resources for research and development for specifically addressing the unique CFIT concerns in countries like Nepal.

Nepal appreciates the assistance in the following areas:

- CRM- There is a growing realization within CAAN that short-term trainings by experts to aircrew are proving to be insufficient, as the expected benefits don't seem to effectively trickle down to the workplace. We need experts to assist us in ensuring that the letter and spirit of CRM gets truly reflected in day-to-day line operations.

- GNSS based precision approach capability needs to be implemented with priority. ICAO needs to expedite the formulation of suitable standards for such a system. Meanwhile, ICAO assistance in the immediate implementation of Constant Angle Non-precision Approach (CANPA) to Kathmandu airport for FMS equipped aircraft will also help in reducing cockpit workload during approaches making it more friendly to pilots.
- Research and study with ICAO's initiative to identify aircraft equipment and instruments suitable for safe STOL operations.
- ICAO has mandated Flight Data Analysis and its use in prevention of air accidents. ICAO assistance in this field is required as the software and hardware for the facility may be beyond the resources of airlines/CAAN.

8. CONCLUSION

The CAAN has been actively pursuing its mandate of ensuring a safe, efficient and reliable air transportation in Nepal, despite the limitations of a typical third world country lacking adequate resources. In line with the ICAO objectives, and in active cooperation with ICAO and COSCAP-SA, CAAN is striving to ensure that air travel continues to be the safest means of transportation despite continuously increasing volume of air traffic. It can therefore be stated with confidence that addressing some specific areas with ICAO active assistance will ensure a still higher level of air safety.

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